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THE AFGHANISTAN MINISTRY OF AGRICULTURE, ANIMAL HUSBANDRY AND FOOD MASTER PLAN

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Minister of Agriculture, May 1 2006
RAMP**

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ABBREVIATIONS:

ACTRAV	(ILO) Bureau for Worker Activities
ADAS	Agricultural Development & Advisory Service
AHDP	Animal Health Development Program
AIA	Afghan Interim Authority
AKDN	Agha Khan Development Network
APABU	Association of Agro Economic Procedures – Uruguay
ARATTS	Agriculture Research & Technology Transfer Systems
ARIA	ACBAR Resource & Information Center
AVA	Afghan Veterinary Association
BSE	Bovine Spongiform Encephaly
CAC	Codex Alimentarius Commission
CBA	Collective Bargaining Agreement
CIMMYT	Center for Maize and Wheat Improvement
CIP	Canadian International Policy
CLI	Crop Life International
CNTC	Confederacion Nacional de Trabajadores del Campo, Chile
COLSIBA	Coordination of Latin American Banana Worker Unions
CONTAG	Confederacion Nacional dos Tabalhadores na Agricultura, Brazil
CSD	UN Commission for Sustainable Development
CSO	Civil Society Organizations
DCA	Dutch Committee for Afghanistan
DFID	UK Department for International Development
DVM	Doctor of Veterinary Medicine
ESAF	UN-FAO Food Security and Agriculture Project Analysis Unit
ETI	Ethical Trading Initiative
ETUC	European Trade Union Confederation
EurepGAP	Euro-Retail Produce Working Group
FAO	United Nations Food and Agriculture Organization
FIAN	Food First Information and Action Network
FLO	Fair Trade Labeling Organization
FMD	Foot and Mouth Disease
GAWU	General Agriculture Workers Union, Ghana
GDP	Gross Domestic Product
GIF	Global Integrated Pest Management Facility
GMP	Good Management Practices
GNP	Gross National Product
GoA	Government of Afghanistan
GTZ	Deutsche Gesellschaft fur Technische Zusammenarbeit
GUF	Global Union Federation
HACCP	Hazard Analysis & Critical Control Point
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
HSC	Horticulture Steering Committee
HSE	Health and Safety Executive
HVH	High Value Horticulture
ICARDA	International Center for Agriculture Research in the Dry Areas
ICC	International Code of Conduct
ICFTU	International Confederation of Free Trade Unions
ICRISAT	International Crop Research Institute for the Semi-Arid Tropics
IDP	Internally Displaced Person
IFAD	UN International Fund for Agricultural Development
IFC	International Flower Coordination
IFCS	International Forum on Chemical Safety
IFPRI	International Food Policy Research Institute
ILC	International Land Coalition
ILO	UN International Labor Organization
IPEC	UN-ILO International Program on the Elimination of Child Labor
IPPM	Integrated Production and Pest Management
IRR	Internal Rate of Return

ISO	International Standardization Organization
ISSA	International Social Security Association
JICA	Japan International Cooperation Agency
KOMMUNAL	Swedish Public Workers Union
KPAWO	Kenya Plantation and Agricultural Workers Union
LEAS	Labor Environmental Society, Canada
MAAHF	Ministry of Agriculture, Animal Husbandry and Food
MADERA	Mission d'Aide au Developpement des Economies Rurales en Afghanistan
MCI	Mild Cognitive Impairment
MNE	Multinational Enterprise
MoPH	Ministry of Public Health
NDF	National Development Framework
NGO	Non-Governmental Organization
NPV	Net Present Value
NRI	Natural Resources Institute
NUCMAW	National Union of Cooperative Movements and Allied Workers
OECD	Organization for Economic Cooperation and Development
OHSE	Occupational Health, Safety and Environment
OIE	Office International des Epizooties
OTF	On The Frontier
PAN	Pesticides Action Network
PA	Protected Area
PBKMS	Paschim Banga Khet Majoor Samity, India
PIC	Prior Informed Consent
PRB	Pamir Reconstruction Bureau
PRR	Priority Restructuring and Reforms
RAMP	Rebuilding Agricultural Markets Program
RWO	Rural Worker's Organization
SARD	Sustainable Agriculture and Rural Development
SD	Sustainable Development
SEWA	Self-Employed Women's Association
TA	Technical Assistance
TAD	Trans-Boundary Diseases
TNC	Transnational Corporation
TQM	Total Quality Management
UK	United Kingdom
UN	United Nations
UNCED	UN Conference on Environment and Development
UNDP	UN Development Program
UNEP	UN Environment Program
USAID	United States Agency for International Development
USARC	United States Army Reserve Command
VAT	Value Added Tax
VFU	Veterinary Field Unit
WCL	World Confederation of Labor
WFS	World Food Summit
WFTU	World Federation of Trade Unions
WHO	UN World Health Organization
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization

EXECUTIVE SUMMARY

1. Overview

This Master Plan is designed to provide a 6 percent overall growth rate in the agricultural sector. At this growth rate, agricultural incomes will double in about 12 years. The pattern of growth that is recommended within this document should result in no change or slight improvement in the distribution of rural income because of the strong income and employment multipliers to the rural non-farm sector. As a result, total rural income will also double. If the urban sector absorbs all the rural population growth then rural per capita income doubles in that period. These seem unlikely with current, by world standards, very high rates of population growth. These figures were arrived at through rough extrapolation from the individual chapters, but represent a reasonable estimate.

Perhaps less than half the total investment plan is oriented directly towards the growth objective of six percent. Since substantial investments in physical infrastructure rehabilitation and human capital development fall outside this Master Plan, a sum equal to half of the total investment is needed for this growth if it is carefully prioritized and allocated to the highest growth elements of the strategy.

Other investments indicated in this plan are also a high priority. For example there is a huge investment in reforestation – which is important to the entire country as well as agriculture. It is probably necessary to make the agricultural growth sustainable. This would also apply to the large investment in emergency food stocks in the allocations to direct poverty oriented programs. The benefits are quite different to those from the growth included in the above numbers.

2. Background

The Master Plan was generated through an inclusive and highly participatory process of large and small meetings at the national and provincial levels. Large committees of Afghans and expatriates worked together to draft the individual chapters according to their areas of expertise. The expatriates provided input that reflects the product of substantial foreign aid. The strength of the Master Plan lies in the richly detailed chapters, which provide the perspective and points of departure for the implementation strategies that will come with project preparation

This process led to considerable heterogeneity in the presentation, a flavor that is maintained in the text and this executive summary. Nevertheless a few priorities come through clearly. They are consistent with the priority to food security, horticulture and livestock that have already been well-stated by the MAAHF.

The investment plan presented totals \$1,384 million for the next five years. However, if some activities are double counted (e.g. same extension facilities counted in more than one budget), the Banking system capital, and irrigation investment (as in another Ministry) then the figure could drop to \$1094 million or \$218 million per year.

This figure anticipates the rapid achievement of certain priority objectives that have garnered general approval. Such vast sums may not be forthcoming in this time frame and they will have to be further stretched (e.g. reforestation.) This budget also includes large sums for functions that are the responsibility of national governments (e.g. emergency food reserves) that are currently provided by international institutions (e.g. WFP). If these budget are reduced, the anticipated results may be delayed. For example, the investment for horticulture is very large, but the immensity of what is to be achieved and the sheer size of the sectors growth may argue for keeping those expenditures. It was not for the Master Plan participants to make those decisions. In other cases, detail was left for project analysis at such time as the efforts are undertaken.

Finally, the development of an integrated Plan for MAAHF must follow this document. The MAAHF development budget items are largely contained in the individual chapters, but they are yet to be pulled together into an integrated investment plan for MAAHF as an entity. Much of the MAAHF development budget is likely to come from projects organized according to commodity or functional priorities rather than the MAAHF.

The Master Plan succeeds the 2004 Policy and Strategy Framework. In the dynamic Afghan economy much has changed. Afghan knowledge and skills are expanding. This leads to considerable nuance in how this Master Plan addresses the agricultural issues confronting Afghanistan today. The role of MAAHF in achieving these priorities has been carefully elaborated.

3. The Multiple Roles of Agriculture

Agriculture dominates the Afghan economy and society. Economic development is a process of transforming the economy from predominantly agricultural to manufacturing and services. However, because of the current resource base and its impact on comparative advantage, the manufacturing and service sector will be heavily dependent on agriculture. Even as the importance of agriculture declines with economic growth, agriculture will increase immensely in absolute size and be the basic engine for the transformation of the economy and even more so for poverty reduction and poppy eradication. The Master Plan provides a road map for accelerating this engine and the consequent transformation of the economy.

3.1 Food Security

In a low-income country, food security is uppermost in the minds of Afghans and their government. As development occurs, agriculture produces food and the income for purchasing food and allows specialization in commodities best suited to the natural resource base. Afghanistan needs to produce food staples utilizing less arable land so that more of this land can be devoted to high value commodities that further other objectives.

National production needs are articulated in the Food Security chapter which also delineates policies for dealing with emergencies that arise from weather and other obstructions to the upward trend in production. In the long run, the Master Plan is designed to achieve large enough increases in farm incomes, rural wages and

employment that food security is assured by adequate income even in depressed years.

Food security entails more than merely providing adequate calories. Malnutrition and micro-nutrient deficiencies are widespread in Afghanistan, especially among children. Between 45 and 55 percent of children under the age of five suffer from chronic malnutrition as indicated by height for weight statistics. The expansion of horticulture production results in an increased availability of needed nutrients and lower prices

3.2 Earning Foreign Exchange

Agriculture has always dominated Afghanistan's exports and will continue to do so into the foreseeable future. That is because of the abundance of natural resources ideally suited to producing high quality dried fruits and nuts as well as the proximity to large rapidly growing markets and a strong historical position in those markets. The Master Plan provides detail on the massive investments and institution building needed to expand the potential. Dried fruit and nut exports are envisaged as reaching \$1 billion annually within ten years.

3.3 Poverty Reduction

The rural regions of Afghanistan are home to the bulk of the poor. This means that they earn less than \$1 per day despite the infusion of money from poppy production in some of these areas. The poor are not those who produce the bulk of agricultural output – the poor are largely in the rural non-farm sector. Farmers produce most of the output and are not poor by the standards of their community. They have income from their labor and from land. The poor are those who are largely dependent on labor alone for income.

There are many families with plots of land so small that they provide neither sufficient income or of employment. Those people, often classified as farmers, are part of the rural non-farm population. Thus, a massive increase in employment in the rural non-farm sector is needed. However, the goods and services in the rural non-farm sector are mostly produced for the local market. For reasons of quality and transportation costs, the produce is not exported to other countries. If they are to grow, farm incomes must rise to provide the income to drive those sectors.

With the rapid growth of farm incomes, market towns become vibrant places. Poverty and underemployment are alleviated. Rising farm incomes and increased demand for agricultural production drive the rural non-farm sector and efforts to grow that sector without these factors simply transfers income amongst the poor. Thus, the Master Plan emphasizes activities that rapidly increase farm incomes, stimulate employment opportunities and increase wages. Efforts to broaden participation in these effective activities are an important part of the Master Plan. While those processes are at work, special attention is given by the Master Plan to various aspects of food security for the poor and to address programs that raise the incomes of the poor and of poor resource areas.

3.4 Improved Income and Status of Women

Closely associated with the issue of poverty is the status of rural women. The Master Plan gives high priority to intensive livestock development, an area already dominated by women on the production side. The opportunity is there to engage women in marketing livestock products, particularly dairy products and thereby increase their control of income. The horticulture priority also offers opportunity to bring women into active participation in production and marketing. However, for those efforts to work, provision of services must be made sensitive to past tendencies to exclude women from participation and to exclude them from the income raising potentials of improved technology. Large numbers of women must be trained as agents in the extension program, especially in the livestock and horticulture areas.

3.5 Alternatives to Poppy Production

Poppies bring approximately \$600 million of annual income to farmers. Poppy farmers are estimated to spend \$300 million of that in the rural non-farm sector. Perennial horticulture (fruits, nuts and vines) generate about half as much net income per hectare as poppies. The areas on which these high value commodities are grown can be greatly expanded. Yields on existing areas can be greatly increased.

The emphasis on large scale expansion of rural credit discussed below and in the rural finance chapter is vital in the context of losing poppies as a major source of finance for the rest of the farming operation.

The comprehensive horticulture plan in combination with other elements of the Master Plan offers the potential to not only replace poppy income but to go beyond that to begin addressing the problem of reducing poverty. Farmers may feel wealthier from the gradual maturing of tree and vine plantings, but the economic benefits to the rural non-farm population will not be immediate. Thus, it is essential that expenditures on labor-intensive rural infrastructure be initiated. That of course rehabilitates rural roads and irrigation systems that are essential to continued growth.

3.6 Agriculture Dominated by the Private Sector

Most private sector entrepreneurs in Afghanistan are farmers. This totals approximately one million businesses counting only those who have enough land to be seen as not subsistence but commercial. Most of the industrial sector is agricultural input and processing that provides services to farmers and non-farm business. These private entrepreneurs are vigorous, adaptable people.

The Master Plan is dedicated to prioritizing the public services needed to fully mobilize these private sector potentials. It guards against subsidies to public provision of any goods and services that the private sector can provide. It specifies rules and regulations that can foster private sector growth, especially in exports. However, at this stage of rehabilitation and development, the private sector requires critical government services if they are to compete on international markets. Some of these services are purely temporary, many of which are provided by foreign assistance and envisioned being outside of government institutions and scheduled to disappear when no longer needed. Although many will be needed well into the future.

Toward this end, the Master Plan calls for large-scale institution building and investment to provide those services to facilitate the private sector. Because financial, human and institutional resources are so scarce, the Master Plan is prioritizes these services.

4. Organization by Commodity Priorities

Farmers produce and market specific commodities, marketing institutions are commodity specific, and many of the supporting systems are commodity specific. Hence, the Master Plan commences with chapters that deal with priority commodity groups and states priority commodities within those as well. From a growth perspective, importance is a function of the base weight and the growth rate. Afghanistan is fortunate to have an initial high base weight in commodity groups that have potential for very high growth rates. As a result the overall growth rate can be high as well. Cereals have the largest base weight, but in the short run can hardly grow at 4 percent and area and the growth rate will gradually decline (table 1.)

Table 1. Commodity Sources of Growth

Excluding Poppies, Notional for 2004 (All figures are percents)
(data are rough estimates, see text)

Commodity Set	Base Weight (Value added)	Growth Rate	Share of Growth
Cereals/Misc.	40	4	29
Perennial Horticulture	18	8	27
Intensive Livestock	15	6	17
Irrigated Fodder	9	6	10
Annual Horticulture	5	8	7
Cotton	2	15	5
Range Livestock	10	2	4
Forestry	1	2	1
Total/Weighted Ave.	100	5.4	100

Source: Constructed from current FAO, MAAHF and 1970's World Bank data.

In contrast to cereals, while perennial horticulture has a smaller base weight (still large compared to other countries of comparable income) but good potential for a high growth rate because of export possibilities. For these reasons, the Master Plan calls for a larger than 8 percent growth rate for horticulture. Horticulture ranks high in its share of incremental growth. Intensive livestock with associated irrigated fodder also ranks high, but its full potentials may be delayed until domestic income increases along with demand.

4.1 Horticulture

Over 600,000 farmers produce horticultural products in Afghanistan. In the prewar period Afghanistan provided 20 percent of the global market for raisins and dominated pistachio markets. The comparative advantage of Afghanistan in horticulture and particularly dried fruits and nuts is clear. The characteristics of horticultural development illustrate many features common to other sub-sectors of

the agricultural economy. Therefore, horticulture is treated at great length in this summary.

The Master Plan has a grand vision for the horticulture sector. Since specialization is critical to success, it specifically targets seven of the myriad of horticultural products that grow well in Afghanistan. It requires a ten-year time horizon because of the time required to bring fruit trees into bearing. In that time period, \$600 million of private investment, \$900 million of public investment and nearly \$500 million of working capital from exporters is called for along with large additional sums in credit to farmers.

In return for these large investments exports would increase from a little over \$100 million per year to nearly \$1 billion; government revenues would accumulate over the period to \$264 million and the net present value (NPV) of accumulated net income would total \$1 billion.

Afghanistan has several market advantages. Its products are rated #1 in quality in the nearby Indian market. India now has a population component of more than 300 million people who are already prosperous and doubling their incomes every 8 years. That number of prospering people will grow immensely along with other markets there. It is the immediate export potentials that make horticulture the driving force of commercializing Afghan agriculture, displacement of poppies, and decreasing rural poverty.

However, the Master Plan is clear in stating that this will not happen automatically. Massive investment is required, critical institutions must be built rapidly and Afghan personnel must rise to the occasion, because extensive technical assistance will be necessary.

The Master Plan lays out a comprehensive extension program for conveying the means of improving yields to farmers and a program for nearly doubling the amount of area under cultivation. With the slow start of rural credit systems, the decapitalization of rural areas arising from decades of destruction, and the natural caution of farmers about long term investment, matching grants will be made for planting. This methodology was utilized in the extraordinarily successful growth of the smallholder oil palm industry in Malaysia. These grants are for capital investment and are easily phased out. The total plan set forth is essential if a rapid growth rate is to be achieved. Grants sharply increase the return of investment to the owner and therefore accelerate the rate of expansion and returns. A social return to such grants is easily calculated with assumptions about the acceleration in growth.

The agribusiness sector is particularly large for export-oriented horticulture. The Master Plan sets forth a program of investment by both the private and public sectors for this sector. A program for the provision of credit to these businesses is set forth with suggested means of providing that credit. But also see the chapter on rural finance. There is a plan for direct financial assistance to kick-start the export firms just as for farms. Large temporary technical assistance to the sector is called for, including developing trade associations that will eventually manage without outside assistance. Thus, these elements of the effort are not built into the Government's institutional structure.

The large size of the agri-business sector and the major role of exports as an outlet for incremental production require major efforts by the Ministry of Commerce. The Master Plan lays out these needs and notes the need for close cooperation between the Ministry of Commerce and MAAHF in order to complete improvement of the full supply chain.

The horticulture sector will test the commitment of the government and donors to facilitating rapid, highly profitable expansion of farm income in the context of large investments both public and private.

4.2 Livestock

Livestock are initially more important in income generation than horticulture, including recovery still underway from recent declines. Because the demand is much more dependent on the domestic market, it will take a few more years for domestic demand achieve steady growth at a rate that will permit a six percent increase in livestock production (Table 1.) A small proportion of livestock products is exportable and therefore can grow ahead of domestic demand, but even those will be complex to recover. In the near future, livestock will be a major source of growth in farm incomes and stimulus to the rural non-farm economy. That is reinforced by the potential to displace the bulk of current large imports of livestock and livestock products.

The Master Plan provides a large allocation of institution building and investment to the livestock sector. It also distinguishes the extensive from the intensive types of livestock production

4.2.1 Extensive Livestock Production

Extensive livestock production occurs over vast areas of the country and includes a large population of nomadic herders. The Master Plan is clear that there are significant income problems among these peoples. They have a large impact on watershed management, which is in turn vital to the irrigated agriculture. There are also important issues concerning the management of community grazing lands and the conversion of substantial tracts of land to arable agriculture that may be of questionable economic merit. Approaches to these issues are set forth.

While the potential for growth in the range livestock sector is low, the sector is very important to the fast growth irrigated sector because of watershed development which receives intensive treatment in the Master Plan under rangeland and watershed management.

The Master Plan recognizes that by providing stock for fattening, extensive grazing is complimentary to intensive livestock production, as is the importance of sound watershed management.

Changes have occurred in traditional rights to grazing lands that have a large impact on the incomes of pastoral people, on watershed management and preservation of natural resources. Many pastoralists have severe income problems. In response to these problems, the Master Plan places emphasis on community management of grazing lands and reestablishment of traditional rights to these lands.

Substantial technical assistance will be needed for efforts such as continuing the privatization of veterinary services and for improving animal health at the epidemic level.

4.2.2 Intensive Livestock Production

Substantive incremental growth to income as well as of employment can occur in the intensive livestock sector. This sector will eventually need major efforts to improve the nutritional status of animals, including a large increase in the area planted with high value fodder crops and development of private sector feed mills selling to families with small numbers of stock. The chapter on horticulture notes the desirability of interplanting young orchards with alfalfa, Egyptian clover and other legumes for animal consumption. Income from high value fodder crops can be several times that of traditional field crops under conditions of strong demand and improved cropping practices. The livestock chapter states how this would be accomplished. Thus, there is complementarity between horticulture and livestock sectors.

There is a particularly large scope for increasing incomes and empowering women in this sector. Women already provide most of the labor and the management in livestock. They dominate marketing to a markedly lesser extent. This sector also lends itself to micro finance programs. By focusing efforts on loans to women for working capital and purchasing animals along with assistance in taking greater control of marketing, rapid progress can be made.

Agribusiness expansion is needed for meat and milk processing as well as the provision of high quality mixed feeds for intensive livestock production. That, as in the case of horticulture, will require substantial assistance to the private sector in building trade associations, assisting in legislative improvements and in access to credit as well as education about best practices in other countries through business exchanges.

In this Master Plan, assistance programs are budgeted to assist with business privatization and to support private enterprises that farmers and herders will pay for, such as veterinary services. This is seen as a complex transition. In many areas, the shift to private practices is well along and in other areas it may take considerable time to make the transition. Special concern is given to ensuring that low-income livestock producers receive veterinary services during the transition to privatization of those services. There will be continuing need to assist private feed mills with information on optimal feed mixes, taking advantage of changing availability of feedstuffs

Research laboratories are needed to address the most effective feed systems and interaction with the crop farming system. Large expansion of extension is called for connecting with farmers and becoming a bottom-up operation responding to farmers needs.

4.3 Cereals and Food Security

The Master Plan cites three aspects of food security requiring funding. It allocates \$250 million to various aspects of producing food staples and related aspects of raising farmer incomes. That includes \$135 million for irrigation rehabilitation. The

plan also calls for \$31 million for emergency and stabilizing programs and \$34 million for nutrition and safety net programs. The MAAHF would receive \$20 million for capacity building.

While these figures sound large, the amount allocated to irrigation is a modest share of the total irrigation investment required. The crop production figure includes large amounts of short term technical assistance while MAAHF capacity is being built. The safety net and nutrition elements must be regarded in the context of massive rural poverty, malnutrition and maternal and infant mortality rates.

With the importance of wheat and cereals to fragile national food security, increasing productivity is the first priority of the Master Plan. It is placed after horticulture and livestock in the list of Chapters to underline the emphasis of the Master Plan on achieving sustainable future prosperity in the rural sector and the vital role of the high value commodities will play in that future. But, in the short to intermediate term, the first priority is food security.

The Master Plan calls for a doubling of wheat yields, which will still leave yields well below those in more developed countries with similar production conditions. There is already effective technical assistance from the international agricultural research system (CGIAR) to this sector. That assistance must continue. The research chapter lays out a major program of farming system research of which wheat is the centerpiece.

5. Cross Cutting Priorities

The Master Plan emphasizes five priorities that crosscut all of the targeted commodities. These priorities will guide activities such as research and extension.

It is important to recognize that WTO rules allow large government expenditure in each of these areas (including rural infrastructure) and that competing countries provide large government investment in these areas, giving their farmers a competitive edge. Afghanistan will have to do likewise to compete in the global arena. It should not rely indefinitely on its competitors for the technical advances required to compete even though some information exchange will naturally occur.

5.1 Natural Resources

It is vital that programs to raise incomes and provide alternatives to poppies be accomplished in a manner that is sustainable. The present generation should not benefit at the expense of future generations. The Master Plan calls for significant expenditures to ensure sustainability and provides details for implementation. The plan for natural resources was designed on a ten-year timeline to compensate for the intense degradation of natural resources in the past. The ten-year horizon is in recognition of financial and staffing constraints, despite the urgency of solving these problems. This still represents a huge expenditure.

The allocation for the first five years totals \$192 million. Reforestation budgeted at \$40 million, watershed rehabilitation is at \$39 million and nursery development at \$45 million.

Afghanistan suffered the staggering destruction of its forest resources, including pistachio trees. The plan allocates large sums to nurseries and the reforestation effort. There remains an issue with the continuing legal ambiguity about natural resource use. The Master Plan outlines ways of dealing with this problem.

Watershed management is another major component of the plan. The bulk of agricultural income in Afghanistan is currently and will increasingly be derived from irrigated areas. Much of the current irrigated area is only irrigated in one season with considerable fluctuation in water availability from year to year. Major studies show that a reliable water supply has the effect of doubling the production of an irrigated area. The Master Plan does not completely address the investment needs for comprehensive irrigation rehabilitation and expansion because of uncertainty about which Ministry should be responsible. This is with the exception of irrigation for basic food crops in the food security chapter. The plan does address farmer management of water systems.

Details are provided on watershed management and the interaction between rangeland, nomadic herders and forestry. It sets forth the institutional problems and investment needs for these sectors. Significant allocations are made for wildlife management and preserves.

In the context of financial and personnel resource constraints, decisions will have about allocations to small-scale commercial agriculture and agribusiness that will generate increases in income and foreign exchange earnings and large multipliers to the rural non farm sector; safety net type programs in the foods security realm, and investments in natural resource preservation and rehabilitation. These are three major categories of expenditure. The Master Plan does not place the issue of allocations in the margins among these broad categories of activities.

5.2 Research and Extension

To prosper, farmers need improved technology. This is especially true of agriculture rather than industry because of land constraints in agriculture. Yields must be raised. Protection from disease and pests must be provided. A constant search must be to discern and better satisfy changing human tastes.

Research in marketing and production systems is required. The Master Plan chapters on priority commodities gives detail on how extension systems start by responding to farmer's needs, conveying information about their needs back to the research system and following through with farmer field days, on- farm trials and demonstrations. To achieve these goals, , The Master Plan describes a bottom-up system that responds to farmers needs with modern, constantly improving technology that facilitates a constant increase in productivity, competitiveness and incomes.

Research, extension, and farmers associations lend themselves to internal priorities consistent with the commodity priorities and sub-priorities delineated in the earlier chapters. A high growth rate in agriculture in Afghanistan is highly dependent on exports for a significant portion of incremental production which also means that reliance on the transfer of technology from international competitors cannot be sustained for very long.

For the near future, Afghanistan can grow on known technologies and compensate for the lack technological know-how with the currently low farm wages. Eventually Afghanistan will want to compete more directly in technology in the context of higher farm incomes and rural wages. Developing a research program takes time, especially given the paucity of trained scientists. The effort must be commenced immediately. Because modern research is expensive, only a few commodities and functions can be covered. The horticulture and food security chapters are clear on the priorities and adhering to those priorities is essential.

At first, the program will focus on applied research that is hardly distinguishable from extension. Over time, the private sector may take over some of the applied types of research while asking for support from the public sector for more upstream research. This calls for considerable donor supported technical assistance for the research system.

Overall immediate priorities are for research in support of food security (wheat and farming systems and pest and disease control) and research in support of the horticulture priorities. Looking toward the future, livestock growth is also important. The work of ICARDA and CYMMT with their considerable expatriate expertise that includes the training of Afghans sets a desirable standard. Such efforts are currently needed in horticulture and eventually in various aspects of livestock production.

Because of the lack of trained scientists in Afghanistan and the urgency of getting started, expatriate scientists on long term assignment must play an important role. The Rockefeller model in India was a highly successful example of getting the green revolution started immediately while building Indian capacity to keep it going. The expatriates must conduct research in close collaboration with Afghan colleagues. Afghans must also train at research centers in other countries. This provides critical research while building national capacity.

The expatriate research participants should be experienced on the practical side of applied research to provide direction in orienting the extension system towards best modern practices. This is an important spin-off from the early stages of building research capacity.

The investment plan allocates \$24 million to extension (in addition to large allocations in the horticulture and food security chapters); \$12 million to food security related research, including the wheat and farming systems programs with their ICARDA and CYMMT inputs, \$5 million and \$3 million respectively to pest control and post harvest technology; and \$7 million to horticulture research.

5.3 Financial Systems

Afghanistan agriculture was historically highly commercial, even on small farms, selling horticulture and livestock products in large quantity. The requirements for financing these commodities are much greater than for traditional cereal crops. The processing sector is larger for these high value crops and in turn requires substantial amounts of credit. The lack of credit is the primary constraint to agricultural growth in Afghanistan. It is possible that the savings of rural families can be mobilized as deposits to be lent out to the rural sector.

At present, there is great progress being made in providing national coverage of micro finance systems. However, as presently constituted, micro finance has little to do with agricultural production. It could be adapted to finance smallholder livestock production and even very smallholder horticulture. But given the size loan, the management intensity, the consequent need for subsidies and large interest rates, it is restricted to very small farmers and non-farmers who produce only a few percentage points of agricultural output. Because of the relationship between credit availability and the reduction of poverty, a capital sum of \$30 million is allocated to complete the national coverage of the micro credit system. All the sums stated are for capital to the credit system.

At present, commercial banks are not providing adequate credit services to agribusinesses. While they can be seen as providing credit to the large agribusinesses in the future, it is unlikely that they will invest their efforts in serving smaller operations. Nevertheless, a modest allocation of \$1.9 million is allocated to stimulate agricultural lending for commercial banks that adopted an agricultural orientation.

Fertilizer dealers, particularly those trained through the IFDC program, could become competitive lenders to farmers for fertilizer purchases. The financial system needs to provide tens and eventually hundreds of millions of dollars through this network. Currently donors are contemplating \$10 million for this effort but \$100 million is seen as necessary for the long-term expansion.

That still leaves the middle-sized farm operations that who produce some 90% of agricultural output covered by dealer credit at best. Farmers are crying out for a rural credit system designed to serve their needs. The political system is compelled to respond. The issues are complex and require a highly experienced team familiar with the failures and successes of Asian institutional rural credit systems. Such highly knowledgeable and experienced people will be invaluable in addressing this issue.

The Master Plan provides suggestions for a rural credit system that would be based on farmers credit associations, farmer managed and farmer owned, but requiring extensive technical assistance to start. Also, an apex body could be created that would wholesale credit to the farmers associations as well as lending large sums to agribusiness, thereby spreading overheads, reducing unit costs and keeping interest rates down. Much of this solution lies outside of the MAAHF. However, consistent with the allocations to micro credit, \$100 million capital allocation is stated for the system for the middle farmers.

5.4 Community and Farmer Organizations

A major theme in the Master Plan is farmer control in expressing their needs, management of systems and input into higher-level services. It notes the importance of community organizations that are the purview of the Ministry of Rural Development and expands on farmers associations that will require assistance from the MAAHF. The new organizational structure of MAAHF recognizes this and the close affinity with extension and research. These three functions are grouped in the same department to ensure close cooperation. The Master Plan describes this structure and gives a priority to each of the components for institutional

strengthening, associated technical assistance and sets forth substantial budgets for this purpose.

The chapter on finance calls for the MAAHF to rapidly organize farm credit associations and allocates investment to developing that MAAHF capacity. This will require considerable assistance for some period of time not only in organization but also in providing accounting and management training. Eventually these institutions and systems will become free standing and will need continuing advice on such matters as management and changing financial instruments.

The chapter on horticulture notes the need for farmer organizations to assure quality and adequate volume as well as the ability to trace growers in order to meet increasing standards of importing countries and for the future in Afghanistan. The MAAHF will need to develop capacity for organizing these associations on a large scale and then provide advisory services continuously, as is done in so many high income countries.

On-farm water management is vital to water-use efficiency. Farmers associations with full power and financial resources are critical to this function. The natural resources chapter describes an on-going project to establish water users associations. This pilot effort can be transformed into a comprehensive national effort with the input of substantial technical assistance.

5.5 Gender

In order to empower women to increase their control of their lives, the Master Plan includes specific mechanisms within the priority strategies for growth, poverty reduction, and poppy substitution. As discussed above, animal husbandry offers the greatest potential. Horticulture will require additional exploration.

6. Building the Ministry of Agriculture

All of the strategies described in the Master Plan place immense burdens on the MAAHF. These burdens and the limited numbers of trained staff requires tight priorities in determining what the Ministry takes on and leaving as much as possible to the private sector. The horticultural chapter and others specifies these relationships and division of tasks. The relationship between MAAHF and the private sector is symbiotic. However, even the minimum programming required of the MAAHF addressing selected priorities will still require substantive long term technical assistance supplemented with a high level of short-term assistance. The Master Plan budgets outline the large numbers of such requirements.

Many functions of MAAHF are described in detail in the commodity and cross-cutting chapters. Technical assistance is addressed along with large donor managed projects. Those donor projects will work within the MAAHF and work with Ministry counterpart staffs as part of a hands-on training process. The Master Plan, hand-in-hand the MAAHF, will pull together these elements into a comprehensive plan for Afghanistan.

Three activities have separate chapters – planning, private sector support, and regulation, even though some of the regulatory function is also covered in other chapters.

6.1 Planning

MAAHF's new structure includes a planning department with six divisions. This Department will ensure that agricultural growth and rural poverty reduction efforts proceed on a national scale with full integration of the various donor projects into the national effort. This Department is the core for coordinating donor efforts with the national effort, ensuring that priorities lead to building national capacity and to manage development as a national program.

In brief, the Planning division will handle development and refinement of sectoral and sub-sectoral planning. It will nurture the Master Plan by ensuring adaptation to evolving conditions and sequencing priorities. The Policy division will generate papers on special issues facing the Ministry. The Project Development division will work with all departments in developing special projects for financing; the Monitoring and Evaluation division will inventory the large number of M&E studies conducted by the multitude of NGO's and donors and build national impact studies from those as well as recommendations for improving performance. It will also monitor progress in the MAAHF as it works to meet a multitude of demands. The Statistics division will absorb the ongoing work of FAO and gradually expand to broader, more regular statistical coverage of progress and change in the agricultural sector. That work will be in consultation with the national statistics structures. The Foreign division will monitor donor efforts compiling coverage of priority areas and diagnosing gaps in concert with the planning department. The legal division will assist the Minister in assessing various legal issues facing the Ministry and the sector.

Each of these departmental functions have urgent requirements for action that must be met through the MAAHF, despite the small and inexperienced number of qualified staff members. Long-term expatriate collaboration with complementary short-term consultants is needed for four of the six divisions. That assistance will be used to do critical work with a counterpart who will gradually be able to operate without that assistance. Training programs are delineated for upgrading staff capabilities. All expatriate positions will be phased out in three years or less. The Master Plan also specifies physical facilities needed. These efforts call for a five-year development budget of \$9 million.

6.2 Private Sector Support

All elements of the MAAHF are devoted to improving the environment for private sector investment and growth. The chapter on private sector support spells out specific functions for direct assistance and requires a development budget of \$3 million.

6.3 Regulation

Regulatory mechanisms for a wide variety of agricultural activities will be increasingly required. Many of these will fall under the Ministry of Commerce, but some of the production oriented, input supply and marketing regulations will fall under the MAAHF. They are to be placed in a single department that will require substantial foreign technical assistance and large expenditure on labs and lab equipment. The overall investment required is about \$54 million.

7. Gaps in the Analysis

The Master Plan is a work in progress. Even a carefully worked out and detailed program as in the Horticulture chapter will evolve and improve over time. However, three specific areas need immediate attention. These are substantially outside the MAAHF, but vital to agricultural growth and rural poverty reduction.

7.1 Human Capital

Although human capital is beyond the purview of the MAAHF Master Plan, there remains extensive need for trained personnel in the MAAHF. This requires expansion of the Universities and an orientation toward preparing students for work in the private sector. This includes agribusiness supporting agriculture and credit institutions serving agriculture, as well as the MAAHF itself.

In the meantime, training programs are needed. Many of the most qualified and able staff need access to Masters degree programs in nearby countries. Ph.D. programs must be made available to this growing cadre of researchers.

These qualified personnel will be needed to run the research system required to allow Afghanistan's agricultural exports industries competitive in global markets. In the short run, in order to capitalize on available talent, domestic training programs will provide staffing. Exceptionally capable and mature young people with 12th grade educations can be targeted for specialized training.

7.2 Physical Infrastructure

The physical infrastructure for agriculture must be built rapidly at immense cost. That requires rehabilitation of the rural road system and development of market centers to increase competitiveness and efficiency. Only a small portion of irrigation rehabilitation has been included in the Master Plan because at the moment, much of that responsibility lies outside the MAAHF

7.3 The Investment Plan

Table 2 summarizes the investment plan. It is a compilation of the investments called for in the individual chapters. Some attempt has been made to extrapolate the data to address gaps in the Plan and to provide a common format for tooling up the expenditures. Priorities were set and budgeted for without consideration for the availability of funding.

Questions about allocation amongst the chapter subjects are matters of high level prioritizing of objectives as is the allocations between agriculture and other sectors. Please note that agricultural growth is vital to all objectives. The sector is large and complex, and other sectors depend on agriculture for inputs and outputs.

Table 2 displays the financial requirements, categorized by commodity, function and type of expenditure as per the chapters in the Master Plan. If the banking capital and irrigation investment are removed the total is \$1094 million or \$219 million per year. The proportions among the categories seem consistent with the priorities. The horticulture allocation is about 35% larger than food security because of the greater complexity, earnings potential and the high returns to saving time by immediate plantings and investment in the private sector. Livestock is lower because of a

stretching of the priorities to correspond to the delayed growth of domestic demand. Natural resource allocations are large because of the immense environmental and protection problems associated with the long period of destruction. Research is quite modest considering that it represents to the future of agriculture.

At one quarter of the total budget, technical assistance is high because of the intense need for training. Given the huge expense of TA, it is essential that every foreign technical person leaves behind an fully trained Afghan within a sustainable institutional structure.

The large sum for capital strengthening of the rural financial system is probably an underestimate, but if rural deposit mobilization is a strong part of the system, the budget might be reduced. The huge expenditure on equipment is probably a reasonable estimate given the enormous decapitalization that has occurred. It is simply a recognition that the recapitalization needs to occur and an effort to arrive at reasonable numbers.

As suggested at the beginning, priorities can be set within this effort, but in the final analysis development of the massive agricultural sector will cost a great deal of money but will provide enormous returns, as shown in the horticulture chapter.

Table 2. Five Year Investment Plan, Investment Category and Function, 2006-2010 (all figures \$000,000)

Category	Technical Assistance	Equipment	Civil Works	Recurrent Cost	Total
Horticulture	114	153	51	137	455
Livestock	23	14	39	20	96
Food Security	37	119	145	43	344
Natural Resources	116	15	33	28	192
Research/Extension	38	13	4	6	61
Rural Finance	20	0	0	155*	175
Planning/MAAHF	7	0.6	0.5	0.8	9
Quality Control/ “	14	11	14	7	46
Privatization/ “ “	2	0.4	0	0.5	3
Total	371	326	287	397	1,381

* This is capital finance for banking system

If the banking capital and the irrigation (as probably placed in another ministry at the moment) are removed, the total becomes \$1094 million or \$219 per year.

- Technical assistance includes all training, overseas travel etc.

7.4 Conclusion

The Master Plan succeeds earlier planning efforts and benefits from the considerable experience by a number of substantial modifications as well as expansions on earlier efforts. It is formulated to move the country rapidly towards a high growth rate, rapid reduction in poverty and alternatives to production of poppies. The plan starts with agriculture as the basic engine for a high proportion of overall national economic growth, reduction of poverty and poppy substitution.

Commodity priorities have been set to ensure food security, large scale growth of exports, and serve a rapidly growing domestic market for high quality, diversified

diets. It offers cross-cutting priorities essential to achieving all the commodity priorities. Recognizing the binding financial and human capital resource constraints it sets tight priorities at every level. The result will be an agricultural sector able to compete on domestic and international markets with the current leaders in the field.

Despite the tight priorities, the need for extensive technical assistance, institution building, community and farmer organization, credit and finance are immense, but modest compared to the potential impact. The Master Plan for Agriculture was created through a highly participatory process that included the expertise of many Afghans and many Internationals. These contributors sincerely hope that the immense effort that has gone into producing this Plan will serve to create the enthusiasm and unity essential for building the human, institutional and financial resources of Afghanistan.

Chapter 1

THE AGRICULTURAL SECTOR DEVELOPMENT STRATEGY

1. Agriculture Sector Situation Analysis

Agriculture dominates the Afghan economy and society. A high proportion of the population depends directly or indirectly on farm income for their livelihood and close to half the national income is generated in agriculture. Even as its relative importance declines over time with economic growth, agriculture will increase immensely in absolute size and remain the basic engine for the transformation of the economy.

Development interventions executed to take advantage of the opportunities offered by the natural resources and agriculture sector need to be fully aware of the agrarian structure with its large landowners, smallholders, share croppers, landless and female-headed households. The rural sector is also home to the majority of the poor of Afghanistan. It is estimated that half the rural population is below the \$1 per day poverty line despite the massive infusion of money from poppy production. It should be recognized that the poor are not those who produce the bulk of marketed agricultural output.

Owners with very small plots of land do not provide a major portion of income or employment. They are often classified as farmers, but are in fact part of the rural non-farm population looking for employment opportunities. In order to support income generation and the improved wellbeing of the rural poor, considerable growth in the rural non-farm sector and increase in employment is needed. However, if that growth is to materialize, farm incomes must rise to provide the income to drive those sectors.

In areas where farm incomes grow rapidly, the market towns are vibrant places with reduced poverty and underemployment. Higher farm incomes drive the rural non-farm sector and efforts to grow that sector without rising demand from agriculture will fail or simply transfer income amongst the poor. Thus, activities that rapidly increase farm incomes and stimulate employment and wage rates will be promoted. In that context, efforts to broaden participation in those activities will be more effective.

Agriculture in Afghanistan consists of numerous private sector enterprises. Farms and farmers, input and service providers and the agro-industry are usually vigorous, adaptable people. Public services must be designed to fully mobilize these potentials and guard against subsidies to the public provision of any goods and services that the private sector can provide. At this stage of Afghanistan's rehabilitation and development, the private sector entrepreneurs require specific and critical government services if they are to compete in international markets. Some of these services are temporary, some are being provided by foreign assistance and these are envisioned as disappearing when no longer needed. Many will be needed into the indefinite future.

Farm products are market specific commodities, marketing institutions are commodity specific, and production and marketing systems are commodity specific. This development strategy will naturally have a strong focus on priority commodity groups and on priority commodities within those groups as well.

The importance of a commodity is a function of the base weight and the growth rate. Afghanistan is fortunate to have an initial high base weight in commodity groups that have potential for very high growth rates. As a result the overall growth rate can be high as well.

It is the multipliers from that increase in farm incomes that will drive the rural non-farm sector and take care of the poor. Much of that increase can come more quickly through large increases in the production per hectare of existing orchards and vineyards. Farmers will grow wealthier from the gradual maturing of tree and vine plantings, but the rural non-farm population will be delayed in receiving the benefits of cash income increase.

Agriculture has always dominated Afghan exports and will continue to do so into the foreseeable future. That is because of the blessing of natural resources ideally suited to producing high quality dried fruits and nuts as well as the proximity to large rapidly growing markets and a strong historical position in those markets.

It is important to note that WTO rules allow large government expenditures in each of these areas (as well as rural infrastructure) and that competing countries provide large government investment in these areas, giving their farmers a competitive edge. Afghanistan will have to do likewise to compete in the global arena. It certainly should not rely on its competitors for the technical advances required to compete even though some exchange of information will naturally occur.

After decades of conflict, rebuilding natural resources and the agricultural economy will require a change in how development priorities are determined and implemented. This would ideally include community-determined priorities and should be based upon appropriate participatory mechanisms to ensure that all stakeholders are included. This would produce a dual approach to community based interventions such as productivity enhancing interventions for those with land (employment opportunities for the landless) and targeted off-farm interventions for the landless or families with small amounts of land.

2. Strategic Cross-Cutting Issues

A balanced rural development strategy requires attention to a number of crosscutting strategic issues. The interventions associated with the integration of these must be clearly visible in the strategies to address the commodity sub-sector development.

2.1 Food Security

Food security is uppermost in the minds of the poor. Subsistence agriculture initially assists food security by producing the basic caloric requirements for the family. As development occurs, it generates the income for purchasing food for the country and for individual families. For Afghanistan, lower value crops that provide basic food requirements must be produced on a declining area of land so that more land can be devoted to high value commodities that further multiple economic objectives and nutritional diversity as well as food security.

Malnutrition and micro-nutrient deficiencies are widespread throughout Afghanistan. Between 45 and 55% of children under five suffer from chronic malnutrition as indicated by low height-for-age. These deficiencies lead to increased vulnerability to disease and severely affects a child's intellectual development and work capacity. Malnutrition is an obstacle to the development of Afghanistan and interventions to address food security should be combined with improved nutrition.

2.2 Reduction in Poppy Production

During the conflict/drought period, many Afghans lost or sold assets and many became deeply indebted. Partly as a result, some farmers have succumbed to the production of poppy. Without meaningful, sustainable income from other sources, the drug economy in the rural population will probably continue to grow. In several regions, poppy cultivation supports the entire rural economy.

Poppy production is intertwined with all aspects of rural livelihoods including access to land, credit and markets. Any successful approach to replacing poppy must address the entire range of reasons that farmers choose to cultivate it. Aside from the high market value, other complicating factors contribute to the "incentives" for growing opium include the need to pay seasonal and/or accumulated debts (often tied to opium); land tenure and share-cropping agreements through which the share-croppers are forced to grow opium; lack of infrastructure for irrigation, transport and marketing of other crops and the lack of alternative economic opportunities.

Rural development programs that seek to offer farmers and laborers alternatives to the opium economy have to be comprehensive and they should include:

- Access to produce alternative high-yield crops or animals and animal products.
- Alternative employment opportunities and sources of income including the initial subsidies and other support for rural business creation and operation.
- Basic infrastructure for access to markets, land, water and power.
- Means for farmers to obtain credit without using opium crops as a collateral.

2.3 Gender Equity in Agriculture

Gender mainstreaming is both a technical and political process that requires shifts in organizational culture and ways of thinking as well as in organizational structures and their resources allocation decisions. The current gender situation in Afghanistan

is a result of complex processes. Agriculture and rural development strategies will need to take these factors into consideration and carefully analyze regional and ethnic differences as the basis for designing locally acceptable strategies for incremental implementation. This would require full participation of all involved in rural development in addressing the high illiteracy rates, the inaccessibility of new knowledge and technologies and the provision of services designed to meet women's needs.

2.4 Research and extension

To prosper, Afghan farmers need access to improved technologies, particularly in light of the tight land constraints. For the next few years, Afghanistan can grow on currently available technologies and compensate for some technical backwardness with low farm incomes (wages). Eventually Afghanistan will need to compete more directly, particularly in the context of higher farm incomes and rural wages. The importance of close ties and collaboration between farmers, service providers and researches cannot be stressed enough. There is a need for farmer input and systems designed to respond to their needs, but to do so with modern, constantly improving technology that allows constant increase in productivity, international competitiveness. Farm production methodologies need to be developed, tested and validated.

The chapters on priority commodities include details on building an extension system that starts with farmers' problems and needs and then responds to those needs while informing the research infrastructure that also interacts with farmers through on-farm trials and demonstrations.

2.5 Community development

Most successful development interventions are community based and participatory in nature. Experience gained from the success of the National Solidarity Program and the creation of the Community Development Councils (CDC) has reinforced this viewpoint. Given that natural resources and agriculture will be the engine for growth in rural communities, strong collaborative links need to be established between the CDCs, farmers associations and cooperatives to facilitate planning of rural infrastructure, services and input provision and markets.

2.6 Rural Finance

While traditional credit systems based on various family/clan networks continue to function in many contexts, there is a recognized need for official rural savings and loan facilities. This would offer an alternative to loans based on a commitment to poppy production. Considering the different production systems and a large rural population without access to credit, financial services need to be designed accordingly.

3. Priority Commodities

3.1. Horticulture

3.1.1 Situation Analysis

In the 1970's, horticulture accounted for 43 percent of total exports from Afghanistan. Afghanistan's dried fruits, nuts and fresh fruits enjoyed a reputation for the highest quality, particularly in India.

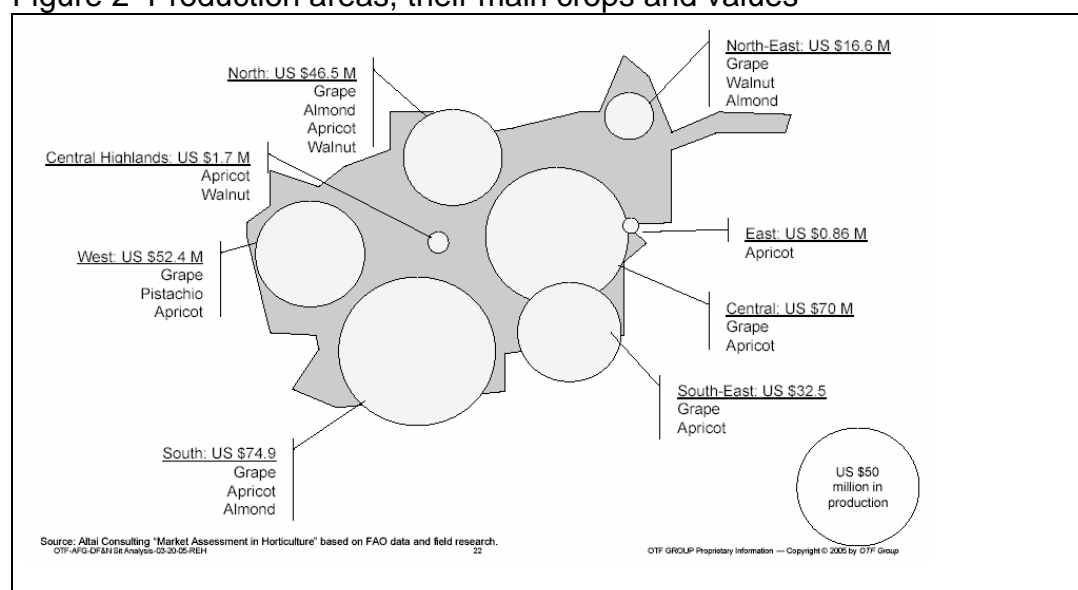
The position of horticulture in the Afghan agricultural sector is illustrated in the table below. The total territory of Afghanistan of about 65 million ha, of which 7,8 million ha are cultivated (12%) in the following way.

Table 1: The position of horticulture in Afghan agriculture

	Hectares	
Intensive irrigated (2 crops per year)	188,698	94,000 orchards 58,000 vegetables 26,000 melon 10,000 other
Intensive irrigated (1 crop per year)	1,370,956	Mainly staple crops
Total intensive cultivation	1,559,654	
Intermittently irrigated	1,648,136	If water volume available
Total irrigated land	3,207,790	
Rainfed land	4,517,714	
Total agricultural land	7,725,504 ¹	

Grapes and raisins are, by value and by volume, the biggest perennial fruit crop in Afghanistan with estimated value of US\$180 million in 2003. Ninety percent of this production is located in the regions surrounding Kandahar and Helmand, and in the Central Shomali Plain. The balance is found in the north. The second largest crop by production value is pistachios at US\$95 million. Pistachios in Afghanistan grow in forests, spread across the country from West of Herat to the North-West, and to Badakhshan in the North-East. The third largest crop is almond, followed by apricot, both fresh and dried.

Figure 2 Production areas, their main crops and values



¹ Source: 1993 FAO Land Cover Satellite Data

The commodities selected for special attention as part of this Master Plan are grapes and raisins, almonds, fresh and dried apricots, pomegranates and pistachios, in order of importance. They were chosen on the basis of the following criteria:

- Products that are or were large export products.
- Products that have the most potential to sell in international markets.
- Products that have a large-scale impact on the Afghan economy.
- Products that provide opportunities to businessmen and farmers in all regions of Afghanistan.

In terms of geographic spread, these products cover all of the major regions of Afghanistan except the East:

- Grapes are grown primarily in the south, southwest and central regions, with about 10% of production in the north.
- Almonds are primarily grown in the north and southwest.
- Pistachios, although they are not a plantation crop yet, the potential should be considered given the premium prices and current water availability problems in large areas in Rafsanjan, Iran.
- Apricot production is spread relatively evenly across the entire country with large centers of production in the southwest and central regions.

In the east, opportunities exist for the production of citrus, particularly blood orange and lime, and for vegetables and olive production.

These crops provide high value per unit area of production and per m³ of water used for irrigation which is about 3 times higher for fruit and nut products than for irrigated wheat. Also, a higher percentage of production costs for the production of horticulture crops are labor costs. Normally, 25% of added value in horticulture is labor costs.

Orchards and vineyards can be inter-cropped with clover and alfalfa which are harvested 3-4 times per year and provide groundcover year round. The harvested fodder crop is nutritious for livestock and can provide additional income to the family until the orchards are productive. **All investment into orchards and vineyards proposed in this strategy should be accompanied with intercropping** to improve ground cover management and provide winter fodder.

3.1.2 Horticultural Objectives 2005-2015

The strategy for horticulture will be export-oriented and demand-led. It has the potential to be a major engine of development, and a major earner of export income for Afghanistan.

In order to achieve the vision of becoming one of the world's leading suppliers of horticulture products, the MAAHF has drafted ambitious objectives that aim to increase exports of the 7 products above from US \$127 M to \$934 in 10 years. The country can achieve this by investing heavily in new orchards and vineyards, building modern processing facilities that meet international standards and by continuous scanning of international markets to identify new opportunities and adapt to them. For production, the goal will be both to upgrade all 90,000 hectares of existing orchards and vineyards and increase the existing area by 75%.

- For processing: building or upgrading 22 new raisin processing factories, 35 nut processing facilities, and additional infrastructure for post-harvest handling of the fresh fruit export and packaging of all products.
- For marketing: commissioning market research studies of target markets for each product, trade missions and industry trade fair attendance where Afghan exporters can make new buyer contacts and learn about the competition.
- Dissemination of expertise through extension services, demonstration plots and extension materials.
- Increasing availability of high quality inputs, investment and related credit services.
- Commitment of financial resources for the institutions that will coordinate and monitor the implementation of the strategy.

3.1.3 Strategies to take advantage of opportunities and strengths

To keep pace with the constantly changing global food market and fierce competition, institutions need to be put in place that constantly research the market and transfer this knowledge to exporters and back to producers who can adapt their processing and production methods to successfully serve these markets.

Export Horticulture Development Board

To address the intense needs of the horticultural sector, the MAAHF envisions a specialist task force within the ministry. It is proposed that a dedicated development board be established to manage technical and marketing support to the high value horticultural sector. While details are yet to be determined, the board would be an independent institution, chaired by the Minister of Agriculture and governed by representatives of the different segments of the industry: producers (both small-holder and large-holder), processors, domestic traders, exporters, and government.

Its function would be to provide overview to all aspects of support to the industry. It could also serve as a focal point for industry representatives to discuss with government the issues (such as customs and tariff policy) that affect it. The board should be able to negotiate credit lines collectively on behalf of its membership; and provide training on major international certification systems which will be critical for the ultimate success of Afghan exporters.

This arrangement does not preclude the possibility of government support to the industry. Indeed, in the first years, this is likely to be a main source of revenue. However, experience shows that such a board can more easily attract finance from donors, because it is constructed to demonstrate transparency in its operations that direct funds to the industry. In the long-term, as horticultural incomes rise, there is a real possibility that the industry will choose to finance its Board by subscription.

India, Pakistan, and Russia are the current major markets for Afghan horticultural products. Out of these three markets, India tends to be a “Top 5” buyer of Afghan horticulture products, especially dried fruits and nuts. This means that India pays among the highest prices in the world. The intention therefore is to target the Indian market.

Private Sector

Exporters and traders will be the focal point for developing the horticulture sector. As noted above, there are an estimated 600,000 farmers involved in horticulture in

Afghanistan. The challenges of communicating and training these farmers are enormous. However, if the private sector can be leveraged to transmit market information to the farmers with whom they work, the task becomes more manageable. The private sector must be encouraged to develop “integrated” businesses with strong linkages with both buyers in major exporting countries to learn about their needs AND good direct relationships with the farmers or organizations who supply their raw materials.

This is a sharp break with current practice where various intermediaries are involved with the supply chain from the farm gate to international markets. If the business model can be changed, more money will go to the farmers and business people who create value, versus intermediaries who both destroy value and stop the transmission of valuable market data from Afghanistan’s customers to farmers and exporters.

3.1.4 Strategies to Minimize Constraints and Weaknesses

In the short-term, the creation of the Export Horticulture Development Board will be a priority. In the meantime,, other activities can continue, through partnerships between the private sector, government and the NGOs.

As set out in the National Framework, the main role of the MAAHF in the context of horticulture is to become a facilitator for the private sector. The private sector covers entities such as:

- Producers (products, plant material),
- Traders (wholesalers, exporters),
- Suppliers (inputs, hardware),
- Processors (drying, juices/concentrates),
- Banks (credit),
- Certification bodies,
- Standardisation bodies,
- Farmers’ groups (producers, irrigation, collection/distribution centers).

The MAAHF role can therefore concentrate on, but not be limited to:

- Providing technical expertise, where not provided by the private sector or by the Board.
- Providing standards that inputs must adhere to and inspect the implementation of standards and plant protection framework.
- Providing the framework for plant protection and its inspection.
- Providing standards to what criteria products must adhere and its inspection.
- Inform others about the needs of the horticulture sector.
- Ensure rapid technology advance and dissemination.

The lack of commercial nurseries leaves Afghan producers with little choice of the rootstock they can purchase. Even if a farmer with enough land, technical expertise, and financial resources would like to invest in commercial orchards today in Afghanistan, he would not be able to do so because quality seedlings and rootstocks are not available. The bottle neck for horticulture development lies with the creation of professional nurseries to provide planting material of sufficient quality for business

investment in perennial fruits production. The IF Hope entrepreneurial fruit nursery and orchard approach provides a good workable model.

Iran and Pakistan have excellent horticultural engineers who could assist in implementing the proper transfer of technology at a low cost. In Iran, millions of Afghan refugees have worked in commercial orchards in the past two decades and have thus benefited from informal training on commercial orchards managements. In Rafsanjan alone, 200,000 Afghans are working (and some managing) commercial pistachio orchards.

Government

In general, the government should do everything it can to assist the private sector except impede competition. In addition to the MAAHF, the Ministry of Commerce should be involved with promoting the development of the horticulture sector. The role of the MAAHF, until the establishment of the Board, is to provide access to certified varieties of fruit trees, vines and technical assistance for proper care of these crops, constant research on new varieties and new techniques to improve productivity of orchards and vineyards. Applied research, training of extension officers and dissemination of extension materials are major contributions to the fruit sub-sector. To facilitate contact with exporters, the MAAHF will also encourage the formation of smallholder associations. The Ministry of Commerce's role will be to provide quality certification at the time of export, market information and the negotiation of specific trade agreements for horticulture that provide preferential access to markets for Afghan products. In order to achieve these goals, the Export Promotion Institute for Dried Fruits and Nuts, a body affiliated with the Ministry of Commerce, will most likely need to be reinforced with additional funding, new staff, and state of the art equipment.

International Donors & NGOs

In the short- to medium-term the international community needs to support the Afghan private sector and government to achieve its goals. To support the private sector, international donors will need to provide incentives to local and international banks and other related institutions created to provide much needed medium-term credit to farmers. The availability of credit will facilitate the establishment of fruit plantations, new fruit and nut processing factories and other critical infrastructure such as cold storage, packaging, collection and distribution facilities. The international community should provide substantial support to research and extension, which in turn supports the private sector. International support to the private sector should be rendered with a definite exit strategy to ensure that all interventions will be sustainable.

Credit institutions should develop the capacity to analyze proposals and make informed decisions on the viability of businesses to provide continuing services on a purely commercial basis.

Functions of the HVH Task Force

The main tasks of the Coordinator for High Value Horticulture (HVH) will be to:

- Review horticulture strategies and policies.
- Assist in the restructuring of the Ministry's horticulture sub-sector reform (functions and job descriptions).
- Review legal aspects relevant to the relationship between the public and private sector.

- Convene and consult with a Horticulture Steering Committee (HSC) composed of representatives from the government, private business, international donor and NGO community.
- Ensure coordination among programs and report regularly on program progress.
- Ensure that programs are implemented in accordance with project proposals, and verifiable reporting and auditing standards.
- Assist in raising funds to implement programs identified in the Master Plan.
- Review and discuss monitoring and evaluation reports and ensure that progress on projects are progressing according to the project objectives

The HVH task force will oversee the monitoring and evaluation of departments within the Ministry and steer them toward the common goal of “an efficiently operating and integrated horticulture sector.” The different departments will address the following issues, requiring cross-linking:

- Standardization (of inputs such as fertilizers, chemicals, plant material, products, packing).
- Certification (of plant material, products such as organic production and good agricultural practises).
- Licensing (of input suppliers, plant material producers, laboratories)
- Inspection (to assure that standardization, certification and licensing are implemented)
- Dissemination of information (demonstration farms, extension service, materials such as brochures/video’s and radio/TV programs).

3.2 Livestock and Animal Products

Livestock is a key component of rural Afghan livelihoods. Livestock represent a bank on the hoof, the majority of the draft power available for crop farming, milk and meat for household consumption and sale, manure used as a natural fertilizer, fuel for cooking and heating in the winter, and sale of wool, hides and skins which were once important export earners.

During the last two decades the animal health situation has significantly worsened. Contagious diseases have spread throughout the country while parasitic diseases have increased in all species. Although some action has occasionally been undertaken to contain outbreaks, the disease situation has become worrying in most provinces where heavy losses are periodically reported.

The state veterinary and animal husbandry services today are largely manned by employees of the former centrally managed system of the 70’s. They lack modern management skills and participatory planning skills. Physical damage, looting and lack of financial resources have left these Departments almost totally unable to perform any of their core functions.

As stability returns to Afghanistan, there is an urgent need to rehabilitate private and public sector delivery systems in a carefully planned process whereby the two sectors form a partnership through innovative institutional and organizational relationships.

Initially, livestock as an income generator is more important than horticulture. However, the demand is generally dependent on the domestic market. It is anticipated that it will take a few more years for domestic demand to achieve steady growth at a rate that will permit a 6% growth rate in livestock production. A small proportion of livestock products are exportable and the potential for them to grow ahead of domestic demand exists, but these export shares will be complex to recover. Nevertheless, in the intermediate run, livestock will be a major source of growth in farm incomes and a stimulus to the rural non-farm economy. This is reinforced by the potential to displace the bulk of current large imports of livestock and livestock products. First of all, a sustainable feed resource base needs to be established.

The livestock sector holds exceptional potential for empowering women and increasing household incomes. Women provide most of the labor and the management for livestock in the small scale and mixed farming systems. Livestock, which includes poultry, is one of the few solid avenues available for small scale farmers, the landless rural poor and female headed households to escape from poverty. Since the sector is so large the impact on and by women can be immense. It is also well suited to micro finance services which target women for small loans for working capital. If additional assistance was provided for marketing, the interface of livestock development, credit services and marketing assistance would ensure rapid progress.

In order to be effective development strategies and interventions need to consider the diverse livestock production systems in Afghanistan. Currently, the majority of farmers keep a few animals as part of diversified subsistence farming and mixed farming systems. Semi-intensive and specialized production units operate where the feed resource base is sufficient to ensure a steady production.

Needs based, demand-driven input and service provision mechanisms are needed to serve these different production systems, enabling subsistence farmers and the rural poor to initiate livestock production with subsequent intensification and specialization when opportunities develop

3.2.1 Extensive Livestock Production

Extensive livestock production occurs over vast areas of the country and includes a large population of nomadic herders. Rangelands cover around 45% of the total land area in Afghanistan. However, large areas that are considered barren or “wasteland” are also used for grazing, particularly in the winter. The total graze-able area therefore is much larger, estimated at 70-85% of the total land area.

Pastoralism is a social and economic system based on the raising and herding of livestock, including migration to utilize to the maximum seasonal available pasture for the livestock.

There are three categories of pastoralism:

1. Migratory, livestock dependent societies (e.g. pastoralists)
2. Recently settled, formerly migratory livestock dependent (e.g. former pastoralists)

3. Settled people, that still hold on to the cultural identity and refer to themselves as “kuchi.”

The potential for growth in the range livestock sector is low and pastoralists may only have a limited contribution to make to the national economy in the future. It has been estimated that pastoralists own about 30-50% of the livestock in the country. In the past, 35% of all exports were from livestock products.

Pastoralists fill an ecological niche by using marginal lands which are unsuitable for other economic uses. In certain areas, they have a significant impact on watershed management which is vital to the irrigated agriculture.

Changes in summer and winter pastures have taken place over the last centuries and customary mechanisms to determine pasture user's rights do exist, and are functioning to a certain extent. In areas where grazing rights have been recently established, and where these were politically manipulated, there is a high level of conflict over user's rights.

Due to these considerations, the pastoralist sector is important because of the interaction and potential conflict of interest with fast growth in the irrigated crop sub-sector because of watershed development and management issues that influence the sustainable livelihoods of both groups. Community management of grazing lands and problem resolution mechanisms will be important for the conversion of substantial areas to arable agriculture development of questionable merit.

Studies have shown that there are significant income problems amongst the pastoralists. Some of pastoralists earn income as migrant laborers, leaving their families behind in the kuchi areas. Their skill levels, other than livestock keeping, are low and unskilled labor is all they can obtain. Destitute pastoralists who have lost all their livestock tend to settle permanently in their traditional winter areas and may face insecurity of tenure. They are often at risk of being evicted from the land by local residents or commanders. This land insecurity places additional stress on already destitute people.

In recent years, an increased diversification of household income and a move towards a more semi-migratory lifestyle has taken place.

3.2.2 Intensive Livestock Production

A sufficient, sustainable feed resource base is crucial for intensive production systems in order to improve the nutritional status and productivity of animals. This includes a substantial increase in the area planted with fodder crops. The horticulture chapter notes the desirability of inter-planting orchards with alfalfa, Egyptian clover and other legumes for animal consumption. Thus, there are complementarities between the two sectors as well as with the need for immediate increase in income while fruit trees mature. Calculations from similar systems and production conditions have shown that the income from producing fodder crops could easily outweigh income from traditional crops per square unit of land where demand for fodder is growing.

Expanding agribusiness for meat and milk processing and to provide high quality mixed feeds to the intensive livestock areas and mixed farming units is important.

That, as in the case of horticulture, will require substantial assistance to the private sector in building trade associations, assisting in legislative improvements and in access to credit as well as best practices in other countries through business exchanges. As temporary measures, this assistance does not require investment into building government capacity.

Assistance will be needed at the production level for privatizing services and input supply enterprises. For example, veterinary services that farmer and herders pay for. In many areas the shift to private practices is well along and in others it may take considerable time to make that shift. There will be a continuing need to assist private feed mills with information on optimal feed mixes, taking advantage of changing availability of feedstuffs. The livestock chapter defines an extensive extension system to carry word to farmers and to provide the basis for joining farmer's organizations to put farmers concerns and needs at the center.

Laboratories are needed for several specific aspects of the processing and supply chain for animal products. Eventually research will be called for in developing the most effective feed systems and interaction with the crop farming system.

3.2.3 Important Issues and Constraints

General Issues:

- The lack of a livestock policy and livestock development strategy.
- The lack of coordination between Government, donors and NGOs activities.
- The lack of adequately trained personnel in almost all areas of veterinary and animal husbandry services provision either to undertake public or private functions.
- The weak organization of the public services and inadequate distribution and motivation of human resources.

Issues Related to Animal Health:

- The lack of a disease surveillance network, laboratory services for disease diagnoses, investigation and an Epidemiology Unit to manage livestock information in such a way that it can inform and feed the planning process.
- The increasing incidence of endemic, zoonotic and exotic livestock diseases.
- The lack of quality vaccines produced in Afghanistan. Despite adequate building space and trained personnel, the necessary equipment is currently unavailable.
- The absence of animal movement control and quarantine facilities at Afghanistan's borders for imported live animals and inspection of trade animals.
- Inadequate separation of trade and slaughter animals at marketplaces allowing for possible contamination of farm animals by trade animals.
- Inadequate slaughter facilities and trained meat inspectors to enforce needed sanitary measures for the protection of consumers.
- The insufficient and outdated legal framework for the control of livestock disease, the regulation of private animal health service providers, the importation of veterinary medicines, biological products and animal feed,

standards and regulations governing meat inspection, the processing of livestock products including slaughter facilities and dairy processing plants;

- The uncertainty over the sustainability of the private delivery of animal health and production services and input supplies through the donor / NGO financially supported VFU system.

Issues Related to Animal Husbandry:

- Poor knowledge and monitoring of livestock numbers, productivity and production. The census undertaken in 2002 gives indications but its results are questionable.
- Poor standards of livestock management, including especially housing and nutrition.
- Weak feed resource base and periodic lack of pastures or feed linked to frequent droughts and insufficient availability of agriculture by-products which affects production and growth of national herds. This is aggravated by the undue occupation of a number of traditional pasture areas by powerful people (commanders).
- Lack of marketing facilities for live animals and animal products. Farmers have little information on marketing possibilities and opportunities, particularly for what concerns livestock by-products like hides and skins, wool, etc.
- Inadequate organization of processing and marketing of livestock by-products, including hides, skins, wool, and milk products.
- Lack of clear and adapted extension information and of a coherent extension organization.
- Inadequate information on, or access to, genetic material (grade reproducers, semen, embryo-transfer, etc.), equipment and other materials for upgrading indigenous livestock.
- Insufficient and outdated legal frameworks for the control of livestock inputs and feeds, reproduction and genetics, livestock trade, processing of livestock products, etc.
- Lack of coherent legislation on land rights, conflict between nomads and sedentary farmers over land rights, severe conflict of interests between winter grazing rights and cultivation in many lowland regions.
- Inadequate financing of animal production investments. Existing financing tools are no longer operational.
- Insufficient investment in feed manufacturing.
- Lack of coordination between security institutions and government services, particularly along the borders.
- Weak water resource management.
- An eroded and outdated traditional knowledge base.

3.2.4 Objectives:

The overall objective is:

“To increase livestock productivity and livestock production throughout Afghanistan and to provide the people with improved availability of animal proteins, increased revenues and livelihoods of livestock owners.”

This general objective is to be attained through the protection of livestock against animal diseases and the improvement of livestock raising practices in conformity with the three pillars of the National Development framework.

The specific objectives are:

To decrease the mortality and morbidity of animals through prevention and provision of quality veterinary services and drugs for the treatment of animal disease and to protect humans from contamination by zoonotic diseases and ensure quality and safety of products of animal origin.

To reduce the impact of contagious diseases on the national herds to acceptable levels in the mid-term and prevent introduction of emerging diseases.

To improve access to efficient and fair veterinary services to all livestock owners and to ensure distribution of quality veterinary drugs and vaccines where and when needed in the country.

To decrease the prevalence of zoonotic diseases in Afghanistan and prevent contamination of the population.

To organize, regulate and implement quality and safety control of products of animal origin in order to protect Afghan consumers and promote exportation.

To increase and secure livestock productivity and the national production of livestock products through the promotion and development of improved traditional and appropriate animal husbandry practices.

To improve the genetic standard of the domestic herds through selection and preservation of indigenous breeds and well planned importation of chosen high producing exotic animals and genetic materials

To procure secured and quality forage and feed to domestic animals according to their expected production and nutrition requirements

To rationalize and secure traditional livestock raising practices and promote modern and intensive livestock practices

To undertake thorough human resources needs assessment study for the livestock sector and ensure that relevant training and extension programs are funded and implemented in the medium term.

To review and renew the livestock sub-sector legislation in order to create an enabling environment for enforcement of the Government policies and to secure and promote private sector initiatives and investments.

If these objectives are accomplished over the next few years, the majority of rural households practicing animal husbandry will:

- **have improved significantly their livelihoods and level of income;**
- **have reached better security regarding health and nutrition of their animals to sustain food security and commercial**

productions generating farm capital;

- **contribute to the national economy through efficient pastoral and intensive quality productions for national and export markets.**

A good understanding of the roles of the public and private sector in disease control is essential to implement the policies and strategies. Official veterinary services will coordinate and promote the implementation of the strategies, organisation of the disease detection systems and epidemiology services, the control of disease by focal vaccination and movement control, ensure supply of quality vaccine, implement sanitary measures (quarantine of movement control or infected premises, village, epidemiological units) and ensure public and stakeholders awareness.

The private sector supplemented and assisted as necessary by the MAAHF will ensure delivery of veterinary services and drugs, participate to epidemiosurveillance and disease intelligence networks through disease detection and reporting and contribute to control programs (including the use of contracting arrangements).

3.2.5 Strategies for Animal Health and Veterinary Services:

The veterinary strategies will be to:

- Develop prevention and control programs to decrease impact of contagious transboundary and emerging diseases based on modern disease intelligence networks and systems, through improved co-ordination with all stakeholders;
- Create a favorable environment for the promotion and generalization of private veterinary services and drugs delivery;
- Intensify control measures against zoonotic diseases; and
- Implement throughout the country systematic inspection of products of animal origin.

Strategies for the prevention and control of contagious diseases:

- Develop communication and extension aides to train field professionals in disease recognition and clinical diagnosis;
- Increase farmers awareness information through participatory epidemiology teams used for extension at the same time as they collect data;
- Improve awareness and organization of traders;
- Determine the impact and incidence of the disease through participatory epidemiology;
- Specify how the causal agent is being transmitted and maintained;
- Find out where are the most important contamination spots and determine the vulnerable points to attack;
- Ensure effective clinical diagnosis and laboratory confirmation;
- Organize laboratory support for surveillance; and
- Recommend possible interventions or mandatory control.

Strategies for veterinary services and drug delivery:

- Improve co-ordination between public services and private stakeholders and develop a system of partnership based on regular consultation and

involvement, participation to disease detection, surveillance, reporting and control programs.

- Develop rules of partnership and promote coordination of approaches for services and drugs delivery.
- Encourage private service delivery initiatives, including the use of government assets and contractual arrangements for implementation of certain public services.
- Ensure planning, in consultation with concerned stakeholders, for progressively introducing full cost recovery of services and inputs.

Strategies for the control of zoonotic diseases

- The development of investigative and laboratory diagnostic capacities as for the main contagious animal diseases; and
- The implementation of public awareness programs to inform the population of the existing potential contamination risks.

Strategies for the organization of veterinary public hygiene:

- Review conditions regarding the marketing and slaughtering of animals and processing of animal products in particular meat and milk supply of urban centers to determine strategy;
- Consult traders and distributors on the problems they have to face and possible solutions;
- Carry out a detailed study to determine priorities and specify the infrastructure, equipment, training and organization needed;
- Define an implementation program including technical justifications, costing, and feasibility and possible time schedule to progressively expand veterinary public hygiene activities;
- Prepare relevant legislation and regulations to create an appropriate regulatory environment.
- Establish sound community based watershed management (See water management section)

3.2.6 Strategies for Animal Husbandry

- Improve the genetic resource base to increase production of meat and milk according to regional specificities and feeding resources.
- Selection through identification of reproducers and adapted breeding practices of local breeds according to their proven qualities and disease resistance.
- Collection and/or import of sperm for the development of dairy production and the development, with close involvement of the private sector of artificial insemination practices.
- Preservation and selection of suitable goat and sheep breeds to increase the national production of meat, milk and specific products like skins and wool to appropriately planned national targets.
- Promote increase of backyard production in rural areas through selection and careful crossing of local breeds (poultry, ducks, geese, turkeys..) and develop modern poultry farming (layers and broilers) in the vicinity of urban centers through import and multiplication of chosen exotic strains and investments in

hatcheries to increase the national production of meat and eggs to develop availability of low cost animal proteins for the population and for import substitution. (v. Household Food Security and Human Nutrition).

- Assess the current feed resource base both traditional and non-conventional in the context of seasonal availability. Identify best option and develop fodder crop production systems for mixed farming and intensive production systems including comparative studies on return on investment with traditional crop production (wheat).
- Promote fodder and animal feed production to increase artificial forage production in order to improve and complement animal nutrition and increase food security during winter and drought periods and to facilitate availability of balanced feed to allow for the development of modern and intensive animal production practices.
- Establish Community Based Natural Resource Management committees for addressing range land management and conflict resolution and develop a pasture based local negotiation process on mechanisms and conditions of use of the pasture-land. (See community development and empowerment section)
- Review the existing legal and regulatory framework for the sub-sector and determined what additions will be required to arrive at the desired level of legitimacy of the Range Management and livestock development plans.
- Promote the creation of community based common interest groups (farmers associations, cooperatives)
- Carry out a comprehensive assessment of the current status of the range lands, and the (reversible or irreversible) effects of the drought.
- Develop a Pasture Monitoring and Early Warning system, and build the capacity of the relevant institutions (notably Disaster Preparedness Unit and the MAAH) to develop an emergency action plan for response.
- Explore the potential for range lands to support dry land farming of fodder crops
- Development of a legislative framework at national, provincial and district level which legitimizes and endorses community agreements on Joint Community based Natural Resource Management
- Implement a pilot program for Joint Community based Natural Resource Management;

4. Quality Control and Certification, Quality Assurance and Food Safety

4.1 Situation Analysis

The government has commenced a program of privatization and dissolution of state owned enterprises. As it does so, the MAAHF will take steps to protect the farmer and the consumer from substandard products. At the same time, the MAAHF will design policies and regulations to protect the environment. The various means that the MAAHF will use include the development of laws and regulations, regulatory bodies to enforce the regulations, training of staff and building of laboratories.

4.2 Government Objective

The overall objective of the Government is to protect the farmer from getting substandard inputs for production and the consumer against unsafe food.

4.3 Strategies to Take Advantage of Opportunities and Strengths

- Continue the process for approval of the Seed Law and initiate the implementation of the agreed seed policy to direct the further development of the seed industry.
- Proceed with the establishment of the planned seed certification agency including the the setting up of laboratories, training of staff, and all other aspects of a seed regulatory system that meets international standards.
- Proceed with the formulation and implementation of the regulation of the trade in vegetatively propagated planting materials.

4.4 Strategies to Minimize Constraints and Weaknesses

- Continue the process of getting approval of the policy and strategy for the development of the private sector agro-inputs supply industry ensuring the supply of appropriate, effective and safe fertilizers and agrochemicals in increasing agricultural productivity and contributing to the achievement of national food security and protection of the environment.
- Establish technically equipped regulatory bodies within the MAAHF.
- Prepare the legal and regulatory framework and develop standards for food production, processing and marketing and food safety. (See section on food security and livestock production).
- Review and renew the livestock sub-sector legislation in order to enable enforcement of the Government policies and to secure and promote private sector initiatives and investments.

The laws and regulations which are necessary to sustain the policies and strategies presented above include a legal and regulatory framework for animal production and health.

- A set of regulations on animal diseases and notifiable diseases.
- A set of regulations on the exercise of veterinary medicine.
- A set of regulations on the veterinary pharmacy and biological inputs.
- A set of regulations on animals and the environment.
- A set of regulations on the prevention of cruelty to animals.

Human Use of Animals

- A set of regulations on the property of live animals;
- A set of regulations on animal movements and marketing;
- A Decree or a set of regulations on animal products processing, marketing, distribution and export;
- A Decree or a set of regulations on animal feed, supplements and additives.

Implementation has begun within MAAHF of an EC funded project to prepare the legislation and develop laboratories, train staff and all the other activities envisaged above.

5. Household Food Security and Human Nutrition:

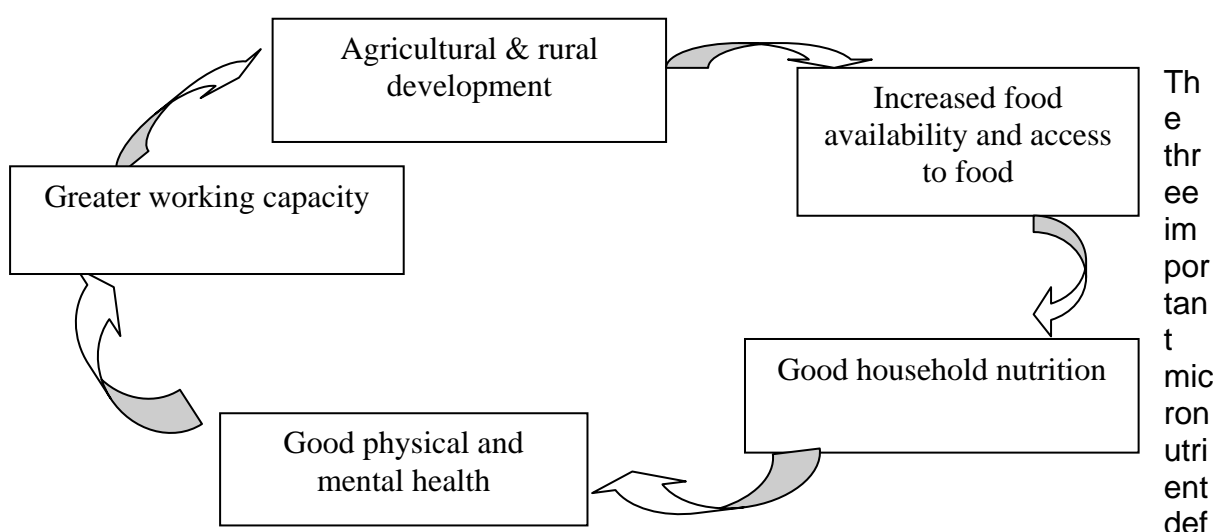
Food security does not imply total food self-sufficiency. Self-sufficiency is a strategic objective, and most countries are content with a minimal level of self-sufficiency that they can build on in times of natural disaster, political crisis, war, and threats to their trading relations. This option is not available, for a variety of reasons, to a large proportion of the population.

Food Security is ensuring that the vast majority of the population has access to adequate quantities and quality of food, either by growing it, or by having sufficient money to buy it. This is the aim expressed in the national *Policy and Strategy Framework for the Rehabilitation and Development of Agriculture and the Natural Resources Sector of Afghanistan*.

Ensuring access to adequate food is the first step in ensuring an adequate nutritional status for the nation's population. It is supremely important because it is an investment in human capital: well-nourished children are more receptive to education, grow into stronger adults, are more productive workers, and are politically more stable. Agriculture is only one of the many factors influencing the nutritional status of a population. For this reason, it is one of the best indicators of overall development in a community. The principle objective of most agricultural production, however, is the provision of food for people to eat.

5.1 Situation Analysis

Malnutrition is prevalent throughout Afghanistan. Between 45 and 59% of children under five suffer from chronic malnutrition as indicated by low height-for-age, while between 6 and 10% are wasted (low weight-for-height (MOPH and Tufts University, 2003). Infant malnutrition and the poor nutritional status of women are major contributors to the high mortality rate [source : Afghanistan Public Nutrition Policy and Strategy]. There is a very high level of micronutrient deficiency which is caused mainly by the absence of a balanced diet, combined with a high disease burden. Results from the 2003 National Rural Vulnerability Assessment (MRRD, WFP, 2004) show that 57% of the population have very low diet diversity. In fact poor diet diversity was found to be the strongest indicator of vulnerability.



iciencies are lack of iron, Vitamin A and iodine. The prevalence of anemia is estimated at 37.5% among children 6-59 months and around 25% for women of child-bearing age; 71.9% of children 7-11 years old are iodine deficient; and 10.2% of children 6-59 months have vitamin A deficiency

(MoPH, UNICEF *et al*, 2005). This indicates severe lack of diet diversity. Not only do micronutrient deficiencies lead to clinical symptoms such as blindness (vitamin A) and goitre, they also lead to increased vulnerability to disease and death. Micronutrient deficiencies such as iodine and iron deficiency also severely affect individual's intellectual development and work capacity.

Malnutrition is therefore a key obstacle to Afghanistan's development. This highlights the importance of addressing food security and human nutrition together: good nutritional status is both an objective of and a requirement for agricultural development. Addressing food insecurity and malnutrition in Afghanistan requires addressing all issues related to availability and access to food, as well as food preparation and consumption of food at the household level, as illustrated by the figure above.

Household's access to food is determined both by households' own food production and their income and purchasing power. Working on food security through the agricultural sector therefore means improving agricultural production to increase food availability in the households and markets and to increase income. This may be done in close collaboration with other ministries. Addressing malnutrition through the agricultural sector means working on issues of food safety, food preparation, and food consumption also calls for cooperation with other Ministries.

The main issues to be addressed by the agricultural sector to improve food security and nutrition are the following (*Source: the National Special Program for Food Security and 'Supporting Household Food Security and Nutrition'*):

- Water management;
- Crop intensification;
- Diversification of production, notably through horticulture, animal production, poultry production, tree planting, aquaculture, and other agricultural product (apiculture, flower production, medicinal plants, etc.);
- Integrated pest management and disease control;
- Rehabilitation of existing government warehouses;
- Construction of new warehouses;
- Expansion of grain-storage-silos;
- Food safety;
- Food preservation and processing and;
- Food preparation and consumption.

Experience from other developing countries suggests that the near elimination of malnutrition will require gains in long-term income growth, agricultural productivity and other social indicators. This calls for broad-based economic development, sustained growth in agricultural productivity and investment in social services including education and health. Failure in any one of these would hamper efforts to eliminate food insecurity in a sustainable way. Addressing food security and human nutrition requires working with all members of Afghan society, notably women, who play a key role in agriculture and in the interface between the food production and food consumption.

5.2 Objectives:

The objectives of MAAHF in the field of food security and human nutrition are the following:

- To reduce malnutrition in the Afghan population, especially micronutrient deficiency diseases (see in this regard the Public Nutrition strategy objectives written by MOPH, which MAAHF can work on in collaboration with MOPH – annex 1).
- To improve households consumption of diverse and safe foods.
- To improve households living conditions.

This can be done by:

- Improving income generation from agricultural activities (both on-farm and off-farm).
- Improving food production by increasing productivity and diversification.

These problems should be addressed in an integrated manner, through a diverse range of strategies, including water management, diversification, intensification, adding value to agricultural products, etc. (c.f. list in 2.1.).

5.3 Strategies to Take Advantage of Opportunities and Strengths:

Food Fortification

- Continue to promote the fortification of staples with micronutrients and the used of iodized salt

5.4 Strategies to lift the constraints and minimize weaknesses:

Marketing

- Establish a market information system for disseminating local price information on a regular and frequent basis to improve the marketing and distribution system for agricultural products
- Identification of priority routes for agricultural marketing and the improvement of infrastructure and transport systems including feeder and trunk roads through careful inter-ministerial coordination, particularly between the MAAHF and the main implementing ministries, MRRD and the Ministry of Transport.
- Determine and create the conditions that encourage producers of major traded crops to form local, or regional producer organisations that can negotiate collectively.
- Renovate existing and create new hygienic formal market premises at Provincial and District centers.
- Continue to develop cold storage facilities based on a pay for use system where they have been requested.
- Insure to keep minimum resources to deal with unexpected weather related shortages.

Food Crop Diversification

- Through the extension and research system assist rural households in identifying and growing a greater variety of food crops appropriate to their circumstances.

Nutrition Education and Extension:

- Integrating nutrition education in all agricultural programs; education messages need to be designed to address obstacles to changing practices, such as certain beliefs concerning foods (hot/cold; foods eaten during illness, etc.). Education should encourage households to make optimal use of the foods they have access to, and influence their purchasing decisions when foods are procured on local markets.
- Food preparation methods should be provided along with the newly introduced crops (e.g. cooking classes) small-scale food processing and preservation techniques should be enhanced and disseminated so as to enable households to preserve foods for consumption throughout the year (especially the winter), and to sell extra produce on local markets to generate income.
- Provide training and education to households on how to diversify their own food production (e.g. vegetable gardening, home orchards, etc.)
- These activities are not to be implemented in isolation of other agricultural activities, but integrated in current and future agricultural programs, implemented by Government institutions, NGOs, UN agencies, and private sector.

Input Supply

- Meet the demand for the QDS of wheat and other crops as per the Master Plan for seeds being made by MAAHF.

Crop Loss Reduction, Pre- and Post-Harvest

- Improve the forecasting capabilities of the MAAHF to stifle the spread of crop pests before they can cause serious damage.
- Strengthen the locust and Sunn pest control programs ensuring timely and effective interventions.
- Introduce treatment of seeds prior to planting against rust and smut and introduce/develop resistant varieties.
- Reduce post-harvest losses during on-farm processes (transporting from the field, threshing, etc.) and, more seriously, during storage whether on- or off-farm.
- Improved storage facilities to harvest the double advantage of improving the quality and quantity of grain available to the farmer and allowing them to keep grain to sell off-season when prices are more favorable to them, thus enhancing overall household food security.
- Repair and maintain existing storage facilities in order to put them at the disposals of farmers, cooperatives, and/or traders.
- Establish new storage facilities in addition to the 14,200 grain storage silos currently being distributed to farmers in seven provinces of Afghanistan.

Food Safety

- Prepare the legal and regulatory framework for food safety including border controls to check the quality of food items imported or exported.
- Through international agencies and in collaboration with other countries formulate internationally agreed safety standards for the exportation of fresh and dried fruits.
- Updating legislation and food regulations in line with international food standards (c.f. *Codex Alimentarius*; Afghanistan is now a member of Codex)

establishing an integrated government food quality control system, involving the relevant ministries (MAAHF, MOPH, Ministry of Commerce, Ministry of Finance, Ministry of Trade, Ministry of Mining)

- Developing in-country capacity for quality control analyses (laboratories and technical expertise).
- Sensitizing and informing the private sector regarding food laws and their implementation; working with the private sector to enforce food regulations.
- Raising awareness and educating the general public on food safety and food hygiene in the home.

Animal Protein - Poultry and Fish,

- Promote the production of livestock (cattle, sheep and goats) and poultry to increase household intake of animal proteins as well as a way to give women some economic independence.
- Promote aquaculture in suitable areas.

Early Warning Systems to Prevent Food Crises

- Regularly collect agro-meteorological data, food prices, and information on plant and animal diseases for dissemination in a timely manner to government officials to enable rapid response in case of shocks.
- Develop early warning systems for natural disasters through close monitoring of agro-meteorological factors.
- Continue to collaborate closely with other government institutions (e.g. CSO, MRRD Vulnerability Analysis Unit) to gather all relevant data and improve its capacity to foresee disasters.
- Further develop the MAAHF capacity to respond to agricultural threats through strong disaster-preparedness strategies. This can include developing the country's food storage capacity, and developing mechanisms to mobilise needed resources rapidly (e.g. pesticides for locust control, seeds for emergency seed distributions, etc.).

5.5 Medium-Term Strategies

In the medium-term the strategy for improving household food security is mainstream rural development, particularly the diversification of income sources. This is covered in the sub-sectoral strategies elsewhere in this document which relate to the development of horticulture and livestock, the strengthening of agricultural support services (input supply, research, extension, rural finance), and the improvement of input and produce quality.

6. Natural Resources

In a country where over 60 percent of the population relies directly on the natural resource base to meet its daily needs, widespread environmental degradation poses an immense threat to livelihoods. More than two decades of conflict, military activities, refugee movements, collapse of national, provincial and local forms of governance, lack of management and institutional capacity, over-exploitation and drought have heavily damaged Afghanistan's natural resource base. As a result Afghanistan is woefully vulnerable to natural disasters and food shortages.

Of the 655,000 square kilometres of total land area, only 12% (7.9 million hectares) is arable and 4% irrigated. An additional 46% is under permanent pastures and 3% under forest cover. The remaining 39% is mountainous. Geographically, nearly 75% of the arable area is concentrated in three of the eight agricultural planning regions of the country – north, northeast, and west. Of the total arable area, not more than half is actually cultivated annually, mainly because of water availability problems.

Overall, the natural resource base continues to suffer due to:

- Competing land use (agriculture, human settlements, forests and rangeland, wetlands and protected areas).
- Ambiguous legal status of ownership and access to natural resources (land, water, forests and rangeland, biodiversity, wetlands, and protected areas).
- Lack of enabling policy, legislation and regulatory framework for managing natural resources, along with weak governance and management of natural resources.
- Negative impact of war, increasing population, human settlements, drought, overexploitation and landmines on natural resources.

Other challenges for natural resource and environmental management include the poor waste management practices (such as medical wastes) and lack of proper sanitation. These are the main environmental factors affecting human health. This underlines the need to develop sound information programs and monitoring systems which would allow the government to establish a link between the quality of health and environmental conditions. There is also insufficient institutional capacities and an absence of legislation in many areas.

A failure to address environmental degradation will damage the populations' health and increase poverty and hunger. Environmental degradation, besides hampering economic growth in the agriculture sector, causes particular harm to the lives of the poor, households of the physically impaired, the landless, those farming small rainfed plots, and female-headed households. Economic development that leaves out the poor and enhances distributive injustices is not sustainable and will be a source of subsequent conflicts.

Core Issues for the Natural Resource Development Strategy:

- Establishment of regimes of utilization of natural resources.
- Achieving balance between, on the one hand, maximization of production and productivity in all agricultural land uses and, on the other hand, effective maintenance and enhancement of the natural resource base.
- Formulation and application of enabling policy, legislation and regulatory framework on ownership, access and management of natural resources.
- Establishing strategic roles of people and institutions in governance and management of natural resources.
- Promoting community-based natural resource management in diverse geographic settings.
- Establishing strategic roles of people and institutions in community resource management.
- Improving water management at the basin level, particularly at the upstream.
- Integration of watershed development with irrigation improvement.

- Scientific assessment of the state of natural resources, including hydrological and biodiversity assessments.
- Promote water usage efficiency.
- Ensure that all surface irrigation comes under the command of farmer water user associations.

The overall objective is to establish a sustained balance between maximization of production and productivity in all agricultural land uses (dry-land farming, irrigated farming, livestock husbandry, forest products, wildlife exploitation) as well as effective maintenance and enhancement of the natural and wildlife resource base.

6.1 Water and Watersheds

Water is key to the health and wellbeing of all people and essential to agricultural productivity. Both surface and groundwater resources have been severely affected by the drought, as well as by uncoordinated and unmanaged extraction. This is further complicated by changing climatic conditions worldwide severely affecting the snow cover in the country. Spatial and temporal variation in rainfall further adds to the challenges in the water resources management.

Available information shows that in 2002, the total land area under irrigation was only 33% compared to 1993. Functional water systems are also running at about 25% efficiency against their potential of 40-60%. While there has been substantial financial and technical support for rehabilitation since 1989 from donors and UN agencies, comprehensive data on the scale and the extent of successful and sustainable rehabilitation is not available. Thus scope exists to expand irrigation area. Estimates have shown that long-term water availability is about 2800m³/head /year, enough to irrigate 5 million ha., which is significantly higher than the current command area of 2.6 million. The bulk of the income in Afghanistan is currently and increasingly come from the irrigated areas. Much of the current irrigated area is only irrigated during one growing season and even then with considerable fluctuation in water availability from year to year.

6.1.1 Issues and Constraints

- Ground water depletion and lack of appropriate policies to effectively manage and monitor groundwater development and use.
- Inefficient public institutions and mechanisms to govern and manage water resources are out of date, both at public and private sector level.
- Lack of obedience of the rule of law prevents the implementation of the legal and regulatory framework.
- Increased population density, a shrinking natural resource base, and limited opportunities for alternative employment and income resulting in unsustainable land use practices like overgrazing, deforestation and cultivation of marginal lands.
- Lack of reliable hydrological data and watershed mapping
- Insufficient data on the effects of war and neglect on the irrigation systems and the current status of repair. These weaknesses and the lack of water management has mostly affected the poor and marginalized groups of farmers depriving them of the benefit of irrigated agriculture and widening the gap between the rich and the poor.

6.1.2 Objectives

One of the Government priorities is to develop a long-term strategy to manage water resources and reduce vulnerability to drought. The strategy should focus on increasing the water capital, and improving water use efficiency. Specifically, the strategy should include (i) water harvesting and watershed management with more small and large water storage structures, (ii) effective control of groundwater use, (iii) better information systems on water availability, (iv) eliminating unsustainable land use practices (v) improved intake structures and corresponding on-farm water management, (vi) the management transfer of state owned schemes, plus, (vii) extending the irrigated command area.

Improved water resource management will, in many regions, be an essential first step in rebuilding rural communities and improving human health. Maintaining water quality and quantity should be the overriding goal of all land-use planning activities and integrated water basin planning should be implemented across the country.

6.1.3 Strategies for Taking Advantage of Opportunities and Strengths

All irrigation systems systematically surveyed for prioritization of investment.

- Planning for the rehabilitation of formal and large scale schemes into fully functioning major irrigation schemes.
- Traditional small and medium irrigation schemes will play a key role in institutional restructuring and capacity building. This includes maximizing the scale and optimizing efficiency in small scale irrigation systems.
- Increase water catchment and storage facilities for conserving water resources and enhancing groundwater recharge in all watersheds with subsequent sustainable use of ground water
- Enhancement of the opportunities to irrigate irrigable unused acreage or increase number of growing seasons

6.1.4 Strategies to Minimize Constraints and Weaknesses

- Establish a national cross-ministerial water coordination agency for management of multi-sector demands (often conflicting) including planning, regulation, protection, conservation and monitoring of the resource base.
- Review the legal and regulatory framework and if required prepare additional laws for approval by parliament.
- Establish river basin/watershed planning and management committees within a community development framework.
- Water conservation and harvesting through soil, vegetative and forest cover management.
- Rebuilding the the water resources knowledge base and establish database and information management systems (GIS and remote sensing).
- Prepare required standards and protocols.
- Through a special board or committee negotiate with neighboring countries to ensure equitable shares and monitoring of water resources.

6.2 Land Management

The land ownership in Afghanistan is complex but there are four major categories of owners in the country.

Private Ownership.

While there are numerous issues regarding land ownership proof and property rights claims, unclear ownership documentation, poor cadastral services, and state registration documentation destroyed in the years of conflict, there is little doubt about the conceptual definition of private land.

Joint Ownership by Tribe or Clan

Afghan land code includes this definition, which may be regarded as a primeval form of Community Ownership.

Community Land.

Communities are increasingly using the traditional concept of community land, coupled with the recognition from the central government of its utility and viability.

Government Land.

Government land is all land that is not private. Beyond that, the term remains unclear. It applies to a vast range of different situations including: forest land, rangeland, pastureland, military installations, historical sites, national parks and protected areas, roads and airports, agricultural land exploited by state enterprises, mines, etc. As a result, it is not clear if government land refers to national property of which the government is the trustee, state property of which the government is the administrator, or land owned by the government and exploited by and for its staff.

The land users and sub-sector partners are defined as central government, provincial administrations, the communities and the private sector. Please refer to the document 'Land Policy and its Implementation in Afghanistan.'

6.2.1 Important Issues and Constraints

Land management in Afghanistan suffers from factors classified in two main categories: i) limitations regarding the optimal use of different classes of land given the current realities; and ii) ambiguous ownership.

6.2.2 Objective

To enable all sub-sector partners to identify and exploit, to the maximum possible extent within the bounds of sustainability, all viable types of forestry, range and wildlife land uses as productive assets and as means of enhancing the environment,, and for irrigated and dry land farming.

6.2.3 Strategies for Taking Advantage of Opportunities and Strengths

- Sub-sector partners shall devise and implement land uses in combinations and measures that achieve a balance between productivity in agricultural land uses and enhancement of the natural resource base, and which are tailored to the different physical conditions in various parts of Afghanistan.

- Sub-sector partners shall devise and organise upstream land uses which significantly benefit downstream irrigation farmers using a watershed approach.
- Development and deployment of a standard land suitability classification covering irrigated cropping, dryland cropping, forestry and rangeland uses, together with appropriate subdivisions of these categories. The main parameters for the land suitability classification shall be climate, soils, topography and slope.

6.2.4 Strategies to Minimize Constraints and Weaknesses:

- Review the classification of land (1965, 2000) to adapt it to the current situation in a flexible manner that utilizes a range of values to facilitate local administration.
- Define and legalize the term Community Land, develop policies for ownership and management of this land designed to ensure community user control..
- Reviving settlement schemes through the allocation of unused land to nationals selected from amongst the poorest, and assist them with the initial requirements enabling them to succeed.
- Develop systems for the permanent transfer of land stimulating and encouraging investment on the long-term, but with conditions that if not met would revoke the land ownership: The conditions could include development of forestry as per instructions, an agreement not to grow poppy or other illegal crops; or lining of roads with trees.
- Develop methodologies to ensure access and passage of nomadic herders.
- Assess the extent of illegal establishment of agriculture land on rangeland, and develop the legal and regulatory framework required to ban such practices. Remove settlers from plots that don't meet the criteria and return these lands to nature, grazing, or forestry. Allow settlers to keep the lands provided the conditions outlined for the privatization scheme are met.
- Provide an official land title after 5 years if conditions are met.

6.3 Forests and Wildlife

Forests and rangelands are particularly valuable in arid regions such as Afghanistan. They provide fuel wood and timber, as well as other non-timber forest products like nuts and medicinal plants. Forests are also prime habitat for many animal species, including some threatened with extinction. Extensive tree cover can also help to moderate local climate conditions and reduce potentially damaging runoff after sudden rainfall. However, overgrazing combined with an increasing population and corresponding demands for fuel wood over recent decades have resulted in extensive decline in woodlands.

With the loss of forests and vegetation, and excessive grazing and dry land cultivation, soils are eroding from wind and rain. The productivity of the land base is declining and driving people from rural to urban areas in search of food and employment. Riverbanks are also eroding with the loss of stabilizing vegetation, and flood risks are increasing.

The wildlife species of Afghanistan are under threat. The legal status of all protected areas is currently in question, and no management is taking place to protect and conserve their ecological integrity or wildlife. Furthermore, less than 1 per cent of the land base is contained within protected areas and none of the dwindling conifer forests to the east are protected.

6.3.1 Objectives

To restore forests and other vegetation cover combined with grazing management to combat erosion, desertification and flood risks.

To develop community capacities to discuss and decide upon the improved land uses to be implemented.

6.3.2 Strategies for Taking Advantage of Opportunities and Strengths

Transfer of effective management responsibilities for forestry and range resources within defined community geographical areas to communities to create value for community members (both in the form of productive resources – timber, firewood, better pasture, and as means of protecting natural resources from erosion).

6.3.3 Strategies to Minimize Constraints and Weaknesses

- Prepare the legal and regulatory framework for introducing and adopting a community-based approach in forestry, range and wildlife management.
- Develop the community capacities to organize, operate and sustain the improved measures with a minimum of support from outside. Assistance from outside the community shall be provided in a manner which facilitates the developments of these community capacities and roles.
- In collaboration with community management committees, develop forest and vegetation restoration programs in suitable areas.
- Develop wildlife conservation programs.

7. Community Development and Farmer Organization:

A major theme of the 2004 Policy Document is farmer control of expression of their needs, management of systems and input into higher-level services. It notes the importance of general community organizations that are the purview of the Ministry of Rural Development and expands on types of farmers associations that will be the purview of the MAAHF. The new organizational structure of MAAHF recognizes this need and its close affinity with extension and research and so has grouped these three functions in the same Department to ensure close cooperation. The Master Plan notes this structure and gives a priority to each of the components for institutional strengthening and associated technical assistance and sets forth substantial budgets for this purpose.

The chapter on finance notes the need for the MAAHF to rapidly organize farm finance associations. These will require considerable assistance for some period of time not only in organization but also in providing accountants and management training. Eventually they will become free standing and will need continuing advice on such matters as management and changing financial instruments.

The chapter on horticulture notes the need for farmer organizations to assure quality and adequate volume as well as the ability to trace growers for meeting increasing standards of importing countries and for the future of Afghanistan. The MAAHF will need to organize these associations on a massive scale and provide continuing advisory services.

On-farm water management is vital to water use efficiency and those farmers associations with full power, including financial resources, are critical to this function. The natural resource chapter notes this need.

8. Strengthening Support Services to Agriculture

8.1 Research and Technology Transfer

The Agricultural Research Institute of Afghanistan (ARIA) was established in 1983 as the organisation responsible for agricultural research within the MAAHF, under the direction of the Board of Research and Extension.

The country is characterized by diverse agro-ecological conditions that support a wide range of crops. It has seven agro-climatic zones, each zone covering a number of provinces. Agricultural research stations corresponding with the seven agro-climatic zones have been established in each of Kabul, Nangarhar, Kandahar, Herat, Balkh, Baghlan and Kunduz. Research activities are currently underway, with significant external help from the CGIAR institutions and some NGOs, on cereals, vegetables, fruits and industrial crops in research stations throughout the country. In order to disseminate the improved crops and practices to the farm, the National Extension Department networks exist throughout the country, to complement the research program.

The most commonly identified problems are: the limited number of technical qualified research and extension personnel, inadequate incentives to keep the most able personnel in the service, lack of appropriate facilities in the research stations, limited extension materials essential in raising the level of farmers' awareness, the slow replacement rate of traditional technologies with improved ones and the lack of a coherent agricultural knowledge and information system.

For several years, Afghanistan can rely on known technologies and make up for some technical backwardness with low farm incomes (wages.) But eventually Afghanistan will want to compete more directly in technology in the context of much higher farm incomes and rural wages. Developing a research program takes time, especially given the paucity of trained scientists.

The philosophies behind both extension and research have been predicated on the outdated, top-down principles of the soviet system holding that the sole source of knowledge is the scientist. It is the job of the extensionist to tell the farmer what to do and the job of the farmer to do it. Although ideas are changing the process is slow and lengthy.

The policy of the government, as expressed in the 2004 Policy Framework for the Agricultural and Natural Resources Sector, focuses principally on growth and poverty reduction. The provision of support services must focus on the small-holders who farm the bulk of the land. In development terms, this is because the increase in income represents an increase in purchasing power. Aggregated over a large proportion of the population, it becomes the dominant source of funds injected into a local economy.

8.2 Objectives

A principal function of the MAAHF is to ensure that farmers are properly supported with the necessary services to help them produce efficiently. These services include the provision of technological advice (extension), research, prevention and control of animal and plant diseases and the control of endemic pests. In addition, the Ministry would ensure that an efficient delivery of seed and fertilizer and credit through the private sector. Also, it will ensure the provision of financial services, quality control and regulation, and adequate and uninterrupted supplies of farm inputs, such as seeds of guaranteed quality, fertilizers, and agro-chemicals. This does not necessarily mean that the MAAHF is responsible directly for providing these services: only for ensuring that they are provided.

“Support to farmers” implies that each of these service responds to the real, expressed needs of the farmers in any given locality. The overriding intention of the strategy for the future is to create the conditions for these services to operate in this way.

For too long, research and technology transfer have been seen as separate activities instead of two phases of the one activity: to resolve farmers’ problems by bringing new options before them. It is important that henceforth, research and technology transfer work as one system. This requires that researcher and extensionist performance be measured in terms of farmer adoption and increases in farm incomes.

8.3 Strategies for Taking Advantage of Opportunities and Strengths

- Initiate participatory investigations and analysis of the prevailing farming system and determining farmer’s perspectives on their problems.
- In a collaborative effort between the farmer, extension worker and the researcher determine a research program which will have direct application to the current needs of the farming community.
- Initiate and continue testing of technical options concerning new varieties, alternative fertilizer or crop protection regimes, potential innovations in land preparation or harvesting techniques on farm and under farmers’ prevailing conditions involving farmers.
- Increase awareness of the complexity of diversified mixed farming systems ensuring advisory services and research addressing the needs for establishing and operating an effective farming systems program.
- Determine the need and priorities for the rehabilitation of existing research stations and facilities.
- According to priorities redevelop and rehabilitate research facilities in line with the needs of the farmers as identified by participatory planning methods and the availability of qualified staff able to run the appropriate research and extension programs.
- Collection, evaluation and utilization of germplasm of cereals, legumes, pulses, horticultural, industrial and medicinal crops will continue in close cooperation with ICARDA, CIMMYT, JICA, FAO and other research partners along with the introduction, evaluation and identification of appropriate improved varieties suitable to Afghanistan conditions, and the production of improved varieties, pest resistant and stress tolerant lines varieties.

8.4 Strategies to lift the constraints and minimize weaknesses:

- Design and implement a human resource development and capacity building program preparing the extension staff to the different functions associated with need based demand driven service provision.
- Draw on participatory processes developed with the Extension Department and other national and international research organizations in the country with focus on farmers-centred approach towards the achievement of sustainable agricultural development. Bridge the gap between research and extension and continuously equip extension with technical know-how. Research programs are to be conducted on participatory basis with farmers' and extension personnel.
- Carry out irrigation and field water management research programs along with crops improvement program on different crops in such a way to reduce the amount water required for different crops and thereby eventually increase water use efficiency.
- Develop supplementary irrigation technology, particularly on crops with low water requirements like wheat, chickpeas, barely, melon watermelon, grapes, almond, etc.
- Drought resistant varieties of cereal, legumes and industrial crops will be tested in different parts of the country for saving water.

8.5 Knowledge and Technology Transfer Methodologies:

- Group contact methods: field demonstrations, field days, village meetings and field visits.
- Mass contact methods: publications, exhibitions and radio and T.V.
- Farmers' Field Demonstrations (FFDs): Field extension personnel invite farmers to FFDs where groups of farmers select the most active and successful farmer for demonstration. This farmer would agree to share information with the others in his village. The demonstration site is to be used to teach a large number of farmers
- Field Days: Field days are to be held in each district on crop and animal production achievements by the farmers or on the improved technologies to be adopted by the farmers. Media coverage is to be arranged for the successful farmer about specific achievement and with the field extension personnel regarding the improved technology..
- Field Visits/Meetings are organized for addressing immediate problems of the farmers. Farmers from nearby villages attend the meetings and necessary advice and or alternative solutions to the problems are provided. Attempt will also be made to use village meetings as an educational process for complementing other extension teaching methods and thereby reach a large number of farmers.
- Radio and T.V Programs: Materials for radio broadcasting and T.V are to be prepared on seasonal basis by the extension personnel for the purpose of public awareness and providing necessary information on the current farm problems.

This type of village-based integrated farmer' field school approach is not only useful in raising the level of knowledge and skills of the farmers, but also encourages positive competition among the farmers, so essential for the achievement of economic progress and social cohesion. The farmers' training program is to be carried out either on the demonstration site or on the farm of the pioneer or progressive farmers in the village.

9. Rural Financial Systems and Services

9.1 Situation Analysis

Lack of credit is the binding constraint to agricultural growth in Afghanistan and improving access to rural finance is the key to meeting the agricultural development objectives of the country.

Farms producing and selling horticulture and livestock products in large quantities tend to have greater requirements for finance than units producing traditional cereal crops. Likewise the processing sector is far larger for these high value crops and in turn requires large volumes of credit, a need exacerbated by the need for export credits.

At present there is great progress being made in providing national coverage of micro finance systems. At present this has little to do with agricultural production, but it could be quickly adapted to finance smallholder livestock production and even very small horticulture. It is vital to build and improve on the current interventions as they will be able to attain the short-term results that the government desires. The recommendation is that the Government maximizes the full potential of existing credit delivery mechanisms and institutions that are already lending and have the capacity to expand.

There is a view that commercial banks can play a major role in agriculture. It is to be hoped they will soon be able to manage necessary lending to agribusiness, which they are not serving adequately at present. Perhaps some years down the line they will lend to the largest farmers, but they are unlikely to move down to the middle peasant for many years to come.

While small scale farmers and landless livestock producers will potentially be covered through micro-financial services through various institutions the middle level farmers who produce some 90% of agricultural output probably have the highest need for credit. These farmers are crying out for a rural credit systems designed to serve their needs. Some of the possibilities being considered are rural credit systems that would be based on farmer's credit associations, to be farmer managed and farmer owned – but requiring large technical assistance to start. These could potentially over time also lend agribusinesses, thereby spreading overheads, reducing unit costs and keeping interest rates down.

Another option is that fertilizer dealers and other input suppliers could become competitive lenders to farmers for purchase of fertilizer and other inputs. The financial system needs to find a way to provide funds through this outlet. For additional information, please refer to the feasibility study prepared by ADBon Warehouse Receipts.

9.2 Objectives

Facilitate the conditions for improving the efficiency and expanding the outreach of the existing financial mechanisms and developing and providing financial products consistent with the needs of the agricultural sector. The private sector will be a driving force in meeting this objective.

Develop a viable, adequately responsive and sustainable Institutional farm credit system in response to the growing needs of farmers, traders and agro-industry.

9.3 Strategies for Taking Advantage of Opportunities and Strengths

- Non-bank financial institution providing leases for equipment/machinery such as seed drills, tractors, cold storage facilities, and refrigerated trucks.
- Local bank providing loan products to promote the development of private small and medium sized agribusiness enterprises

9.4 Strategies to Minimize Constraints and Weaknesses

- Create a sound legal, regulatory and enforcement framework,. Maintain a level playing field in the financial sector and support a competitive environment. The MAAHF should promote these issues to the ministries responsible for the financial sector legislation.
- Conduct public outreach activities for all rural financial initiatives through a strengthened communication strategy that provides feedback on results. Expanded credit to fertilizer dealers.
- Provide incentives to commercial banks to open branches in the provinces. In the provinces, the banks can develop lending windows to disburse short, medium and long-term loans targeted to the agricultural sector.
- Establish mechanisms for transferring public resources to the private sector and identify private investors for the state-owned banks.
- Develop a viable, adequately responsive and sustainable Institutional farm credit system in response to the growing needs of farmers, traders and agro-industry.

10. Gender Equality in Agriculture

The transition to democracy will only hold meaning if women are involved on all levels and at all stages of the process. Within the rural context this includes changes in the status of village women that enable them to make decisions on matters affecting their lives. The most urgent development needs of Afghan women include basic health care, literacy, accelerated education and economic opportunities.

In order to address these needs special attention have been made to plan gender balanced approaches and the creation of opportunities for women in agricultural production and development throughout the strategy document. The sections on Food Security and Livestock production contain provision that assist women in obtaining control of their lives, which in turn contributes to national growth, poverty reduction, and poppy substitution.

11. Structures and Functions of MAAHF in the 21st Century

The Master Plan places immense burdens on the MAAHF. The size of these burdens and the limited number of trained staff require very tight priorities as to what activities the Ministry takes on, leaving as much as possible to the private sector. The relationship between MAAHF and the private sector is truly symbiotic. However, even the minimum activities required of the MAAHF and selecting priorities according to the Master Plan priorities will require substantial long term technical assistance supplemented with high-level short-term assistance. The Master Plan delineates the amounts of these funding requirements.

Most of the functions of MAAHF are described in detail in the commodity and cross cutting chapters. Those chapters delineate technical assistance as well as larger donor managed projects. It is anticipated that those donor projects will work within the MAAHF and work with Ministry counterpart staffs as part of a learning-by-doing process.

Two sets of activities have separate chapters, planning and regulation, even though some of the regulatory function is also covered in other chapters.

11.1 Planning

MAAHF's new structure includes a planning department or "think tank" with six divisions. In brief, the Planning division will handle development and refinement of sectoral and sub-sectoral planning, policy, priorities, and strategies. It will nurture the Master Plan and ensure adaptation to evolving conditions and sequencing priorities. the Policy division will generate papers on special issues facing the Ministry. The Project Development division will work with all departments in developing special projects for financing; the Monitoring and Evaluation division will first inventory the large number of M&E studies carried about by the multitude of NGO's and donors and commence to build national impact studies from those as well as lessons for improving performance. It will also monitor progress in MAAHF itself as it works to meet the multitude of demands placed on it. The Statistics division will absorb the ongoing work of FAO and gradually expand that to fuller and more regular statistical coverage of progress and change in the agricultural sector. The Foreign division will monitor donor efforts compiling coverage of priority areas and diagnosing gaps in consort with the planning department. The legal division will assist the Minister in assessing various legal issues facing the Ministry and the sector.

Each of the functions in the Department have urgent requirements for action, requirements that cannot be met other than through MAAHF departments. And, the staff is small and inexperienced in dealing with these issues. As a result long-term expatriate inputs with complementary short-term consultants are needed. That assistance will be used to do critical work, but in collaboration with a counterpart will gradually be able to operate without that assistance. Training programs are delineated for upgrading the staff. All the expatriate positions will be phased out in three or less years. The Master Plan also specifies what physical facilities are needed.

11.2 Regulation

Agriculture will increasingly require regulatory mechanisms for a wide variety of activities. The production oriented and some of the input supply and marketing regulations will fall in the MAAHF. Details are provided for an investment plan for substantial staff for such activities. They are to be placed in a single department that will require substantial foreign technical assistance.

12. Annex

12.1 History and Time Frame of the Master Plan

Donors-assisted in conducting a comprehensive needs assessment of the natural resources and agricultural sector in 2002. This combined with various post conflict surveys led to the formulation of the country's framework for tackling rural development as described in the *Policy and Strategy Framework for the Rehabilitation and Development of the Agricultural and Natural Resources Sector of Afghanistan*. This was ratified by the President and the Afghan Cabinet of Ministers in June 2004, and which itself is based on the key policy directives of the National Development Framework.

12.2 The Vision

The vision of MAAHF is an integrated socio-economic development approach to building a vibrant agricultural sector that sustainably utilizes natural resources and contributes significantly to prosperity, peace, social justice in Afghanistan.

12.3 The Overall Development Objective

The majority of rural households will enjoy improved the livelihoods and improved levels of economic-well being in the next 10 years. Food security will have been achieved and agriculture will have effectively contributed to the national economy and the reduction of poverty through the development of sustainable agricultural practices, improved water, forestry and rangeland management practices based on sound environmental practices.

12.4 Key Principles of the 2004 Policy and Strategy Framework

- Recognition of essential public sector responsibilities such as policy and strategy formulation, preparation of contingency and emergency plans; certification, regulation and the maintenance of standards; the creation of an enabling environment for the private sector to flourish with all its ramifications; ensuring all-stakeholder partnerships (including community participation); monitoring and evaluation.
- An enhanced role for the private sector in the provision of agricultural inputs, services and marketing systems, with a clear delineation of public sector responsibility.
- Targeting of the rural majority for improved food security, poverty reduction and overall improvement in livelihoods.
- An insistence on sound environmental practice and sustainable resource use to maintain a basis for the livelihoods of future generations.
- Recognition of the need for administrative reform and restructuring, in order to allow the Ministry to achieve its goals, and for enhanced cooperation between the main rural development ministries (MAAHF, MRRD, MEP and the NEA).

12.5 The Process

Because of the critical role played by agriculture and natural resource sectors in the livelihoods of rural Afghans and the opportunities for providing alternatives to poppy production, the MAAHF has requested immediate short-to-medium term assistance from donors for capacity building. This includes technical assistance and support for developing the MAAHF Master Plan. Donors such as ADB, DFID, EC, USAID, USDA and WB responded positively and a series of issue papers have been prepared by MAAHF staff. These efforts and collaboration formed the basis for this draft of the Master Plan.

Chapter 2

AGRICULTURAL GROWTH, POVERTY REDUCTION AND THE ROLE OF PRIORITY COMMODITIES

Agriculture has many important roles in the development of the Afghan economy. These include providing a labor force for growth of the urban manufacturing and service sector though increased productivity in agriculture, feeding the nation, and generating government revenues. Note in particular the substantial increase in government revenues from rapid growth of the horticulture export sector.

With the concentration of poverty in rural areas, poverty reduction is an overriding goal. In the following few pages, the role of growth in smallholder commercial agriculture in poverty reduction is stated in detail. The Master Plan makes provision for rapid growth in smallholder commercial agriculture, particularly export oriented horticulture, and provision for food security and targeting of the rural poor.

Extensive survey data for 2003 show that on the order of 50% of the rural population live below the World Bank defined poverty level of \$1 per day. One dollar a day is only enough income to provide a minimal level of caloric intake required for a healthy active life. It is not the farmers who are fully employed and earn most of their income from farming who are poor. They are substantially employed and have income from their land. Rather, it is those with land parcels too small to provide adequate food or employment or the landless, who rely solely on rural wages.

As shown below, most of the rural poor produce goods and services, the demand for which depends on farm incomes. Also note the prosperity in the rural non-farm sector in areas of concentrated poppy production. The Master Plan addresses poppy as a driving force in the rural economy and shows how it can be replaced. It is largely through rapidly rising farm incomes for small-scale commercial farms that poverty can be reduced.

Explicit attention must also be given directly to poor farmers and women. Micro credit schemes targeting the rural poor require expansion. All these efforts will be more effective in the context of rapid agricultural growth and therefore complement programs for rapid growth.

Afghanistan was historically, is now, and for sometime into the future will be a dominantly agricultural country. That agriculture has always had a substantial

commercial component, in that farmers produced not only for the domestic urban market, but also for a large export market as well. Most manufacturing was and is based on agricultural inputs

Commercial production came in large part from small farms which were the drivers of the rural non-farm sector with their expenditures. Perennial fruits and nuts, livestock, hides, skins, wool, and cotton, were all part of the horticultural export market. At present poppy production is the dominant commercial component of agriculture and drives the rural non-farm sector.

Similarly the rural non-farm sector has been and remains a sector of considerable size and employment potential. That rural non-farm sector produces tradable, carpets and other labor-intensive artisan products for export as well as non-tradable goods and services that depend on rising farm incomes for their growth. The non-tradable segment that depends on local demand is more than five times larger than the export dependent sector. While the non-tradable sector includes input supply and marketing activities, the provision of consumption goods and services is on the order of three times as large as the agri-business component.

1. GDP and Employment

Priorities for agricultural growth must ensure that agriculture will be a driving force in the rural non-farm sector, which encompasses the bulk of the poor. Table 1 provides a picture of the GDP and employment composition of the Afghan economy. This data needs considerably further analysis as data sources improve. Nevertheless they provide a reasonable reconstruction of an immediate post recovery economy.

The share of labor force to agriculture may seem low. This is because available statistics tend to count everyone with a piece of land as a farmer. Table 2 illustrates that for irrigated land, a little over 40% of those who have some land have more than two hectares and 60% have less than two hectares. However, 90% of the irrigated land is in holdings of over two hectares and only 10% in holdings of less than two hectares. Those with less than two hectares, in general are not able to gain half their family employment from farming or half their income. They should be classified as rural non-farm population. Efforts to increase agricultural production will have the bulk of their effect on the 42% of those with land holdings over two hectares.

Smallholdings, which require more expensive per farmer extension, credit and other programs designed for them. Also, intensive, high value commodity production will enable one hectare of land to provide them with a farming livelihood above the poverty level.

Table 1 is a division of the rural labor force according to principal occupation. The division is broadly consistent with the NRVA survey data for 2003. The tradable rural non-farm products, largely carpets, is taken as half the rural manufacturing figure. This suggests that about one-third of the carpet industry is rural and two-thirds urban.

About 78% of the labor force is rural and 22% urban. The urban percentage is undoubtedly higher now, but the broad indications stay the same. The higher urban percentage may be in part due to continued difficult conditions in rural areas.

Of the rural labor force, 41% is comprised of farmers, as defined above, and 37% rural non-farm. The rural non-farm sector will grow quite rapidly relative to the farm sector in the context of rapid agricultural growth as targeted by this Master Plan. It will soon be larger than the farm sector.

National income statistics, unfortunately, do not divide the GDP or the rural labor force according to rural farm, rural non-farm or urban GDP and labor force into the large scale and export oriented and small-scale sectors. Table 1 makes such divisions on the basis of current data for Afghanistan, adjusted by relationships from the 1970's, data from comparable other countries, and extrapolations.

Table 1. Relative Importance of GDP and Employment, by Sector, High and Low Agricultural Growth Rates, Post Recovery Period

Sector	Share GDP	Share Employ (lower number is pop. in 000,0000)	Output/worker	GDP Growth Rates – Fast/Slow	Employment Growth Rates –fast	Employment growth rates - slow
Agric	(51)	(41) 9.2	1.5	5 3	2.5	1.5
Handicraft	(8)	(5) 1.1	0.8	3 3	3.0	3.0
Rural non-farm	(14)	(32) 7.2	0.4	6 3	6.0	3.0
Total Rural	73	78 17.5	0.9			
Large-scale urban	(22)	(11) 2.5	2.9			
Small scale urban	(5)	(11) 2.5	0.6			
Total Urban	27	22 5.0	1.8	7 7	3.5	3.5
TOTAL	100	100 22.5	1.0		3.9	2.6

NOTE: Employment elasticity in agriculture and large scale urban = 0.5 = employment grows slowly; all other sectors = 1.0 = employment grows quickly. Sources: see text. This data will be refined as better data becomes available.

Table 2. Distribution of Farms and Land, by Size of Holding, Irrigated Land, Afghanistan, 2003

Farm Size, Hectares	Percent of Farms	Percent of Irrigated Land
Less than 0.5	21	1
0.5 – 0.99	16	2
1.0 – 1.99	21	7
2 – 4.99	24	19
5 – 9.99	10	18
10 – 19.99	5	19
20 – 49.99	2	19
More than 50	1	15
TOTAL	100	100

Source: FAO Winter Survey 2002-2003

The adjustments are intended to correct the present situation for temporary dislocations and present an immediate post-recovery picture. In fact, the poppy economy has probably achieved that, so that the picture is a reasonable rendition of the current situation. Part of the development effort will therefore be displacement of poppies and not a net addition to growth. It is important to keep in mind the context of half the rural population falling under the \$1 dollar a day poverty line.

The handicraft, rural non-farm and urban small scale are all depicted as highly labor-intensive sectors. That labor force is large relative to output and most return goes to labor. Agriculture has much higher output per worker than the rural non-farm sector, because land is an important source of income and a farmer has income from labor and from land. Similarly, the urban large-scale sector has considerable capital, including human capital as investment in education, and has an output per worker higher than that of agriculture.

The relation between growth and employment differs very much among these sectors. Agricultural growth tends to occur through higher yields that substantially raise labor productivity. Urban large-scale industry similarly grows in a competitive global market, which requires constant increases in labor productivity. The handicraft and rural and urban small-scale sectors expand in response to increased demand and maintain labor productivity. Growth in these latter sectors creates much more employment relative to output than growth in either agriculture or urban large-scale activities.

The rural non-farm sector grows in response to rising farm incomes with high-income elasticities of demand for goods produced in that sector. One can compute a growth rate for the rural non-farm sector for any given growth rate for agriculture. The impact of growth in farm income on the rural non-farm sector is a function of increased per capita income, and hence growth rates close to the labor force growth rate have very little effect on the rural non-farm sector. Acceleration beyond that level has an increasingly larger impact. That is, agriculture must grow rapidly to have a significant impact on employment.

From these data the impact of alternative growth rates on employment can be computed. That is shown in Table 3. Fast and slow growth rates for agriculture are compared in their impact on growth of the rural non-farm sector and on employment.

The difference between a slow (3%) and a fast (5%) growth rate in agriculture is the difference between an overall growth rate for employment of 3.9%. This is far above

the growth rate of the labor force, and 2.6% which is roughly comparable to or perhaps lower than the labor force growth rate. Fast agricultural growth creates jobs so rapidly that wage rates will rise and unemployed labor absorbed. Slow agricultural growth does not provide that upward pressure that results in higher wage rates and surplus labor absorption. With fast agricultural growth poverty declines, with slow growth it does not.

Table 3 also converts the data in Table 1 to shares of GDP growth and employment growth. With a fast agricultural growth rate (5%) the rural sector accounts for about 2/3rds of GDP growth, but a dominating 82% of employment growth. What matters to employment, poverty, and rural urban income disparities is the agricultural growth rate. Note that agriculture's importance to employment is much greater than its importance to GDP. Concern with poverty issues must include getting the agricultural growth rate up.

With agricultural growth underway, special programs to ensure inclusiveness of the programs and to deal with the special problems of the smallest farmers and the resource poor areas will be effective and important.

Note that the driving force is local expenditure of farm incomes. Large absentee landowners spend their money in the urban areas where they live and have capital and import intensive consumption patterns. They do little for poverty reduction.

Table 3 Shares of Increments to GDP and Employment by Sector, High and Low Agricultural Growth Rates, and Post Recovery Period

Sector	Fast				Slow		
	Gr.Rate	%Incr. GDP	%Incr. Employ		Gr.Rate	%Incr GDP	%Incr. Employ
Agric	5	46	21		3	38	19
Rural N-F	6	15	50		3	10	38
Handicraft	3	4	11		3	6	16
Rural		66	82			54	73
Urban	7	34	18		7	46	27
TOTAL	5.5	100	100		4.1	100	100

Five critical lessons are drawn from this analysis:

1. The agricultural growth rate must be pushed up to a high level, e.g. on the order of 5 percent if poverty is to be reduced.
2. Since the agricultural impact is through farmer expenditure in the rural non-farm sector, it is the small, full-time, commercial farmer/resident in the rural area that is critical. Big, absentee owners do little for rural employment. They do hire some labor, but they are not spending their large incomes in the rural non-farm sector, and that is the big driver of employment from the small commercial farmer.
3. It is high agricultural growth rates that matter so emphasis must be on the commodity groups and the geographic areas that respond to improved technology and can shift to high value commodities. Rapid growth comes from those two sources.
4. Assistance to the rural non-farm sector does little good if per capita farm incomes are not rising rapidly so as to increase the demand for the rural confirm sector.

5. In the context of accelerating agricultural growth special programs for the poor in both high productivity and low productivity resource area are important and effective.

2. Commodity Priorities for Rapid Agricultural Growth

Agricultural growth is complex, with many interacting, complementary components. Private farmers and business people perform much of what is needed for rapid agricultural growth. They are essential to the process. But, especially for smallholder commercial agriculture, public goods provided by the government are critical complements to those private activities. This is also true for the agribusiness sector in such an economy.

In early stages of accelerating agricultural growth, a higher proportion of required activities have a government component than will be the case as the processes proceed and the private sector expands in size and capability. Unfortunately, just when the role of government is large, it is also quite limited in its capacity to develop and implement complex programs. That is why an initial very small set of priorities must be defined.

In the early stage of accelerating agricultural growth, when government capacity is quite limited, it is normal to establish commodity priorities and provide a high-level overview and executive body to ensure implementation, e.g. Indonesia, Vietnam and the Philippines. The set of public and private sector activities are somewhat different for each commodity set and fairly similar within a set. Also modern supply chain analysis is always commodity specific.

At a later stage of development the focus on a single commodity priority will disappear, and the emphases will be largely on the functional priorities that can serve the full set of commodities. Thus, the questions for establishing priorities are the relative importance of the major commodity sets, and the complexity of the requirements for accelerating growth of the most important commodity sets.

Several chapters in the Master Plan discuss critical functional priorities. Functional priorities can be divided into commodity specific components. For those, the commodity priorities will determine the components within the functional priorities to emphasize. A few functional priorities are vital to growth of all commodity sets and do not lend themselves to emphasis of sub-components that are commodity oriented.

3. Commodity Priorities

Choice of commodity priority should be based on the importance of the contribution of that commodity to aggregate growth in a rapid growth strategy. That importance is a function of the base weight of the commodity set and the expected growth rate. The latter is a function of technological potentials for growth and growth in demand. Table 4 provides an indication of those magnitudes. The commodity sets are in order according to expected share of incremental output in a high agricultural growth strategy.

The first problem in constructing such a table is determining the base weights. The data are somewhat questionable, but more important the commodity composition is

still in flux. The data are largely based on 2003 area data weighted by a rough estimate of value of output per hectare and adjusted moderately to bring up to date for 2005. Pistachio is included under perennial horticulture, even though it falls under the Forestry Department. Poppies are not included as such, but the area under poppies is counted as high value commodity and is implicitly spread over the other high value commodities at about half the value of poppies per hectare.

Cereals, dominated by wheat, provide 40% of value added in agriculture (including livestock and forestry) and have a far higher weight at present than they will in the long run, while the other commodity sets will be increasing disproportionately in the base weight. That change in proportions will accelerate the growth rate over time as area transfers to the higher growth rate components.

Table 4 Commodity Sources of Growth (excluding Poppies), Notional for 2004 (All figures are percents).

Commodity Set	Base Weight (value added)	Growth Rate	Share of Growth
Cereals/Misc.	40	4	29
Perennial Horticulture	18	8	27
Intensive Livestock	15	6	17
Irrigated Fodder	9	6	10
Annual Horticulture	5	8	7
Cotton	2	15	5
Range Livestock	10	2	4
Forestry	1	2	1
Total/Weighted Ave.	100	5.4	100

Source: Constructed from current FAO and MAAHF data and 1970's World Bank data.

Cereals have a heavier than normal weight because of the demand for food security and an understandable current lack of trust in markets, often because of direct experience with market failure. As roads improve and markets become more competitive farmer trust in markets will develop. In addition, there are vastly more complex recovery requirements for expanding the high value commodities and consequent delayed growth in those areas. In a relatively few years, the weight of cereals will decline substantially as the constraints to growth of the high value commodities decrease, cereal yields increase and confidence in markets increases.

Approximately 90% of the total value of crop production in Afghanistan takes places on irrigated land. The irrigated land areas generally have high sunlight intensity and favorable temperatures for high value crops. Historically, Afghanistan has exported substantial quantities of high value commodities and has a weight for those commodities much higher than could be derived from domestic demand or than is common in low-income countries. The agriculture of Afghanistan is far more commercialized on the part of all farmers than is typical at this per capita income level. Some of the delay in recovery of trees and vines is due to the loss of irrigation capacity. The same is true of the livestock proportion. Thus, there is extreme urgency in restoring and then further expanding irrigation capacities.

There is considerable uncertainty about the area in perennial horticulture, the base weight is roughly consistent with the 2003 data for area and somewhat consistent with the 1970's data. Vineyards are particularly uncertain, since some are counted that are still very low yielding and others may seem out of production and not counted but could be revived.

The livestock percentage probably represents recovery of much of the decline associated with the recent extended drought, i.e. back to mid 1990's.

The likely growth rates are given for each commodity set and then the share of incremental growth is calculated. These are not the current growth rates. They represent what can be achieved by major efforts on the production and marketing fronts. They are related to production capacity and market demand, with the latter most heavily weighted.

The 5.4% over-all growth rate for agricultural GDP is the weighted average of the growth rates for the several commodity sets. That is a very high growth rate. It falls in the middle of the 4 to 6% range typical of high growth rate middle-income countries (Mellor 1995.) Such a high growth rate is possible for Afghanistan because of the already high weight to high growth potential commodities such as horticulture and livestock. Of course, for another year or two the growth rate may be higher due to continued recovery, and the rate will fluctuate substantially from year to year with weather.

The growth rates presented are those that it is assumed can be sustained for a considerable period. The exception to that is cereals, for which the growth rate will come down as yield growth slows from the present catch-up phase and area declines as transfers are made to high value commodities that have a much stronger comparative advantage on Afghanistan's irrigated land. The assumption of a 4% growth rate for cereals is very high. On the surface that appears to double yields in 18 years – which seems quite feasible since many countries achieve that yield level and the potentials will increase further with more research. However, it really assumes doubling every 12 years, for a 6% growth rate in yields and a two percent per year decline in wheat area. The rate of decline in wheat area is probably too small.

The highest growth rates are assumed for horticulture at 8%. This commodity set has elastic demand, so that a high growth rate in per capita incomes in Afghanistan will generate on the order of a 6% growth rate in demand. The export markets have traditionally been excellent and with immense and well-directed effort can be revived, as is already happening. Exports could probably increase more rapidly than that, particularly in the near future, allowing for some reduction in the growth rate of domestic demand.

To assume that one quarter of incremental output will be exported seems reasonable. That provides an 8% growth rate in demand, given attention to marketing needs. That is a high growth rate to achieve on the production side. Land availability will not be a limiting factor for a long time into the future as land can be transferred from field crops, given the small area currently in high value commodities.

The third most important contributor to output growth is intensive livestock at 17% of value added. Intensive livestock production is livestock, often stall-fed, raised in irrigated areas with feed substantially comprised of high value fodder and grains and oil cake from irrigated land. Added to that is the irrigated forage calculated as providing 8% of incremental output, for a total of 25% to this sector. The growth rate assumed is 6% for livestock and 4% for irrigated fodder. The latter assumes that the proportion of nutrients from concentrates will increase. Production will be largely for domestic demand. Again, domestic demand, when growth gets well underway in Afghanistan, will provide a 6% growth rate in demand.

Perennial horticulture is given a large priority over livestock in the short run because shortfalls in the growth of domestic demand can be made up through exports for perennial horticulture, while that is less likely for intensively produced livestock. In the very short run, of course, import displacement can increase the growth rate in supplying the domestic market.

The fourth most important commodity set in contribution to incremental growth is annual horticulture. It is shown as about one-quarter the importance of perennial horticulture. It is also shown with an 8% growth rate – based on a 6% rate of growth in the domestic market and one-quarter of incremental output exported. The latter will probably be more difficult to achieve than the perennial horticulture assumption and will require a relative increase in the area to those annual horticulture crops that can be exported. Thus, the annual horticulture assumption of an 8% growth rate will be particularly difficult to meet. It will have to rely on some import displacement in the short run and perhaps some emphases on melons for export. Perhaps in the short run, perennial horticulture can make up for some shortfall in annual horticulture.

Cotton is shown with a very high growth rate that reflects unusual scope for recovery which is currently slowed by bad policy. Later, there is also potential to expand area and yields. Because of the low base of current production, the contribution to overall growth is modest.

Range livestock may also grow a bit faster in the short run, but limits to range carrying capacity and the difficulty and cost of increasing rangeland output will restrain the growth rate. The range livestock are of course also complementary to the intensive livestock production. They, along with forestry are also important to development of watersheds that are vital to irrigation agriculture. Particularly in Afghanistan, the immense destruction of forests and the deterioration of rangeland with the long drought have reduced the water capacity of major watersheds.

From the foregoing follows a set of priorities. The Government is clear that first priority goes to cereals, particularly wheat, because of the importance of food security. The government is also clear that it envisions a rapid increase in cereal productivity, thereby allowing a shift of area to high value commodities. Therefore, the emphasis is on raising yields, not expanding area. The other priorities will expand area at the expense of cereals.

Priority then goes to horticulture and particularly to perennial horticulture: vineyards, tree nuts and fruits. The latter alone provide well over one-quarter of growth in the near term, and probably more nearly one-third in the longer run. Horticulture will provide well over a third of incremental growth in the short run and that will pick up to be closer to half in the long run. In the long run the base gets larger and some of the

other sectors will slow. Because of the complexity of rapid growth in perennial horticulture, special attention should be given to the sector as shown in the horticulture chapter of the Master Plan.

Intensive livestock production is the next step. When combined with the production of high quality forage, it represents over one-quarter of incremental growth and deserves high priority. Much of that will be dairy production. However, the strategy may be simpler in the short run in that health is a most pressing need, suggesting a priority to veterinary services and other aspects of animal health. Also rapid growth in domestic demand requires that the whole economy be growing rapidly. So there may be some delay before the demand for livestock will grow as rapidly as shown.

The argument for efforts on range livestock and forestry must hinge largely on the importance of watershed development to the intensive irrigated agriculture and the interaction of watershed protection with protection of rangeland and forests. Pistachio may be implemented within the forest department, but its value is shown under horticulture.

Chapter 3 Horticulture

EXECUTIVE SUMMARY

1. Background & Current Situation

The horticulture component of Afghanistan's Agriculture Master Plan is a direct result of the desire of H.E. President Karzai, H.E. Minister Ramin of the MAAHF, and various international donors to develop prioritized investment plan to transform the sector. It is the intention of this process to provide the blueprints for transforming the agricultural sector from a subsistence based sector to a vibrant area of the economy that provides higher incomes to rural farmers, opportunities for private businesses, and a shift from illicit to licit crops.

There are an estimated 600,000 farmers involved with horticulture in Afghanistan. These farmers are currently constrained by several factors. One is that a large percentage of their land is still dedicated to low value crops such as wheat or other cereals to ensure food security. Two is antiquated production methods and technology which reduce the quality of their products and yields from farms. Farmers have been constrained from changing production methods and crop ratios because of uncertainty about the future, lack of effective rural financing systems, and effective extension services to provide training on the latest production techniques. The Agriculture Master Plan and the Government of Afghanistan must address all of these problems to create real and lasting change in the horticulture sector.

Other obstacles to developing horticulture exist at the processing and marketing levels of the supply chain. Processing facilities for horticulture products are either old or non-existent, compounding the problem of poor quality product at the farmer level. Export potential is held back by the stringent hygiene and phytosanitary standards in major Western markets such as the EU, the US, and Asia. Instability has contributed to export marketing problems. Instead of seeking the best customers in the world for Afghan horticulture products overseas, current sales patterns are often opportunistic with Afghan exporters selling to markets like Russia or Pakistan

who pay low prices for Afghan products. Now that a measure of stability and peace have returned to the country, the time is right to begin investing in modern processing equipment and customer knowledge to find the most attractive markets for horticulture products from Afghanistan.

2. A New Vision for Horticulture in Afghanistan

The horticulture working group agreed that the horticulture component of the agriculture should be demand oriented and export-led. To achieve this vision, the private sector, government, and international donors and NGOs will all have key roles to play. Private businesses will be the focal point for the development of the private sector. As noted above, there are an estimated 600,000 farmers in Afghanistan. The challenges of communicating and training this many people is enormous. If businesspeople can act as the intermediaries, tremendous leverage can be applied to this problem.

The government should do everything it can to assist the private sector except impede competition. The MAAHF will need to provide support to growers to improve the productivity of their farms and the quality of their products. This can be accomplished through extension services and research into the best crop varieties.

The Ministry of Commerce should provide export certification and up-to-date market research for exporters to help them identify and sell to the best markets in the world. Finally, international donors and NGOs should provide support to the private sector and government to achieve the common objectives of the horticulture strategy. For the private sector, this will entail grants and other investment incentives to upgrade and expand farms and processing units. For the government, the major cost items are budgetary support and specific programs such as demonstration farms and extension services.

Afghanistan has a multitude of horticultural products that could be exported. The Horticulture Working Group, after thoughtful deliberation selected the following seven products as priority commodities on which to focus: grapes, raisins, pistachios, apples, almonds, apricots (fresh and dried), and pomegranates.

Based on an export-led approach and the priority products the working group developed ambitious objectives for the sector. From a current export base of approximately US \$127 million for the priority products, the group agreed on a target of \$934 million in 2015.

In order to accomplish these goals, relevant institutions will need to be reinforced and new ones created. Within the MAAHF, the reinforcement would consist of general budget support to the Ministry and the creation of a High Value Horticulture taskforce (HVH), and a Horticulture Council. These institutions will provide the coordination, management, and financing required to rebuild the sector.

The transformation of Afghanistan's horticulture sector will be expensive. The estimated 10 year budget is **US \$1.5 billion** with approximately \$900 million paid for by government mobilized funds (government budget plus donors) and \$600 million paid for by the private sector. These funds include: all investment capital required for the rehabilitation of orchards, vineyards, and new factories. Funding also includes the investment costs and operating expenses for programs that will require

government and donor backing such as new certification programs, budgetary support to the MAAHF, and the creation of a “Horticulture Corporation” that will manage the government mobilized funds that will fund the implementation of the horticulture component of the Master Plan.

The successful implementation of the horticulture component of the Agriculture Master Plan is key to transforming Afghanistan's rural economy. A robust and vibrant rural economy will improve the livelihoods of hundreds of thousands of farmers, increase profits for the private sector, and improve Afghanistan's macro-economic indicators of income and trade. This document represents the first step of a roadmap to build prosperity and wealth for Afghanistan at all levels of society and should be debated and supported by the private sector, government, and international community to achieve consensus and the will to execute and invest into this bold plan.

The Working Group on Horticulture is to provide to the Minister of MAAHF a comprehensive, technical, financial and socio-economic analysis of opportunities and constraints in the horticultural industry, including an analysis of the horticultural systems and the markets for horticultural produce, and providing expert advice in the policy and strategy for the development of horticulture in Afghanistan. The natural resources of the country are to be leveraged in order to:

- Provide maximum opportunities for the private sector development of horticultural exports.
- Enhance export earnings for the country.
- Improve livelihoods for farmers and their families.

Clear proposals will be made for the investments and institutional support that can lift the current constraints and unleash the potential of the sector. Due consideration should also be given to the commercial and export parts of the business chain, which are essentially the responsibility of the Ministries of Commerce, of Trade and of Transport.

3. CURRENT SITUATION of HORTICULTURE in AFGHANISTAN:

3.1 Production

3.1.1 Position of Horticulture in the Agriculture Sector

The total territory of Afghanistan of about 65 million ha, of which 7.8 million ha are cultivated (12%) in the following way:

	Hectares	
Intensive irrigated (2 crops per year)	188,698	94,000 orchards 58,000 vegetables 26,000 melon 10,000 other
Intensive irrigated (1 crop per year)	1,370,956	Mainly staple crops
Total intensive cultivation	1,559,654	
Intermittently irrigated	1,648,136	If water volume available
Total irrigated land	3,207,790	

Rainfed land	4,517,714	
Total agricultural land	7,725,504 ²	

The area of orchard (ha) and the respective yield (t/ha) for different crops is as:

Grapes	60,618	8.5 t/ha
Almonds	11,485	1.4 t/ha
Apples	6,117	10 t/ha
Apricots	6,739	8.9 t/ha
Walnuts	2,522	3.5 t/ha
Pomegranates	2,435	9.5 t/ha`
Peaches	891	7 t/ha
Plums	944	7 t/ha
Citrus	214	8 t/ha
Other	1,651	
Total	94,000	

This area excludes the areas of mulberry (16,550 with 2.5 t/ha) and pistachio (9,158 ha with 0.9 t/ha). The area of pistachio used to cover approximately 450,000 before the trees were cut for fuel.

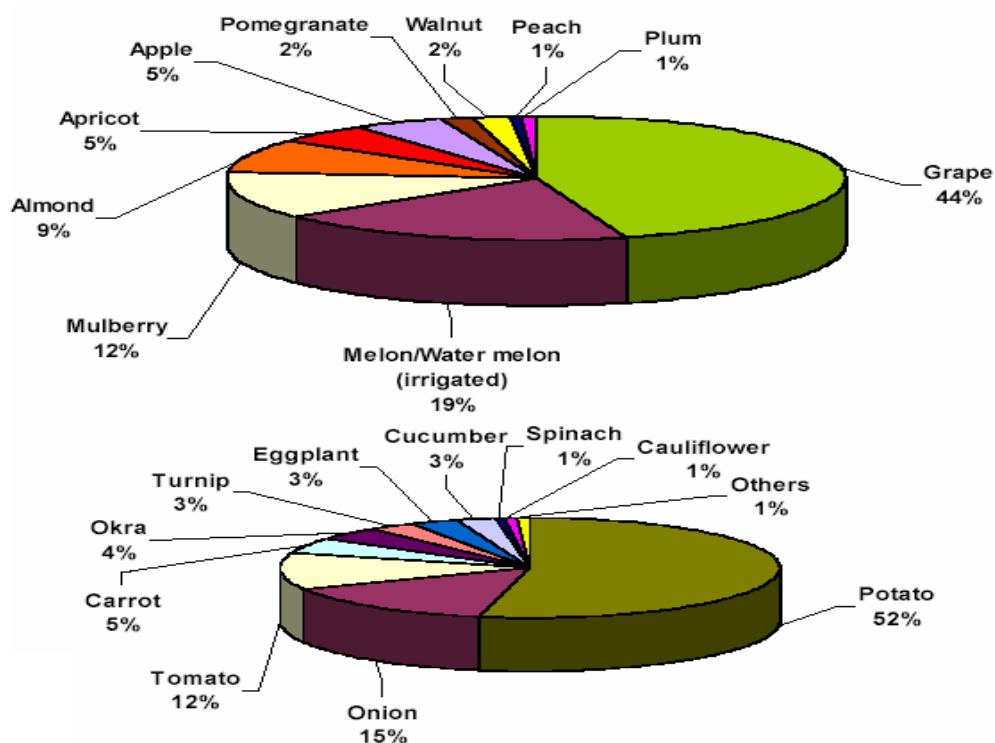
The area of vegetables (ha) and the respective yield (t/ha) to the different crops is as:

Potatoes	33,462	14.1 t/ha
Onions	9,159	12.8 t/ha
Tomatoes	7,387	10.7 t/ha
Carrots	3,264	10.5 t/ha
Okra	2,610	7.1 t/ha
Pumpkins	1,875	8 t/ha
Total	57,757	

The area for off season production in greenhouses or tunnels with vegetables or flowers is negligible.

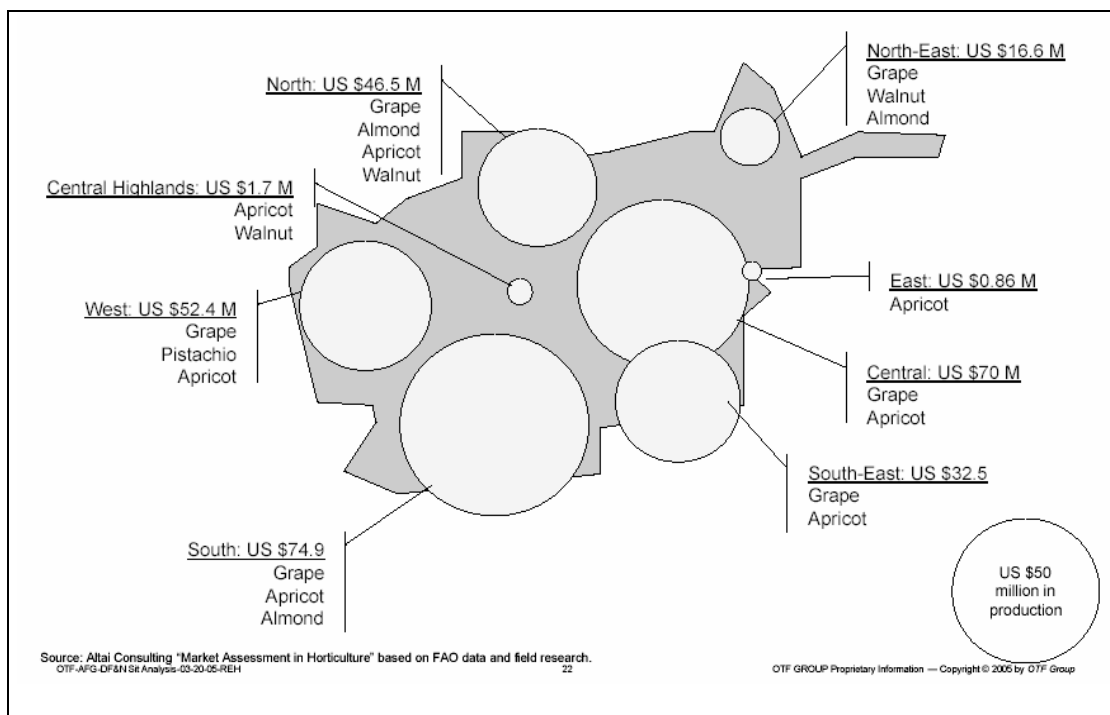
Figure 1: Area of main crops as a percentage of total area

² Source: 1993 FAO Land Cover Satellite Data



Grapes and raisins are, by value and volume, the biggest perennial fruit crop in Afghanistan with an estimated value of US\$180 million in 2003. Ninety percent of this production is located in the regions surrounding Kandahar, Helmand, and in the Central Shomali Plains. The balance is found in the north. The second largest crop by production value is pistachios at US\$95 million. Afghanistan currently grows pistachios only in forests spread across the country from the West of Herat to North-West to the North and to Badakhshan in the North-East. The third largest crop is almond, followed by apricot, both fresh and dried. Figure 2 gives the main production areas and the value of their crops.

Figure 2: Production Areas, Main Crops and Value



3.1.2 Production Methods

In general, horticulture methods in Afghanistan have not changed in 25 years. Orchards and vineyards generally have low productivity, quality and yield due to the following factors:

Varieties and rootstocks

The lack of commercial nurseries leaves Afghan producers with little choice in terms of the rootstock that they can purchase. Good rootstock assists farmers by providing scion wood which is more fertile, shorter trees for easier harvest, uniformity of tree size for efficient harvesting. Rootstock is multiplied vegetatively and seeds are genetically uniform. This vegetative way of multiplication is generally more costly than sowing, at approximately 0.5\$ per tree. However in the case of almonds, one year earlier production gives the farmer 4 kg per tree at 2\$/kg. This \$8 far exceeds the investment and interest costs for good rootstock. Farmer financing, however, remains a problem.

Irrigation

Vineyards and orchards are usually irrigated once every 10 to 15 days with poor control of water quantities, resulting in water that reaches below the roots and is wasted. This leads to additional costs for producers who extract water from wells, or limits the volume of water available to producers downstream. It also leaches nutrients below the root zone. This results in a reduced area for production (as much as 55% or higher) and higher production costs. The use of drip irrigation improves field irrigation efficiency from 55% to 85% . Other losses are also found in the main and lateral distribution systems.

In Afghanistan, there is not sufficient precipitation for crop production and supplementary irrigation is necessary, except for some winter cereal crops and the pistachio trees in higher elevations. Sufficient irrigation is a prerequisite for the higher value horticultural crops. These crops render a higher value per unit area of

production and per m3 of water used. Labor costs also contribute to the 25% higher cost of production for horticulture as opposed to 5% for field crops which utilize mechanized production practices.

When Afghanistan becomes an open economy, world market prices will dictate the Afghan market prices for staple crops and mechanization of agriculture will become unavoidable. Agriculture is the main source of income in Afghanistan and it is therefore important to diversify to more value-added crops, given the limited resources of irrigation water and the high labor component. Table 1 below gives an estimate of the production value per m3 of irrigation water for the different production systems and products.

Table 1: Product Values Comparing Technologies and Water Use

Production System	Technology	Crop	Irrigation M3/ha	Yield (t/ha)	Price (\$/kg)	Revenue (\$/ha)	Value (\$/m3)
Greenhouse	High	Tomato	12000	600	0.5	300000	25
	Low	Tomato	8000	300	0.4	120000	15
Open field	High	Tomato	6000	80	0.15	12000	2
	Low	Tomato	9500	20	0.10	2000	0,2
Fruit	Normal	Grapes	8000	20	0.30	6000	0,6
		Raisins		5	.69	3450	.35
		Almond	6000	2.1	2	4200	0,7
		Apricot	8000	12	0.32	3840	0,5
		Pomegranate	8000	20	0.15	3000	0,4
		Pistachio	6000	1.4	2.86	4230	0,7
Cereal	Rain fed	Wheat		1.0	0.2	200	
	Irrig. High	Wheat	3000	3.5	0.2	800	0.23
	Irrig. Low	Wheat	3000	2.5	0.2	500	0,2

The highest added value come from production in greenhouses, but investment costs are also very high. Grapes and raisins are also good added valued crops along with apricot, almond and pistachio. The value of cereals per hectare is low, compared with horticulture crops. The value of product per m3 of used irrigation water is about 3 times higher for fruit and nut products than for irrigated wheat. Also the labor component in the value of the crop is about 5 times higher in horticulture crops than in agriculture crops, supporting the issue for diverting crop production from irrigated wheat to irrigated horticulture.

The distribution of the irrigated land over the 5 climatic zones has been given in Table 2 as well as the distribution of the population over the climatic zones. Table 3 summarizes the distribution of available agriculture land in relation to the population density.

Land usage in relation to population density:

- **In the Northeast:** relatively less arable land and irrigated land are available and that relatively less orchards are cultivated. This is also an area with high poppy cultivation.

- **In the North and Northwest:** more arable land is available, mostly as rainfed land, but there is less irrigated land and also less land in orchards. Overall, a very extensive agriculture production system.
- **In the East:** relatively little arable land is available, although there is sufficient irrigated land and significant natural forest areas. The agriculture potential can be better utilized, given the available irrigated land.
- **In the Central area;** there is relatively more arable land available, also irrigated land and orchards. There is further potential for expansion.
- **In the South/West** there is less arable land available, but irrigated land and orchard production is significant.

Table 2: Land Use and Population Distribution for 5 Climatic Zones (unit: 1,000 ha)³

Agro-ecological Zone	Total Area	Arable land		Orchards		Irrigated Land		Rainfed Land		Natural Forest		Range Land		Population	
		Area	%	Area	%	Area	%	Area	%	Area	%	Area	%	Million	%
Northeast	4,410	460	6	5.2	6	52.6	2	402.1	9	3.0	0	2,813	10	3.4	15
North/NW	9,260	2,634	34	14.0	15	569.2	18	2,050.7	45	58.4	4	5,035	17	5.4	24
East	5,950	419	5	4.9	5	346.5	11	67.8	2	1,208.3	90	2,194	8	2.2	10
Central	18,840	2,694	34	36.7	39	1,028.8	32	1,628.8	36	61.9	5	13,730	47	5.9	27
South/West	26,030	1,608	21	33.4	35	1,210.7	37	363.8	8	6.0	1	5,406	18	5.3	24
Total	64,490	7,815	100	94.2	100	3,207.8	100	4,513.2	100	1,337.6	100	29,178	100	22.2	100

Table 3: Matrix Showing Area Availability in Relation to Population Density

Agro-ecological Zone	Arable land	Orchards	Irrigated Land	Rainfed Land	Natural Forest	Range Land
Northeast	-	-	-	-	-	-
North/NW	+	-	-	+	-	-
East	-	-	0	-	+	0
Central	+	+	+	+	-	+
South/West	-	+	+	-	-	-

³ Sources: Utilization of Remote Sensing for Inventory and Monitoring of Agricultural Land in Afghanistan (FAO/UNDP) 1999
8th June 2001 Report of the FAO/WFP Crop and Food Supply Assessment Mission to Afghanistan

There are many countries surrounding Afghanistan from which Afghanistan can learn about efficient, commercial production methods. Just across the border, both Iran and Pakistan have commercial orchards or vineyards with productivity and quality levels that far exceed those of Afghanistan. Best practices can easily be adopted from these countries through imitation of production systems by showing the farmers in demonstration plots and to train Afghans on new production techniques.

Some of the best practices issues confronting Afghanistan include:

Poor groundcover management

Orchards and vineyards are often inter-cropped with wheat or nothing at all. Both methods result in excess dust that coats fruits and nuts and reduces quality. A better method would be to intercrop with clover and alfalfa which are harvested 3-4 times per year and provide groundcover year round. The harvested fodder crop is highly nutritious for livestock that can provide additional income to the family until the orchards are productive. **All investment into orchards and vineyards proposed in this strategy should be accompanied by the intercropping of alfalfa and clover** to both improve ground cover management and provide winter fodder.

Vineyard design

Afghanistan is among the last countries in the world where vines grow on earth ridges “juis”. This method of production leads to heavy contamination of the fruits by dirt and other debris. More over this system provide a good place for fungal multiplication spread and reaching chemical to the lower portion is also difficult.

Crop maintenance

Trees and vines are either not pruned at all or pruned in the wrong way.

3.1.3 Production Costs of Perennial Fruits

Perennial fruit trees have been selected to determine costs of production, as the demand in the world market and in neighbouring countries are present (see later about motivation of crop selection). The methodology used for the crop budget analysis is⁴ :

- Orchard systems developed for economic modelling are based on intensive commercial orchards visited in Iran and Pakistan. Yet yield level realised at present in Afghanistan is 15% of what can be reasonably achieved in these neighbouring countries
- In Iran, detail farmers' interviews in 11 different production areas have been conducted in 2004.
- In Pakistan, crop budget analyses were developed based on practices in NWFP as per the experience gathered by IF Hope NWFP horticulturists.
- The crop budget analysis developed is theoretical and expresses what it would be possible to do in Afghanistan, based on experiences in the closest social and agro-economic conditions

⁴ Crop Budget Analysis on Horticulture, Prepared for the Agriculture Master Plan, Raphy Favre, Alternative Agriculture Livelihood Consultant, 7 August 2005

- Intercropping with vegetables or staple crops was not build in the Iranian/Pakistan crop budget analysis.
- Alfalfa or clover in lower areas are planted the first year to cover all the soil surface in order to reduce dust and provide limited amount of nitrogen.
- Alfalfa annual gross income has been estimated between US\$60 to 120 per hectare. 2004 high prices of alfalfa in Mazar-e Sharif suggest that gross income could reach up to US\$1,500/ha in that region for alfalfa alone!
- Farm-gate price: 10% lower than current farm-gate price in Afghanistan.
- Annual land rent: US\$ 250 per hectare.
- Labor cost at average market price: US\$ 2.4 /day.
- Climatic hazard integrated in the model: 1 year damaging 70% of the crop at full production period over 15 years.
- It is assumed that high quality seedlings are available at suitable price.

The spreadsheet below provides data on the following commercial orchard and vineyard management practices:

- Crop budget analysis based on Iranian orchard systems and practices; these data can be applied in all regions of Afghanistan, except the lower lands along the Pakistani border. In other regions of Afghanistan, similar agro-ecological conditions are found in various production sites in Iran.
- Crop budget analysis based on Pakistan orchard systems and practices; these data developed by CNFA and IFHope in January 2005 and can be applied in low land regions bordering Pakistan (Eastern region, Khost, Paktika, Paktia). The crop budget analysis developed based on Pakistan orchard systems and practices have lower cash flow and return on investment than those developed based on Iranian orchard systems. The difference is due to the fact that Iranian horticulture sector is more advanced than Pakistan's. Therefore, following Iranian orchard farming practices would result in higher income for Afghan farmers.

The most important features of production and investments have been given in Table 4. It has been assumed that plant material has been subsidised for about 50% and that expected yields used in the calculations are, although much higher than the present yields in Afghanistan, still below the potential yields with good management. The accumulated investments represent the total of investments till the annual revenue exceeds the annual costs, mentioned as the year when cash flow becomes positive (no interest charges and bank costs have been assumed). A summary about the results of perennial fruit production in Afghanistan is:

- The accumulated investments vary between 1,000 and 11,000 \$/ha (walnut and grapes respectively), with an average close to 7500 \$/ha due to the high costs plant material and trellising system for grapes.
- The Internal Rate of Return (IRR) varies from about 20 to 40%.
- The annual gross income varies between 1000 and 6,500 \$/ha (walnut and nectarines respectively), with an average close to 5,000 \$/ha (closer to the grape result).

- The annual costs of inputs varies between 1,000 and 2,200 \$/ha (walnut and grapes respectively), with an average close to 2,000 \$/ha (closer to the grape result).
- The annual labor cost varies between 150 and 900 \$/ha (walnut and grapes respectively), with an average close to 750 \$/ha (closer to the grape result).
- The entrepreneurial income is generated from family labor and profit. Besides the 750 \$/ha labor income, another 750\$/ha can be taken from profit. If the yields would be closer to the potential yields, the total income can be closer to the family needs.

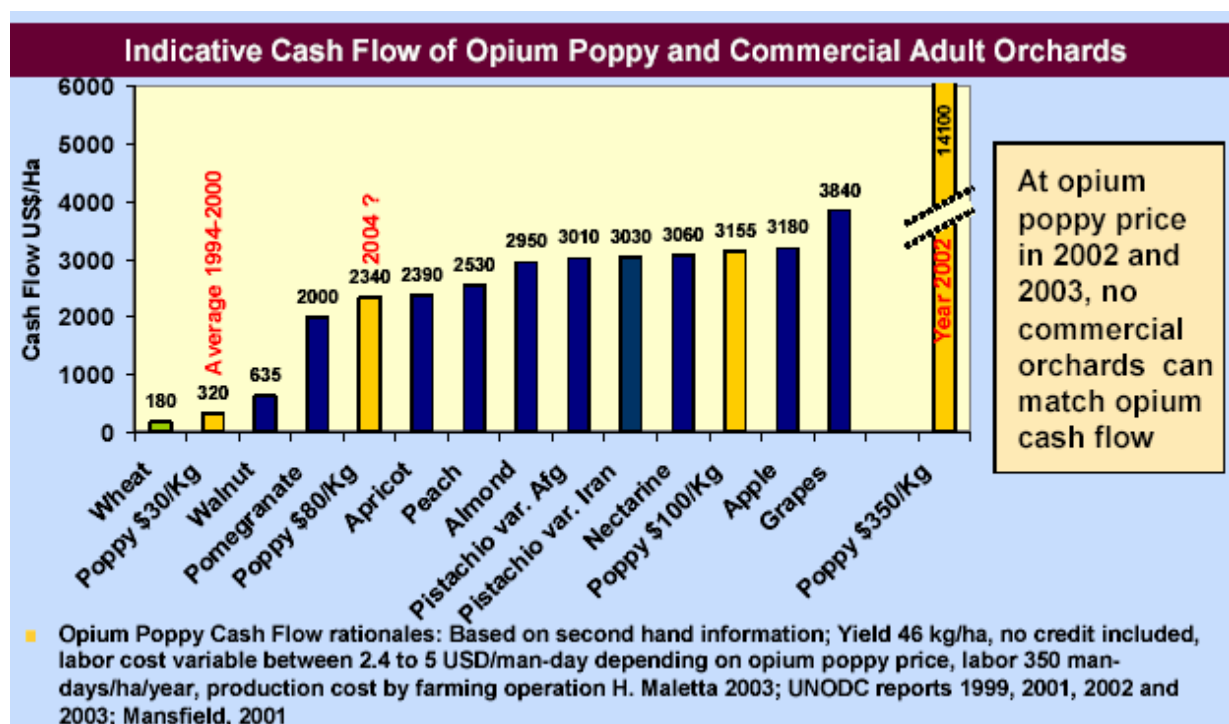
The minimum family income of 6 persons above poverty level of \$1 /day is about \$2,200/ha. If yields are close to Afghan's potential yields (based on benchmarking neighbouring countries), then 1 ha per family would be sufficient if all production recommendations on inputs, etc., are followed up. However, this income is still low and it is not realistic to assume that possible financing of farm inputs will be used for the farm indeed, but more likely for urgent family needs such as for medical costs. Therefore a minimum of a 2 ha intensive perennial fruit tree farm should be aimed for.

Table 4: Data on Production of Perennial Fruit Crops

Item	Iranian production level										Pakistani production level			
	Nectarines	Peach	Grapes	Apple	Apricot	Pome-granate	Walnut	Almond	Pistach. Afghan	Pistach. Iran	Plum	Sour Orange	Lemon	Blood Orange
Trees/ha	1000	1000	2670	1900	400	2400	100	500	625	625	333	333	833	333
Trees costs (\$/ha)	800	800	534	1520	320	480	40	400	250	250	220	220	550	333
Poles costs (\$/ha)			6650	5250										
Accumulated investments (\$/ha)	3400	4400	11000	10000	3400	3200	1100	3200	3600	3600	2300	2300	2600	2000
Possitive cashflow	year 4	year 4	year 4	year 4	year 4	year 5	year 4	year 5	year 7	year 7	year 5	year 5	year 5	year 5
IRR	40%	24%	25%	21%	33%	26%	26%	33%	26%	24%	36%	36%	36%	44%
Payback	year 4	year 5	year 7	year 8	year 7	year 8	year 8	year 7	year 10	year 10	year 7	year 7	year 7	year 4
Aver.annual gross income (\$/yr)	6500	5500	6000	5000	3900	3000	1000	4000	3500	3500	3000	3300	3700	4000
Aver. annual inputs (\$/vr)	1700	1600	2200	1600	1400	1000	300	1400	1000	1000	1200	1100	1200	1100
Aver. annual labour (\$/vr)	700	600	900	700	500	400	150	350	200	250	600	500	600	500
Yield (t/ha/over the yrs)	0/0/3/20/20/5/7	0/0/3/20/20/5/7	0/0/6/=20	0/0/2/16/=22	0/0/1/3/8/=12	0/0/2/4/8/16/=22	0/0/0/1/1/1/=1,7	0/0/0/0/1/=2,1	6x0/0,2/0,4/0,7/=0,8	6x0/0,3/0,7/1,1/=1,5	0/0/0,3/1,3/5/=13,5	0/0/0,2/1/4/=12	0/0/0,1/0,6/1,5/=3,5	0/0/0,2/1,2/5/=13
Farm gate Price (\$/kg)	0.32	0.28	0.24	0.22	0.32	0.47	0.55	2.0	5.0	2.9	0.22	0.26	0.25	0.3
Period of calculation	7 year	7 year	20 year	15 year	20 year	20 year	20 year	7 year	20 year	20 year	20 year	20 year	20 year	20 year

Previous calculations with low present yields compare the gross income from fruit crops with poppy production. Figure 3 shows that at a opium farm gate price between \$80-100/kg (\$92/kg in 2004), the cash flow of most adult commercial orchards can compete. At opium farm gate price of \$30/kg (average price between 1994-2000, UNODC), perennial horticulture crops perform far better than poppy. Yet, between 1994 and 2000, the security situation in the country and trade conditions for Afghanistan did not allow perennial horticulture crops to develop. Horticulture crops are therefore the only cash crop in Afghanistan which can compete with poppy cultivation (at the 2004 price) and which can surpass opium poppy income at the 1994-2000 average farm gate prices. However, poppy prices in 2002 and 2003 raised to 350 \$/kg, making per hectare cash flow higher than any licit crop.

Figure 3: Gross Farmgate Income of Agricultural Crops and Poppy



Even if a farmer with enough land, technical expertise, and financial resources would like to invest in commercial orchards today in Afghanistan, he would not be able to do so simply because quality seedlings and rootstocks are not available. IFHope nursery in Jalalabad is one of the very few such nurseries in the country. Therefore, the bottle neck for horticultural development today lies with professional nursery establishments which provide planting material of sufficient quality for business investment in perennial fruits production. IFHope fruit nursery and entrepreneurial orchard approach should be replicated at national level.

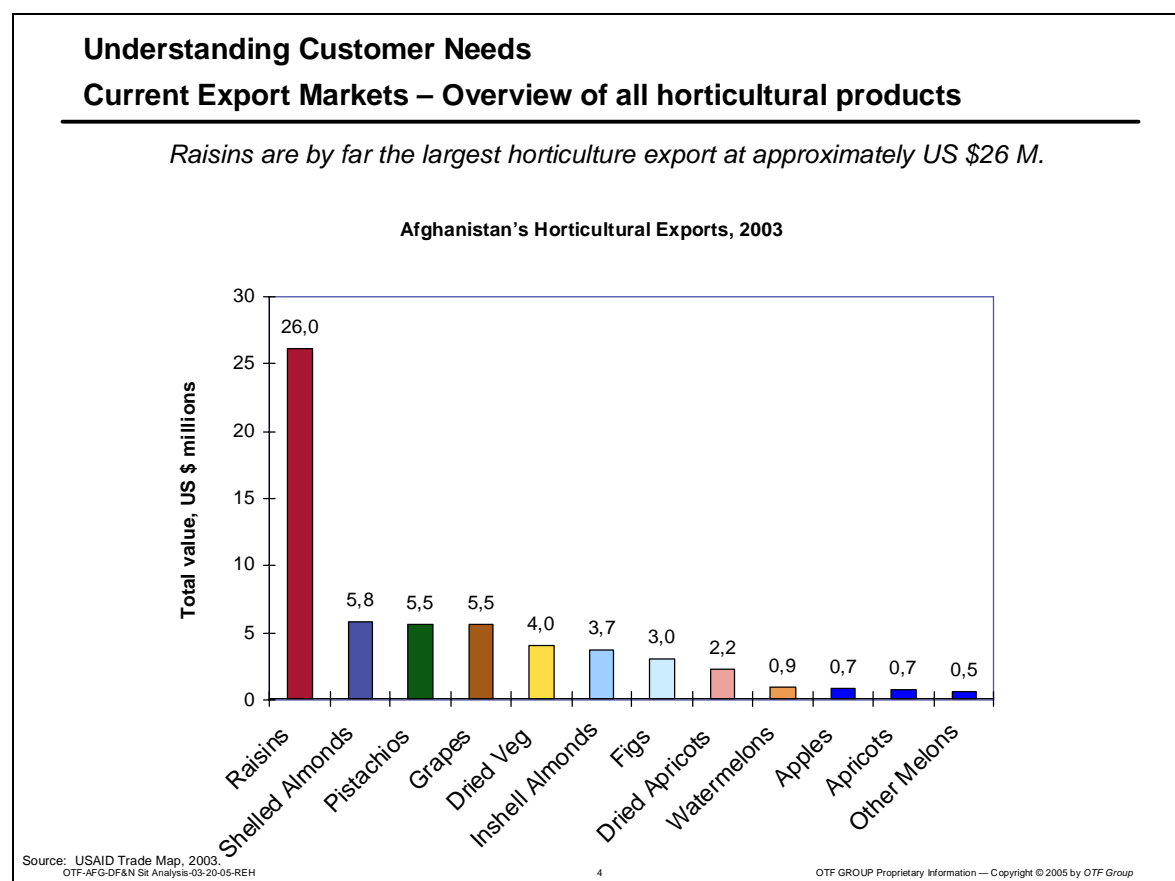
Both Iran and Pakistan have excellent horticulture engineers which could at low cost ensure proper technology transfer in Afghanistan. In Iran, millions of Afghan refugees have worked in commercial orchards in the past two decades and have thus benefited from informal training on commercial orchards managements. In Rafsanjan alone, 200,000 Afghans are working (and some managing) pistachio

commercial orchards. Given their economic status, Iranians are no longer working in these orchards

3.2 Exports and Current Markets

Figure 4 summarizes the export values of the most important perennial fruit crops. Based on official data, total exports of horticulture products from Afghanistan are estimated at between US \$40 to 50 million in 2003.

Figure 4: Export Values of Important Perennial Fruit Crops

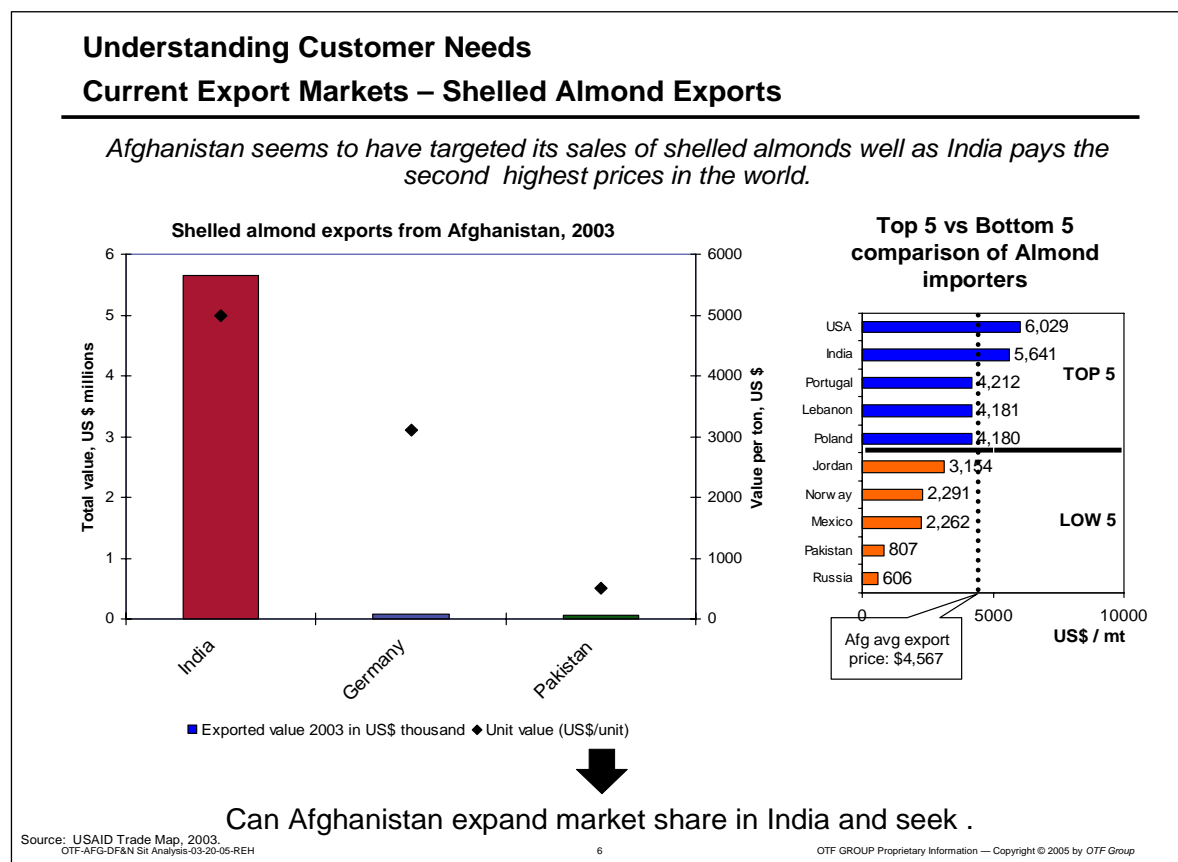


During the working group process to develop this Master Plan, inconsistencies in the export data led to a recalculation of exports to US \$127million for the seven priority products. An example of this discrepancy is raisins. Official data reported the average value of raisins exported to Russia at \$340 per ton. Actual value is at least \$700 per ton. Assuming that the quantity (metric tons) is correct, this doubles the value of raisin exports to Russia, the largest market for Afghan raisins. Although this is still not an attractive market for raisins versus other raisin importing countries, it does reflect reality in a more accurate manner. The same types of inconsistencies were found in almost all of the products and corrected with data obtained through current estimates of export prices from fresh and dried fruit traders. India, Pakistan, and Russia are the current major markets for Afghan horticulture products. Out of these three markets, India tends to be a “Top 5” buyer of Afghan horticulture products, especially dried fruits and nuts, meaning that it pays among the highest

prices in the world. Pakistan and Russia seem to be opportunistic markets for Afghan exporters and pay low prices for Afghan horticulture products.

An example of this “Top 5” and “Bottom 5” analysis is given in figure 5 for the case of shelled almond exports from Afghanistan to India, Pakistan and Germany and its realized price as compared to world market trading prices. Given the instability and civil strife that Afghanistan has experienced over the past 25 years, the large dependency of India as export market is understandable. However, now Afghanistan has the opportunity to begin planning and to study how to profile itself best in regional and global markets.

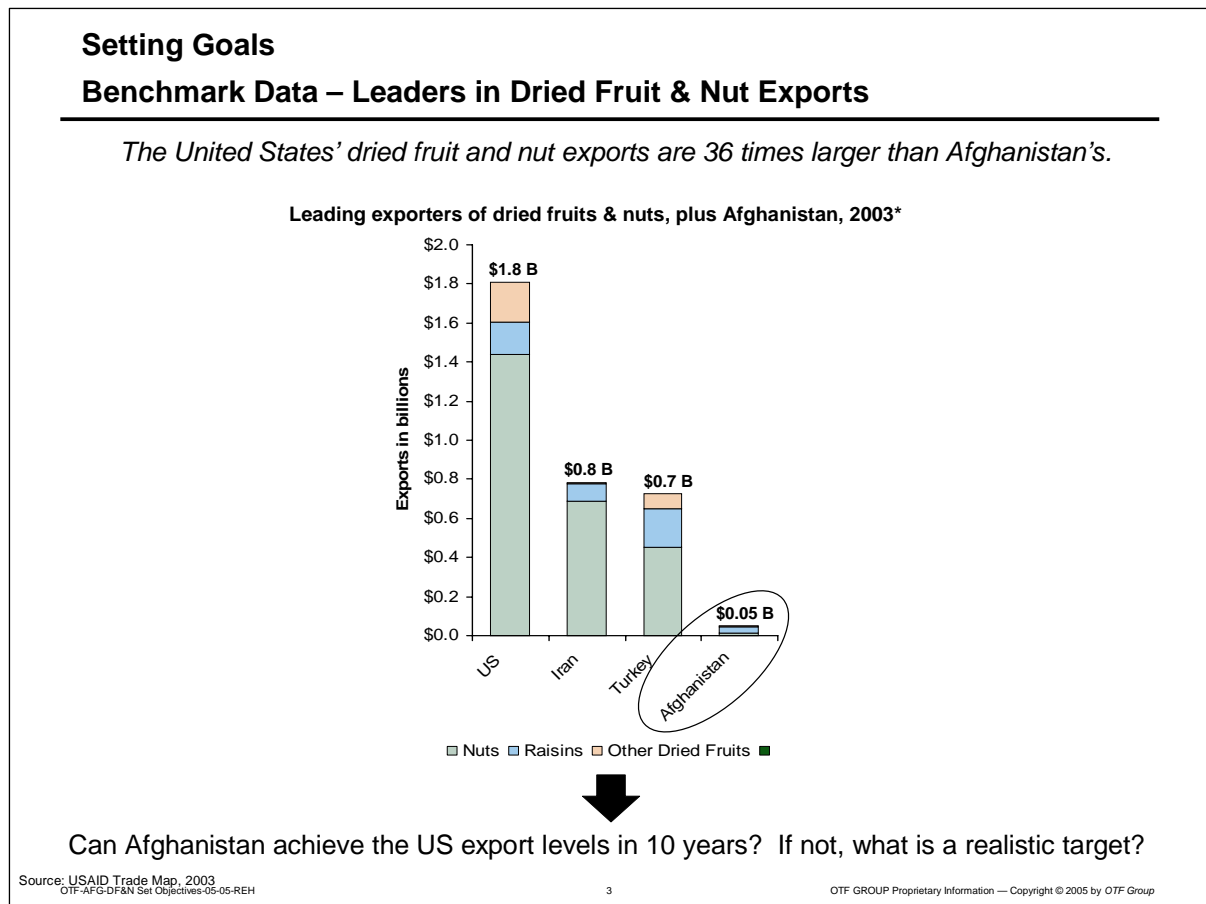
Figure 5: Export Price of Shelled Almonds and the World Market



3.3 Competitors

In the 1970s, Afghanistan was a dominant player in global markets of horticulture products. For example in raisins, it is estimated that the country held up to 20% market share of the global market for raisins. Due to war over the past 25 years, Afghanistan finds itself in a very different position. In that time period, new producing and exporting countries such as the US, Turkey, and Iran have come online with at least hundreds of millions in annual exports as shown in Figure 6.

Figure 6: Major Suppliers of Dried Fruits and Nuts



Each of these competitors seems to have developed a distinct competitive advantage in either regional or global markets. For example, not only is the US renowned for its efficient processing and advanced production technologies, its marketing boards and associations also provide up to date production information to buyers. This information is appreciated by buyers in foreign countries who need to understand the supply and demand situation of individual products and its effect on prices.

Turkey has a different position in global markets. Because of its proximity to Europe, Turkish producers have been obligated to quickly conform to stringent import standards imposed by the EU. Even compared to US producers, who focus mainly on lower American quality standards, Turkish exporters are considered the global benchmark for clean, efficient production. Iran is a competitor that is often discussed in a regional context. Compared to Turkey or the US, it is not nearly as advanced in processing techniques, but its well-managed commercial orchards and vineyards achieve productivity levels unmatched by the current production methods. Most of this development was done over a 15-20 year period with relatively little external assistance. Given the current level of international support for Afghanistan, an even more rapid development path could be imagined.

3.4 Trends in the International Food Industry

In recent years, food markets have begun to divide themselves into two different categories: developed, low growth markets, and developing, high growth markets. An example of the former is Japan. In 2003, the country had retail dried food sales of over US\$22 billion, but the growth rate of this market between 1998 and 2003 was negative, meaning that existing competitors are most likely fighting for market share. Despite this negative growth rate, Japan pays among the highest prices for many dried fruits and nuts in the world, obviously supported by its status as one of the wealthiest countries in the world. An example of the second category of markets is India. Compared to Japan, there is a relatively small market for dried foods at \$437 million, but its growth rate between 1998 and 2003 was 10.5%. There is an additional positive factor for Afghanistan in that Indians appreciate the quality of Afghan dried fruits and nuts and have a long history of purchasing and consuming these products.

A trend that has emerged in the international food industry is that of traceability and certification. In a recent study, German food retailers ranked traceability as the most important selection criteria for their suppliers. Traceability means that retailers should be able to know exactly where each product they sell originated. In the case of dried fruits and nuts from Afghanistan, this means that if a retailer picks up a pack of almonds in Berlin, he should be able to determine exactly which farm it came from in Afghanistan and who harvested and processed his nuts. For Afghan exporters, this is a current challenge because most of their product comes through a series of intermediaries, so it is difficult to identify individual producers.

Hygiene and management certification schemes are also a new phenomenon in global food markets. These systems include Good Management Practices (GMP), HACCP, ISO 900X, TQM and a few other schemes that are internationally recognized. The implementation of these systems requires an initial assessment, development of procedures and management systems to adhere to prescribed norms, and then ongoing audits and management of systems to ensure that the procedures and systems are enforced. These systems will be critical for the ultimate success of Afghan exporters. In a recent OTF Group survey of UK dried fruit and nut importers, **over 80% indicated that they could not purchase dried fruits and nuts from Afghan exporters** who do not comply with one of the above certification systems.

The organic segment of the food market is an attractive and growing market. During the 90's, the demand for organic food grew at an average of 20-30% in many developed countries. In addition, most organic products enjoy a premium of 20 to 40% over comparable non-organic products. Afghanistan will face several challenges in serving this market:

- **Organic Certification:** certification of Afghan exporters will most likely take at least 3 years.

- **Achieving phytosanitary standards:** especially in dried fruits, this will pose problems as most consumers rate healthfulness and absence of contaminants as very important (75-80%).
- **Sufficient and stable production to meet international demand:** large and consistent supply of organic produce is listed as the biggest concern of US organic food processors.

These issues will need to be addressed at the production, processing, and marketing levels in order for Afghanistan to become a serious player in the organic food market.

3.5 Current International Donor and NGO Projects in the Horticulture Sector

Although there are numerous projects involved in attempts to relaunch the horticulture sector, they are too under-funded and poorly coordinated to have a lasting long-term impact on the Afghan economy. In total, just under US\$32 million has been disbursed or committed to development of the sector.⁵ Although not a small sum, when this amount is taken in the context of the hundreds of millions that are needed to relaunch the sector, it is simply insufficient.

The major donors and actors in the sector are USAID/RAMP, the EU, CNFA, and a multitude of smaller donors. In addition to these funds dedicated to horticulture, the USAID and DFID funded alternative livelihood projects will most likely have a large impact on the sector in the regions in which they work. At this point it is unclear what percentage of their budgets will be allocated to long-term development of the sector (versus short-term disbursements in areas like annual crops or cash for work programs), but the USAID ALP project in Kandahar and Helmand has US\$120 million to spend in 3 years. If a significant percentage of this money is channeled to horticulture it could serve as a catalyst to attract further donor and private sector investment into the region.

4. HORTICULTURE STRATEGY:

4.1 Guiding Principles

In February 2005, HE President Hamid Karzai declared:

“I hope that Afghanistan can regain its predominant position as the largest supplier of fruits and dry fruits to the world...”

What are the implications of this statement on how to approach the development of the horticulture sector in Afghanistan? First, the strategy must be export oriented to conform with the President’s desire to be a major supplier of these products to the world. Second, in order to achieve export levels comparable with those of its major competitors like the US, Turkey, or Iran, there must be a concerted, large scale investment effort to boost exports by 5 to 10 times in the next 10 years. Finally in order to keep pace with the constantly changing global food market and fierce

⁵ Please see Annex 5 for a list of known projects in horticulture.

competition, institutions need to be put in place that constantly research the market and transfer this knowledge to exporters and even back to producers who can adapt their processing and production methods to successfully serve these markets.

In order to realize the vision introduced above, the private sector, the government as a facilitator and International Donors and NGOs need to work closely together and coordinate their activities.

Private Sector

Exporters and traders will be the focal point for the development of the horticulture sector. As noted above, there are an estimated 600,000 farmers involved in horticulture in Afghanistan. The challenges of communicating and training these farmers are enormous. However, if the private sector can be leveraged to transmit market information to the farmers with whom they work, the task becomes manageable. The implication here is that the private sector must develop “integrated businesses” with strong linkages with both buyers in major exporting countries to learn about their needs AND good direct relationships with the farmers or organizations who supply their raw materials. This is a sharp break with current practice where various intermediaries are involved with the supply chain from the farmgate to international markets. If the business model can be changed, more money will go to the farmers and business people who create value, versus intermediaries who both destroy value and stop the transmission of valuable market data from Afghanistan’s customers to farmers and exporters.

Government

In general, the government should do everything that it can to assist the private sector except impede competition. In addition to the MAAHF, the Ministry of Commerce is the second major line ministry that should be involved with promoting the development of the horticulture sector. In simple terms, the role of the MAAHF is to provide assistance to producers so that they have access to the appropriate and certified varieties of fruit trees and vines, provide technical assistance to ensure proper care of the crops, constant research on new varieties and new techniques to improve the productivity of orchards and vineyards. Demonstration plots with applied research, training of extension officers (training of trainers) and dissemination of extension material are major contributions to develop the fruit sub-sector. The Ministry of Commerce’s role will be to provide quality certification at the time of export, provide market information, and to negotiate horticulture specific trade agreements that provide preferential access to markets for Afghan products. In order to achieve these goals, the Export Promotion Institute for Dried Fruits and Nuts, a body affiliated with the Ministry of Commerce, will most likely need to be reinforced with additional funding, new staff, and state of the art funding equipment.

International Donors and NGOs

In the short- to medium-term the international community needs to support the Afghan private sector and government to achieve its goals. To support the private sector, international donors will need to provide incentives to local and international banks to provide much needed medium-term credit to farmers to establish fruit plantations and long-term credit to establish new fruit and nut processing factories and other critical infrastructure such as cold storage and packaging facilities for collection and distribution centers. In addition, creating an institution that can

provide training and certification on systems like GMP, EurepGAP, HACCP, or ISO 900X will be critical. When looking at support to the private sector, the international community should have a concrete exit strategy to make all of its interventions sustainable in the long-term. In the case of providing credit to banks, the banks should learn how to analyze proposals and make informed decisions on the viability of businesses so that they will continue to perform these activities on a purely commercial basis. In the case of a certification program, the end result should be a private business or other institution that earns money through a fee for service model or another means to cover the operating costs.

Providing support to production will entail building the capacity of the MAAHF to deliver required extension and research services, plus the provision of investment credit to encourage the upgrade of existing orchards and vineyards, and the establishment of new ones. For the provision of credit, the idea of a creation of a horticulture investment fund by a board of directors drawn from the public, private, and civic sectors has been proposed. This council could provide oversight to an independent, quasi-governmental body that would provide funds for research, extension, and investment into new orchards and vineyards. The disbursement mechanism could be similar to that of the NSP where proposals are compared to certain criteria and then funded based on their fulfillment of these criteria or on a competitive basis where batches of proposals would be studied by technical experts.

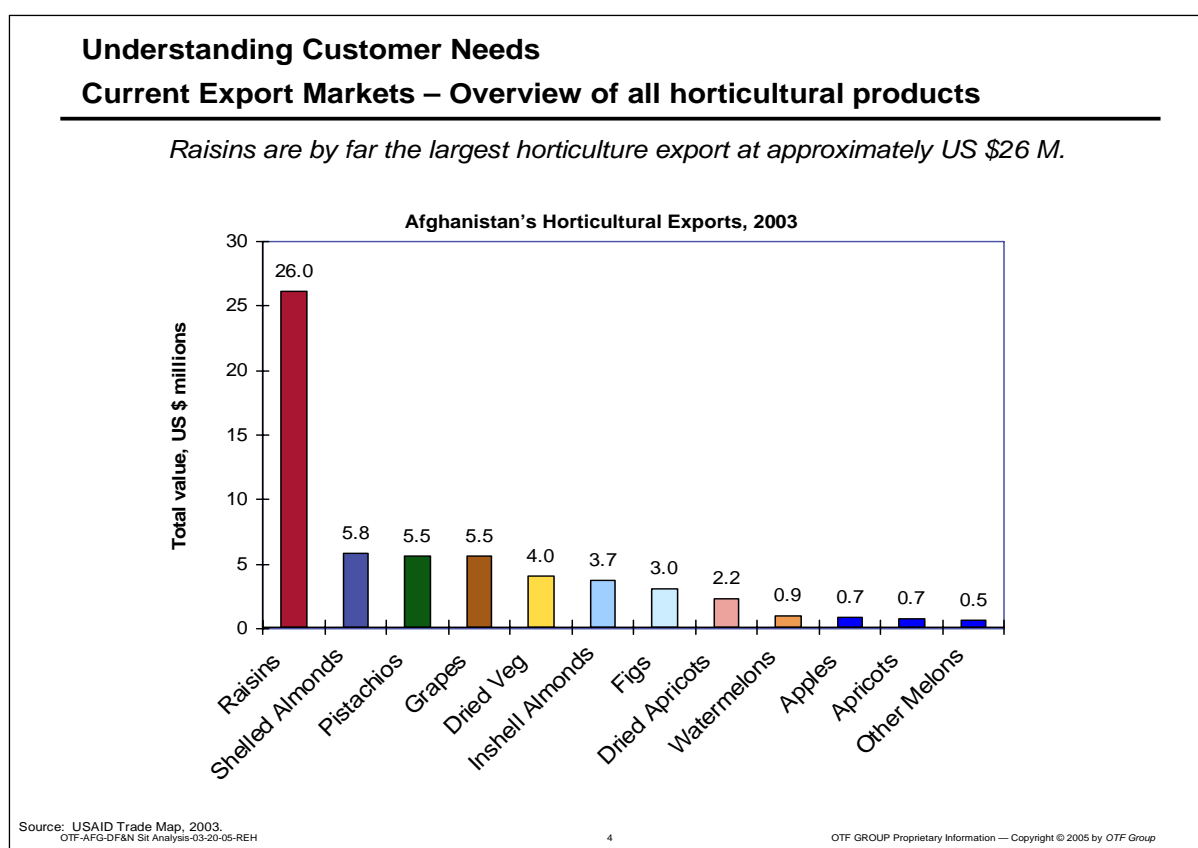
4.2 Prioritization and Selection of Products

Afghanistan has a vast array of horticulture products that could be exported. Given the limited financial, human, and institutional resources that currently exist in country, the Horticulture Working Group used several screening criteria to select the products with the most potential.

- Products that are or were large export products.
- Products that have the most potential to sell in international markets.
- Products that have a large-scale impact on the Afghan economy.
- Products that provide opportunities to businessmen and farmers in all regions of Afghanistan.

The first step that the group studied was the 2003 exports. Based on this, raisins and grapes are the frontrunners with almonds (shelled and inshell) in second place. These two are followed by pistachios and apricots, both fresh and dried. An overview of 2003 exports, as given before, has been given in figure 7.

Figure 7: Value of the Major Perennial Horticulture Exports



Products that could be sold in the international market and have potential due to climate conditions for production and drying are:

Grapes	Raisins	Pistachios
Almonds	Apricots (dried and fresh)	Pomegranates

Grapes are the major product with grape production in 2003 amounted to US \$180 M with approximately 60,000 hectares under production, by far the largest crop in Afghanistan. Pistachios were in second with \$94 million in production, almonds third with \$35 million, and apricots fourth at \$22 million.

In terms of geographic spread, these products cover all of the major regions of Afghanistan except the East:

- Grapes are grown primarily in the south, southwest and central regions, with about 10% of production in the north.
- Almonds are primarily grown in the north and southwest.
- Pistachios currently grow in forests in a band from western Afghanistan all the way to Badakshan. Although it is not a plantation crop yet, the potential should be taken into consideration given the premium prices of Afghan pistachio and current water availability problems in large areas in Rafsanzan, Iran.

- Apricot production is spread relatively evenly across the entire country with large centers of production in the southwest and central regions.

For the east, opportunities exist for the production of citrus, in particular the blood orange and lime, and also for vegetables and olive production.

Apple and pear production was also discussed. Production for the local market has good potential, but given the yield-depressing warm summer climate, this will be of local and national-level economic importance. Moreover, apples are produced already on large scale in countries like China and with climate controlled containerized transport, making it a truly world-wide commodity.

Pomegranates are a product promoted by various members of the working group as a huge opportunity for Afghanistan. Although production value of pomegranates is far lower than to the products mentioned above at less than \$2 million in 2003, anecdotal evidence of a small number of exporters selling the product for premium prices, a great reputation for Kandahari pomegranates in the Indian market, and the relatively easy logistics of exporting pomegranates makes it a worthy candidate to consider for export diversification.

Vegetables and melons also have potential at the higher altitudes such as in the Shomali plain in the central area. Its production season is supplementary to the Pakistani summer-season, when temperatures are rising there to above optimal.

Off-season winter-production in tunnels or glasshouses will certainly have great demand in the local market during winter, spring and autumn seasons, especially if cheap fuel for winter heating can be found. Afghanistan has a relatively high number of sun-hours in winter, a prerequisite for winter production.

The production of fruits and vegetables for processing such into juices or concentrated has potential, given the fact that all juices are imported in Afghanistan. However, a careful planning must be made to ensure sufficient volume of supply of 2nd quality for the supply to the factories-to-be, preferably in combination with a wide assortment of fruits to prolong the processing season of the factories. Possibly that a combination of fruit processing with processing of vegetables (drying, freezing, cooking) can prolong the operational period of the factories facilities.

4.3 Overview of Target Markets for Select Products

As part of a process that began before the MAAHF Master Planning process began, the Afghanistan Competitiveness Project (ACP), a USAID funded program, had begun primary market research for Afghan dried fruits in nuts in two target markets: India and the United Kingdom (UK). The purpose of these market studies is to understand buyer needs, the distribution channels by which Afghan dried fruits and nuts move from the exporters to the final consumer, and the perception of Afghan exporters and their products in the two markets. Below is a summary of this market research, complete copies of the market research can be accessed from the ACP.

India: Delhi and Mumbai

The ACP conducted an in-depth study of wholesalers and retailers of dried fruits and nuts in the two largest urban centers of India; Delhi and Mumbai. The positioning of Afghan exporters and dried fruits in the Indian market is amazing. The head of the importers told interviewers that he could trust 99% of the Afghans that he dealt with and they always fulfilled their side of the bargain. For the product, Afghanistan scored number one in a ranking of 10 major suppliers of dried fruits and nuts to India in terms of perception of quality. Afghanistan beat out competitors such as the US and Turkey, not an easy feat.

The two key questions that Afghan exporters were seeking answers to via this survey were what the most important factors were for wholesalers and retailers, and how could they make more money by capitalizing on this knowledge. In summary, quality of product at a competitive price is paramount for both segments of the market. What is not important is fancy packaging or branding. Based on this the Afghans should focus on higher quality dried fruits and nuts through better cleaning, sorting, and grading versus investing money in branding or better packaging machines.

The most important market learning that came out of the study is how the distribution channels work in India. For many Afghan products, there are markups of 30 to 50% over the price at which wholesalers receive the goods. At the same time the wholesale market is very concentrated; all wholesale activities take place in one physical location in both Delhi and Mumbai. All retailers and institutional customers purchase these products at the wholesale markets, and it is a prerequisite that their suppliers have a stall in these markets. The implication for Afghan exporters is that they need to establish themselves as wholesalers in the major Indian urban markets in order to earn higher revenues and begin learning about retailers, a new and dynamic segment.

The United Kingdom

As the largest importer of raisins and a major consumer of other dried fruits and nuts, the UK needs to become a key customer of Afghan exporters. The position of Afghanistan is dramatically different in the UK than it is in India. After a 25 year absence from the market, UK buyers are suspicious of Afghan exporters and have no confidence that Afghan products can meet the increasingly stringent hygiene standards that have been imposed by various government authorities in recent years. Based on this baseline positioning, Afghanistan will need to take a more measured approach to re-engaging with this market and other potentially attractive Western markets.

Based on the ACP survey, over 80% of respondents indicated that they could not purchase Afghan products unless they had international certification. This means that a program to certify Afghan processing factories and even vineyards and orchards needs to be begun immediately. In parallel with implementing the certification program, investment capital will need to be made available to make the necessary equipment upgrades that would be a requirement of the certification. On the marketing front, Afghan exporters should begin sending samples and correspondence to interested buyers. In addition, the cluster may also want to consider acquiring a consignment house where they can store dried fruits and nuts for inspection by potential buyers. In the earlier stages of the marketing to the UK,

the ability of UK buyers to physically visit the product and see its quality will be a crucial confidence building measure.

Rebuilding exports to the UK and other European markets will be a long slow process. However, Europe has some of the largest importers of dried fruits and nuts in the world, so these markets will play a crucial role as customers for the massive increase in exports envisioned by the Horticulture Working Group and the Afghan dried fruits and nuts cluster.

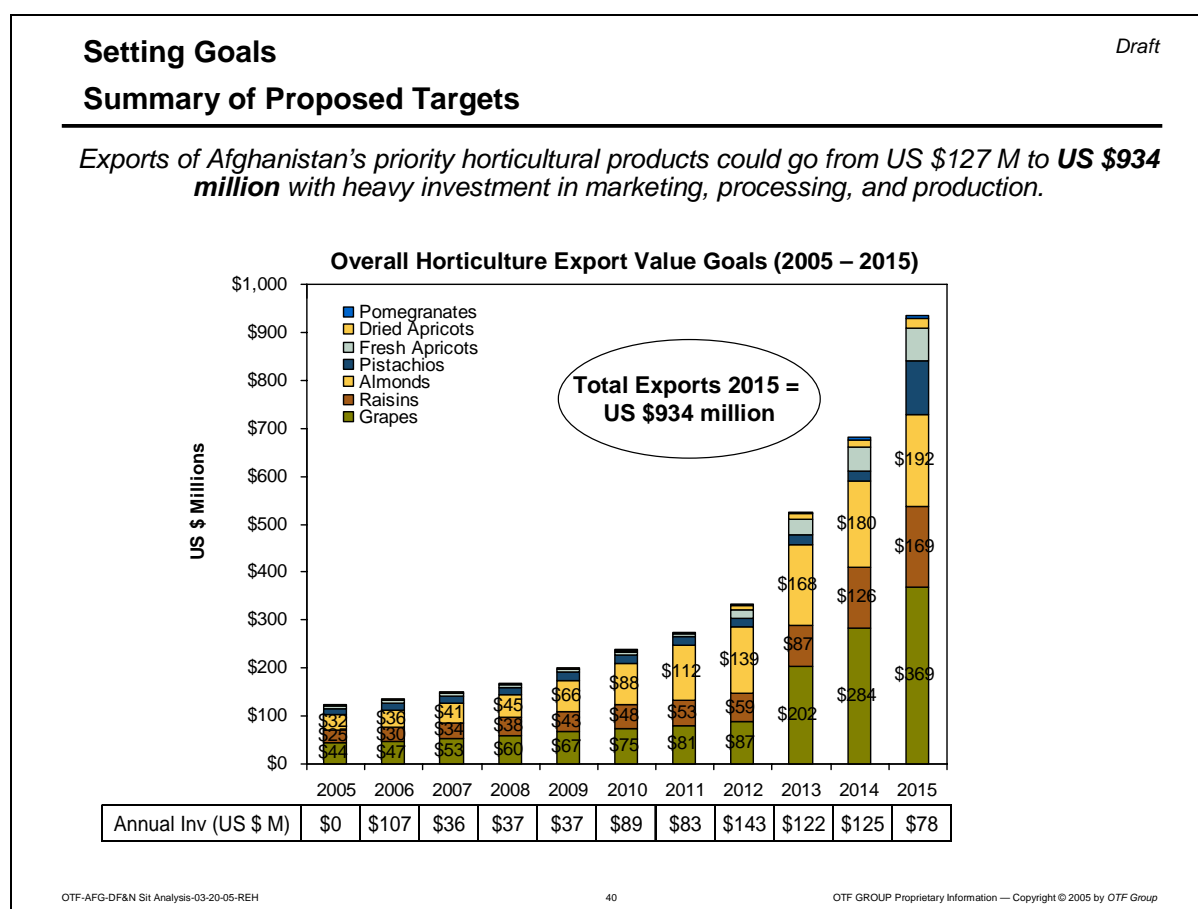
4.4 Objectives 2005-2015

In order to achieve the vision of becoming one of the world's leading suppliers of horticulture products, the Horticulture Working Group drafted ambitious objectives that aim to increase exports of the seven products above from US\$127 million to \$934 million over 10 years. This can be achieved by investing heavily in new orchards and vineyards, building modern processing facilities that meet international standards and continues scanning of international markets to identify new opportunities and adapt to them.

- For production, the goal will be both to upgrade all 90,000 hectares of existing orchards and vineyards and increase the existing area by 75%.
- In processing, building or upgrading 22 new raisin processing factories, 35 nut processing facilities are required, as well as additional infrastructure for the post-harvest handling of the fresh fruit export and packaging of all products.
- Marketing will entail the commissioning of market research studies of attractive target markets for each product, trade missions and industry trade fair attendance where Afghan exporters can make new buyer contacts and learn about the competition.
- Implementing dissemination of know-how through extension services, demonstration plots and dissemination materials.
- Availability of high quality inputs and investments and related credit.
- Commitment of financial resources for the institutions that will coordinate and monitor the implementation of the strategy.

A summary of the objectives that Afghanistan becomes a major exporter of fruits and nuts has been given in Figure 8 below.

Figure 8: Growth of Export Value from the Major Horticulture Products



4.5 Institutions

4.5.1 Justification

The development of horticulture, particularly perennial horticulture, will result in the largest contributor of growth in the Afghan economy. It is expected that the value of exported produce will increase significantly during the coming 10 years. Anticipating this enormous growth by the private commercial sector and the need for export outlets and quality of produce, the MAAHF as a facilitator is aware of these up-coming needs and it is its duty to anticipate the consequences to protect farmers' interest and to set in motion the process of coordination. This process is unusually complex, requiring inputs from several departments in the Ministry (e.g. Planning, Research, Extension, Horticulture, Farmers Organisation, Irrigation), from outside the Ministry (e.g. Roads, Trade, Credit, Agribusiness), but also from the private sector (farmers organisations, traders, suppliers, etc.).

In order to coordinate and finance the horticulture strategy, 2 new institutions will need to be established and the MAAHF will need budgetary support to build its capacity to manage the implementation of this strategy. The two new institutions are:

- High Value Horticulture Task Force: this group will be housed in the department of special projects and be responsible for advising the Minister on horticulture related activities and coordinating the sector. The head of this task force will be responsible for creating and managing a horticulture steering committee comprised of representatives from the private sector, government and international donors.
- Horticulture Investment Fund: this institution will be responsible for managing and disbursing all government mobilized funds destined for the horticulture sector. This organization could be modeled on the NSP secretariat; basically a very efficient bureaucracy that receives applications for funding, assesses the applications against certain criteria, and then quickly either rejects or accepts the proposal. The exact name, structure, and operations of this institution should be discussed over the coming weeks and months.

Several donors and many NGO's are already active in this sub-sector, but there is no coordination to increase immediately their effects. Although the magnitude of the futures growth is speculative, the growth of horticulture as such will need the attention of the MAAHF, being the facilitator to the sector. It is proposed that the Ministry have a special coordinator for horticulture to ensure that this sector moves ahead rapidly and efficiently.

5. Background and Justification of HVH

The horticulture production chain is unusually complex, requiring input from several different departments in the Ministry (e.g. Planning, Research, Extension, Horticulture, Farmers Organization, Irrigation) and from outside the Ministry (e.g. Roads, Credit, Agribusiness). Several donors and many NGO's are already active in the horticulture sub-sector, but there is no coordination to increase immediately their effects.¹ The risks of duplication, lack of coherences, counterproductive effects are extreme and there is an urgent need for the MAAHF to take a strong lead in the coordination of the support provided to horticulture⁶.

In the context of the reorganization, the defining of a leadership role in agricultural growth and development for the Ministry is important. The Minister needs a Special Coordinator for Horticultural Growth to ensure that he is informed and able to assist the process to ensure that it moves ahead rapidly and efficiently.

6. Functions of the HVH

The High Value Horticulture (HVH) task force will:

- Review horticulture strategies and policies.
- Assist in the restructuring of the Ministry's horticulture sub-sector reform (functions and job descriptions).
- Review legal aspects relevant for the relation between the public and private sector.

⁶ EC-Arnaud Cauchois

- Convene and consult with a Horticulture Steering Committee (HSC) composed of representatives from the government, private business, and international donor and NGO community.
- Ensure coordination amongst the programs.
- Report regularly on program progress.
- Ensure that programs are implemented in accordance with project proposals, and verifiable reporting and auditing standards.
- Assist in raising funds to implement identified programs (as set out in the Horticulture Master Plan).
- Review and discuss monitoring and evaluation reports and ensure that progress on projects are as set out according the Master Plan.
- Address and agree to all issues related to administration and coordination of the implementation.
- Issue comprehensive meeting minutes with details of attendees, an overview of outputs, a summary of progress, constraints and outstanding issues.

A specific function of the HVH task force is the monitoring and evaluation of the tasks of the different Departments within the Ministry and steering them towards the common goal of an efficiently operating and integrated horticulture sector. The different departments will address amongst others the following issues, requiring integration:

- Standardization (of inputs such as fertilizers, chemicals, plant material, products, packing).
- Certification (of plant material, products such as organic production and Good Agriculture Practise).
- Licensing (of input suppliers, plant material producers, laboratories).
- Inspection (to assure that standardization, certification and licensing are implemented).
- Dissemination of information (demonstration farms, extension service, materials such as brochures/video's and radio/TV programs).

7. Organization of HVH:

7.1 The Structure

The HVH task force is under direct authority of the MAAHF Minister and chaired by a Deputy Minister or the Special Coordinator (HVHSC) for horticultural growth. The HVH's steering committee (HVH-SC) members are the heads of relevant departments within the MAAHF. Other invited participants to the Steering Committee are selected according the needs such as other Ministries, Donors (EU, USAID and others (e.g. traders, farmers' organisations). The HVHsc will be supported by the Departments within the MAAHF, which will elaborate the identified issues. Every month the HVH-SC will meet to address and direct the programs that have been set.

The proposed HVH task force will be composed of:

- Special Coordinator (Afghan Nationality)
- Assistant to Coordinator (Foreign Nationality-TA)

- Short term Technical Assistance (Foreign/Local)
- Bilingual Secretary
- An office, preferably near the Minister will be established with computer, printer, e-mail, office supplies, etc.

7.2 The Support

To establish the HVH task force, its Special Coordinator and steering committee, a team must be composed. To assist in the establishing of such a team, the EC has already allocated resources for a temporary small Secretariat to be based in the office of the MAAHF. EC-TA staff is presently available and the soon launched tendered Horticulture Development Project can assist the HVH-Special-Coordinator in its tasks for the coming years.

7.3 MAAHF Support to the Horticulture Sub-Sector

As set out in the National Framework, the main role of the MAAHF is to become a facilitator for the private sector. It should assist the private sector in the best way to improve performance. The private sector covers all parties such as:

- Producers (products, plant material)
- Traders (wholesalers, exporters)
- Suppliers (inputs, hardware)
- Processors (drying, juices/concentrates)
- Banks (credit)
- Certification bodies
- Standardisation bodies
- Farmers' groups (producers, irrigation, collection/distribution centers)

The MAAHF role can therefore concentrate on, but not limited to:

- Providing technical expertise, as far as not provided by the private sector.
- Providing standards to what criteria inputs must adhere and inspect the implementation of standards and plant protection framework.
- Providing the framework for plant protection and its inspection.
- Providing standards to what criteria products must adhere and its inspection.
- Inform others about the needs of the horticulture sector.

Addendum A-Providing Technical Expertise Not Provided by the Private Sector

The private sector is not able yet to provide technical expertise to the farmers' community. As quality of produce is the main criteria for international marketing, much effort should be paid to this. At present, extension staff of the Ministry should be trained on technical production matters instead of being a sales agent of products, as that can be done by the private traders' agents. Training of staff is the first step. One can take the demonstration extension model at provincial level to build-up know how of the extension officers. The 3 main components in this are:

Demonstration farms: In each of the 34 provinces a demonstration farm should be established, disseminating the best production technologies of the moment. Extension officers should be informed about these technologies and to disseminate this to farmers. Aspects of importance are e.g.: variety selection, plant distance in relation to rootstock, pruning and trellising, irrigation system and volume, fertilizer application such as what and when, post harvest handling such as drying, sorting and packing, trading outlets and certification/standardization requirements, credit suppliers and inputs/hardware suppliers.

Training of trainers and subsequently staff: The extension officers at provincial and district level should be trained to understand the present production technologies and to prepare them in the profession of an extension officer. First the provincial staff should be trained, before they can train the district staff. The provincial staff can be trained by professional teachers of the Kabul University Agriculture faculty and Horticulture Department. To update these professional teachers on the production technologies, an international training course should be prepared for them and attended, such as to practical visits to Iran, Pakistan and India, but strengthened by theoretical courses. Once the professional teachers have been trained, the provincial trainers can be trained and then the district staff.

Preparing extension material: The material, resulting from the demonstration plots and international training courses should result in practical training material for extension officers and farmers. This can be brochures, videos and TV/radio presentations.

Addendum B - Providing standards to what criteria inputs must adhere and inspect the implementation of standards and plant protection framework.

Inputs in the horticulture can be subdivided into fertilizers, chemicals and plant material or seeds. The quality standards must be defined clearly before these inputs are distributed to the farmers. Distributors (importers or producers) should be licensed and work with these standards. The standards should be determined by the MAAHF or other Ministries (if applicable) in accordance with international standards. These standards should be checked by:

- Sampling of fertilizers and chemicals implemented by the MAAHF's inspectors and analysed in laboratories (private sector). The chemicals can be used by farmers only, if there are listed for use in Afghanistan (see under D).
- Inspection of nurseries and nucleus nurseries for plant material, implemented by MAAHF's plant protection inspectors. Regularly, the mother stock plant material is inspected on plant health (virus and its carriers, mould, bacteria) and genuineness. If certified, nurseries can use this plant material in their multiplication program. Further, the plant protection inspectors will regularly inspect the multiplication fields of nurseries on plant health and genuineness and certify each of the marketable saplings with a label detailing the producer, its health and age of tree. If nucleus nurseries and nurseries adhere to these criteria, they can be licensed.

Farmers should be informed about this licence system to protect them from malpractice. However, if the farmers still want to buy from non-licensed

suppliers he is made aware of the risks. Moreover, if farmers use non-certified material, he takes the risk that his final product can not be sold in the international trade because traceability is becoming a prerequisite.

Addendum C - Providing the framework for plant protection

Clear regulations concerning the use of crop protection chemicals must be set to protect the interest of the consumer and the farmer. Each chemical must be checked on its internationally accepted rules for use, detailing crops, concentrations, waiting period before harvest, application method. An instruction label in Dari/Pastu must be enclosed on the package. The accepted chemicals must be published and each licensed distributor must have a complete listed overview. Plant protection officers must check the traders and farmers' fields to ensure that these regulations are followed. A project for development of the regulatory system for crop protection chemicals has been included in the master plan under the quality control certification group.

Addendum D - Providing standards to what criteria products must adhere and its inspection

Traders can better market produce if they are supplied according to internationally recognized standards, so he and his clients know what they are buying. Standards should be set for all products and this concerns description about size (length, width, diameter, weight), maturity (colour, % deviation), damage (% deviation), weight/number per packing, etc.

Some markets require information on the packing about producer information, production method, type of packing material, etc. It is the role of the MAAHF to take the lead in this, in cooperation with traders and producers. If produce has to be certified about production methods and traceability, the MAAHF can take the lead with traders/exporters to join one or more certification bodies to develop their systems in Afghanistan. This certification bodies requires unannounced inspections of the production/marketing chain, but appoint central certification representatives. The procedure to certify a certification representative requires a few years.

Addendum E - Inform others about the needs of the horticulture sector.

The private sector is lacking coordinated action in Afghanistan. Therefore a special task force is required. The MAAHF can take the catalytic role. A Horticulture Council with a Horticulture Steering Committee has been proposed. Important matters to be addressed are for example:

- Facilitating the registration of farmers' organisation for e.g. marketing, input supply and water use reasons.
- Assisting in developing private laboratories for analysing of soil, leave and water samples, including developing recommendations about fertilizer applications.
- Assisting in developing private consulting companies with diagnostic capabilities to identify common diseases and pest. The new arising plant

diseases should be dealt with by the Research the Department of MAAHF and relevant information disseminated to the extension officers.

- Assisting the farmers in their credit needs by stimulating the development of a country wide private banking network and to negotiate favourable loan conditions.
- Assisting the farmers in tax matters, e.g. tax exemption of farmers' organisations (corporate tax and VAT issues) to remain equal competitive as individual farmers.
- Assisting the traders in a cost-free transit agreement with Pakistan for exports to India.
- Assisting the processing industry in informing them about the regional horticultural developments, their needs for processing facilities and in acquiring the necessary permits.

Other Ministries

The Ministry of Commerce, Ministry of Trade, Ministry of Irrigation, Ministry of Energy and Ministry of Transport are also important to the support of the horticulture sector. Their contribution to sector's development can be coordinated through the proposed Horticulture Council of the Horticulture Steering Committee.

Budgets

Enclosed is a breakdown of costs to build-up a Ministry's staff that can perform as should be. The estimated costs are:

- **Training of trainers of university staff:** During a four year program, five university horticulture staff members are trained by foreign experts in crop production, economics and marketing. Local administrative staff will be made available as well as funds for salary enhancement, foreign visits, transport and training material. Total costs are estimated at \$1 million.
- **Extension at the national level:** This concerns the salary support of the Director, the Deputy Director, the Chief Administration and Management, the Chief Publications and Information Media, the Chief Training and Staff Development and other supportive staff. Foreign long and short term TA will support regional staff members. Office facilities and operational costs as well as transport will be made available. Studies to support sector development and visits abroad will complete the support to the National Staff of the Extension Department. The total costs are estimated at \$12 million for a 15 years period or \$40,000 for the first year for investments and \$4 million for the first five years for operational expenditure.
- **The Provincial level:** The staff will be trained by university staff on theoretical issues and practically supported by demonstration plots in each of the 34 provinces. The buildings should be rehabilitated if needed and fully furnished. A two hectare demonstration/training farm will be laid out with crops relevant for the area and the latest techniques tested and showed. Machinery and equipment will be made available. Foreign TA will take the lead in this by providing a coordinator in Kabul and seven agronomists, each coordinating five Provincial Centers. Local counterparts will assist the foreign TA. Each of the Provincial Centers will staff one Horticulture/Extension/Irrigation Officer,

one Horticulture/Research Officer, one Plant Protection Specialist, one Agri-Business/Marketing Specialist and one Farm Manager. Supportive office, field staff and guarding will be made available as well as transport (4 cars and 4 motorcycles), inputs for crop production, utilities and office supplies. Besides the annual operational costs, products from the 2 ha demonstration field give a revenue, that should be taken into account. The total costs for 15 years exploitation are estimated at \$135 million. The initial investment for all 34 Provincial Centers is estimated at \$10 million and the additional exploitation costs during the first 5 years at \$53 million.

- **The District level:** the staff of the present 371 districts will be trained at the Provincial Centers by the trained Provincial staff. The district's offices require rehabilitation and refurbishing in general. The staff at each of the district's offices will be composed of: one Horticulture/Extension/irrigation Officer, one Horticulture/Research Officer (for participatory demonstration plots at farmers' level, see below), one plant Protection specialist, and one Agri-business/marketing specialist. Sufficient administrative staff will be made available as well as one vehicle, 3 motorcycles utilities and stationary. The total costs for a 15 years exploitation are estimated at \$388 million. The initial investment for all 371 District Centers is estimated at \$15 million and the additional exploitation costs during the first 5 years at \$83 million.
- **The farmer level:** 4 demonstration plots in each of the 371 districts will be supported by \$2,500, making a total of \$3.7 million.
- **The governmental and private sector liaison:** A Horticulture Council is proposed. A National Coordinator will be supported by an international expert and its Counterpart, supported by a secretariat. Sufficient support will be given for office equipment, stationary, transport, studies, travel, seminars, etc. The annual operating costs are estimated at \$0.4 million.
- **Quality certification of products:** Provisions are to be made adhere to international standards. An amount of \$1 million has been set aside for this purpose.

8. Action Plan, Timeline, and Financial Analysis

8.1 Summary

The transformation of Afghanistan's horticulture sector will be expensive. The estimated 10 year budget is **US\$1.5 billion** with approximately \$900 million paid for by government mobilized funds (government budget plus donors) and \$600 million paid for by the private sector.⁷ These funds include all investment capital required for the rehabilitation of orchards and vineyards, new factories, and the investment costs and operating expenses for programs that will require government and donor backing such as new certification programs, budgetary support to the MAAHF, and

⁷ Source: OTF Group Afghanistan Horticulture Cluster Cash flow Model, September 2005.

the creation of a “Horticulture Corporation”⁸ that will manage the government mobilized funds that will fund the implementation of the horticulture component of the Master Plan. The action plan is divided into 3 sections (Product Development, Marketing, and Institutionalization) and summarized below. More detail is available upon request from the MAAHF or the authors of this report. Timelines for implementation of these activities and a prioritization are also included in the summary action plan.

8.2 Product Development

Product development composes the largest percentage of the budget for the Horticulture Master Plan **at \$1.3 billion over 10 years**. The action items within this category are investment into vineyards and orchards, the establishment of demonstration farms and extension programs, the creation of nurseries, and investment incentive programs for processing and packaging of raisins, nuts, and fresh fruit. A brief description of each one of these interventions is below.

- **Investment into orchards and vineyards:** Invest \$796 million into the rehabilitation of all priority product orchards and vineyards in Afghanistan (90,000 HA) and increase hectareage of these products by 75%. These projects prioritized and localized by current levels of production to focus government and donor efforts. The basic strategy is to migrate all horticulture production from traditional to commercial methods to improve product quality at the farmgate and improve yields. This will lead to increased incomes for 300,000 farmers who become integrated into new high value export chains.
- **Creation of demonstration farms and extension services:** 34 provincial level and 371 district level demonstration farms and associated extension support will be created and operated by the MAAHF with donor support. These centers will provide practical technical assistance to allow farmers to see and adopt the latest and most effective cultivation techniques possible. Total cost is estimated at \$298 million over 10 years.
- **Nursery establishment:** high quality and uniform rootstock is a huge constraint to the development of horticulture in Afghanistan. In order to support the targeted expansion of orchards and vineyards, 125 nurseries will be needed throughout the country. Total cost is estimated at \$29.7 million.
- **Investment incentives for processing:** donors and NGOs should work directly with the private sector and via commercial banks to provide incentives for long-term financing and grants for components of processing units for which long-term financing is unavailable. The donor and NGO component is estimated at 30% of total processing investment needs or \$65 million. Total processing investment needs are **\$218 million**.

A final note in product development is around working capital. In order for the export businesses to function, they will need large amounts of working capital to purchase raw materials (fruits and nuts) from farmers and cover operational expenses for their

⁸ This is an institution that will manage the government mobilized funds destined for the horticulture sector. Neither the name nor the exact structure of this organization has been finalized.

processing units. Maximum needs in 2015 are estimated at \$463 million. This has serious implications for the financial sector. First, they must build the capacity to analyze and lend to viable projects in the sector. Second, this level of liquidity must be attained to meet the needs of private sector exporters.

8.3 Marketing

As Afghanistan dramatically increases its production and exports of horticulture products, effective marketing of these products will be critical. Key components of Afghanistan's marketing strategy are implementing certain certification schemes, attending trade fairs, forward integrating to key markets, negotiation and implementing transit trade agreements with neighboring countries. The total 10 year marketing budget is estimated at **\$8.2 million**; the major activities are described below.

- Certification schemes.
- Hygiene and management: the EU market will soon require all exporters of food to the EU to comply to standards such as HACCP or GMP and to begin implementing management standards such as ISO 900X. These standards are practically unknown on a theoretical level in Afghanistan and there are no certified exporters. An institution should be created to first provide awareness about these standards, and then audit and certify exporters and eventually growers. The estimated cost of this program is \$3 million over 4 years.
- Organic and fair-trade: once the hygiene and management systems are in place, Afghan exporters could differentiate their products through certifications such as organic or fair-trade. However, the hygiene standards are a prerequisite for organic and fair-trade products. As in the case of hygiene and management, these concepts are unknown in Afghanistan, so a program to raise awareness and then audit and certify exporters and growers. The estimated cost is \$3.8 M over 4 years.
- Grape sector study: significant work and practical experience has been incorporated into the dried fruit and nut components of this plan. Better planning and analysis is needed to determine how to successfully implement a strategy around the successful export of grapes. Logistics issues such as the cold chain and different processing options such as juice and concentrate manufacturing need to be addressed. This study should be conducted in 2006 and the estimated cost is \$400,000.
- Trade fair attendance: attending trade fairs is an important part of benchmarking competition and making new buyer contacts. Afghan exporters should regularly attend international trade fairs to enhance market learning. Total cost is estimated at \$1 million with the private sector paying for 80% of this cost.
- India forward integration strategy: Afghan exporters are already beginning to move ahead with establishing warehousing and wholesaling operations in India to earn higher margins on dried fruits and nuts. Once this strategy has been tested, it could be applied to other markets to allow traders and exporters to capture more value from their sales and learn about new and existing markets.

- Negotiation of transit trade agreements: exports of horticulture products are currently hampered by the lack of transit trade agreements or poor implementation of these agreements. The MAAHF should work in tandem with the Ministry of Commerce to ensure the negotiation and full implementation of these agreements.

8.4 Institutionalization

Building capacity with existing institutions and creating new institutions to manage and coordinate the implementation of the horticulture component of the Master Plan will be key to its success. The major cost items in this category are national level support to the MAAHF and the creation and support of Horticulture Corporation to manage the funds application process and disbursement of funds to businesses, farmers, and implementing partners. Total cost for this category is estimated at **\$168 million** over 10 years. Major items in this category are summarized below.

- National level budgetary support to the MAAHF: this action item includes salaries for senior managers within the Ministry, support staff, vehicles, office space, office supplies, and technical missions by foreign experts. Total cost of this program over 10 years is estimated at **\$92.8 million**.
- Operating cost for the Horticulture Corporation: subject to the finalization of the structure of the institution and required staffing, the operating costs of this institution are estimated at 10% of total donor financing contributions to the strategy or approximately \$850 million (this excludes these operating costs) over 10 years. Using this calculation, the total operating budget is **\$85 million** for 10 years.

8.5 Financial Analysis

In addition to the large increases in exports from \$113 million to nearly \$934 million by 2015 (**accumulated exports of \$3.6 billion**), the other key performance indicators are also encouraging. The horticulture strategy is NPV positive with a total NPV of \$1.1 billion for the life of the project.⁹ Accumulated tax revenue for 2006-2015 is \$263 million, an excellent source of budgetary support for the GoA. This tax number is based on a 20% tax rate on profits for exporters with no tax on farmers. This could change as the tax policy evolves.

⁹ The NPV was calculated on the basis of free cash flow from all commercial components of the cluster. The last step of the process was to subtract programs from the free cash flow. A commercial discount rate of 25% was used as a first step. This commercial discount rate was diluted by the estimated percentage of donor funding for investment costs (35%) to arrive at an effective discount rate of 16%.

6. Annexes

Annex 6.1: Production by Ecological Zone and Region

Table A.36 Fruit trees and vineyards A.36.2. Number of trees and vines														
	Fruit trees and vines	Vines	Trees	Kind of fruit trees										
				Apricot	Peach	Apple	Mulberry	Pomegra- nate	Plum	Almond	Pistachi o	Walnuts	Citrus	Other
TOTAL	93,974,071	72,164,877	21,809,194	3,743,864	742,130	3,822,813	3,152,476	2,239,631	899,047	4,785,381	84,024	633,470	133,738	1,572,619
Agro-ecological zone														
Badakhshan mountains	1,004,148	28,386	975,761	188,266	136,988	161,528	219,034	35,712	66,479	37,543	1,648	94,133	.	34,430
Central mountains	2,471,314	90,014	2,381,301	578,997	37,900	487,630	203,377	22,673	165,815	770,869	.	112,686	1,354	.
Eastern mountains	24,135,701	23,020,644	1,115,057	193,782	95,020	95,769	456,647	23,693	53,870	36,661	2,494	49,381	107,740	.
Southern mountains	13,676,919	10,144,223	3,532,696	1,069,031	51,950	1,709,782	141,165	16,464	76,534	446,523	.	16,909	3,115	1,224
Northern mountains	14,704,379	9,306,020	5,398,359	558,979	268,840	1,017,696	410,403	567,551	239,748	1,192,247	47,534	300,270	19,481	775,610
Turkistan plains	6,248,532	3,510,243	2,738,290	26,710	23,500	57,318	333,932	365,113	22,010	1,143,829	30,149	1,490	.	734,238
Herat-Farah lowlands	4,308,996	2,709,365	1,599,631	242,215	48,780	201,846	391,918	497,887	36,585	121,949	.	56,769	1,682	.
Helmand River valley	27,424,081	23,355,982	4,068,100	885,883	79,152	91,245	996,000	710,539	238,007	1,035,759	2,199	1,832	366	27,117
Region														
North	15,691,117	12,543,077	3,148,040	196,729	60,627	143,844	70,394	135,843	163,725	1,479,991	30,425	157,607	2,338	706,517
Northeast	5,911,385	257,675	5,653,711	531,251	343,765	1,061,527	745,438	814,351	158,797	889,992	22,931	232,052	17,143	836,463
West	4,663,553	2,753,263	1,910,291	288,191	73,715	233,016	539,455	516,070	42,299	125,585	25,975	63,003	1,682	1,299
West Central	227,741	.	227,741	87,306	.	6,768	11,844	338	.	16,920	.	103,211	1,354	.
Central	26,886,616	23,627,839	3,258,777	879,009	103,856	965,530	496,154	43,881	123,471	586,275	2,494	58,108	.	.
South	12,052,326	9,553,531	2,498,796	730,302	36,376	1,161,902	62,518	12,125	102,556	371,769	.	16,909	3,115	1,224
East	348,408	.	348,408	94,771	30,427	22,945	78,311	6,484	6,235	748	.	748	107,740	.
Southwest	28,192,923	23,429,492	4,763,430	936,304	93,365	227,281	1,148,363	710,539	301,964	1,314,101	2,199	1,832	366	27,117

Annex 6.2: Action Plan, Budget, and Timeline, Product Development

Category	Summary Action Item	Detailed Action Item	Total Cost (US \$ M)	Private Sector	Gov't Mobilized	Timeline	Lead Agency	Priority
Product Development	<i>Orchard & Vineyards</i>							
	Grapes - vineyard rehabilitation & establishment	Rehabilitate 100% (60,000 HA) & expand vineyards by 50% (30,000 HA) in top 3 priority regions.	\$609.8	\$338.8	\$271.0	2006-2015	Int'l consulting firm or NGO in partnership with the private sector	1
	Almonds - orchard rehabilitation & establishment	Rehabilitate 100% (11,485 HA) & expand orchards by 100% in top 3 priority regions.	\$39.6	\$22.0	\$17.6	2006-2015	Int'l consulting firm or NGO in partnership with the private sector	1
	Pistachio - forest expansion & orchard establishment	Expand existing forest by 100% (9,418 HA) and plant 20,000 HA of commercial orchards	\$114.4	\$63.6	\$50.9	2006-2015	Int'l consulting firm or NGO in partnership & Iranian investors.	1
	Apricots - orchard rehabilitation & establishment	Rehabilitate 100% (6,739 HA) & expand orchards by 100% in top 3 priority regions.	\$24.7	\$13.7	\$11.0	2006-2015	Int'l consulting firm or NGO in partnership with the private sector	2
	Pomegranates - orchard rehabilitation & establishment	Rehabilitate 100% (2,435 HA) & expand orchards by 100% in top 3 priority regions.	\$8.5	\$4.7	\$3.8	2006-2015	Int'l consulting firm or NGO in partnership with the private sector	2
	Nursery Establishment	Create a national network of 125 nurseries to provide high quality rootstock to supply expansion efforts.	\$29.7	\$14.9	\$14.9	2006-2015	Int'l consulting firm or NGO in partnership with the private sector.	1
	Extension Programs	Establish 34 provincial & 371 district level demonstration farms and extension offices to provide practical TA to farmers	\$297.7	\$0.0	\$297.7	2007-2015	MAAHF with donor support	2
	<i>Processing - investment programs</i>							
	Raisin processing	Investment program to provide long-term financing through incentives to banks & grants to private businesses.	\$12.7	\$8.9	\$3.8	2006-2015	Banks, int'l donors, and NGOs	2
	Nut processing - almonds & pistachios	Investment program to provide long-term financing through incentives to banks & grants to private businesses.	\$18.6	\$13.0	\$5.6	2006-2015	Banks, int'l donors, and NGOs	1
	Packing houses & cold storage - grapes	Investment program to provide long-term financing through incentives to banks & grants to private businesses.	\$186.4	\$130.5	\$55.9	2006-2015	Banks, int'l donors, and NGOs	3
	Sub-total Product Development		\$1,342.2	\$610.1	\$732.1			

Annex 6.3: Action Plan, Budget and Timeline for Marketing

Category	Summary Action Item	Detailed Action Item	Total Cost (US \$ M)	Private Sector	Gov't Mobilized	Timeline	Lead Agency	Priority
Marketing	<u>Certifications</u>							
	Hygiene & management	Implementation & institutionalization of hygiene & mgmt standards such as HACCP, ISO 900X and others to ensure that Afghan products can enter Western markets	\$3.0	\$1.5	\$1.5	2006-2010	Int'l NGO transitioning to industry mgmt	1
	Organic & fairtrade	Implementation & institutionalization of organic and fairtrade certification schemes to differentiate Afghan products and earn premiums.	\$3.8	\$1.9	\$1.9	2007-2011	Int'l NGO transitioning to industry mgmt	3
	Grape sector study	Study of the most attractive grape markets and concrete business plans to invest in a cold chain and grape processing	\$0.4	\$0.0	\$0.4	2006	MAAHF	1
	Trade fair attendance	Regular attendance at major foodshows to learn about competition and make buyer contacts.	\$1.0	\$0.8	\$0.2	2006-2011	Private sector with AISA support for logistics	2
	India forward integration strategy	Establishment of Afghan traders as wholesalers in major urban Indian markets to earn higher revenues and profits.	\$0.0	\$0.0	\$0.0	2005-2007	Traders	2
	Negotiation of transit trade agreements	Ensure smooth flow of goods through Iran & Pakistan through negotiation & implementation of transit trade agreements.	\$0.0	\$0.0	\$0.0	2006	Ministry of Commerce	2
Sub-total Marketing			\$8.2	\$4.2	\$4.0			

Annex 6.4: Action Plan, Budget, and Timeline

Category	Summary Action Item	Detailed Action Item	Total Cost (US \$ M)	Private Sector	Gov't Mobilized	Timeline	Lead Agency	Priority
Institutionalization	Export Promotion Institute for Dried Fruit	Budgetary support to the EPI to enhance testing capabilities	\$1.0	\$0.5	\$0.5	2006-2015	EPI and the Ministry of Commerce	2
	Marketing Boards or Associations	Create product specific marketing boards & associations to conduct mkt research, provide production data to buyers, and unify the sector.	\$10.0	\$5.0	\$5.0	2008-2011	Private sector driven with CIPE support	3
	Horticulture Corporation Operating Costs	Operating costs for the institution that will manage the govt mobilized funds. Model could be similar to the NSP.	\$85.0	\$0.0	\$85.0	2006-2015	World Bank and other major donors	1
	Training of trainers for university staff	Training for university staff who will then train provincial and district level extension staff.	\$10.0	\$0.0	\$10.0	2007	MAAHF	2
	MAAHF national level support	Budgetary support to the MAAHF to build capacity and facilitate the implementation of the strategy.	\$92.8	\$0.0	\$92.8	2006-2015	World Bank, EC, USAID, and other major donors	2
	Horticulture Dept @ MAAHF	Creation and budgetary support of a specialized department that can advise the Minister and liaise with the Horticulture Corporation.	\$4.0	\$0.0	\$4.0	2006-2015	World Bank or EC	2
	Customs reform	Reform of the broker system and resolution of the undervaluation problem.	\$0.0	\$0.0	\$0.0	2006	Ministry of Finance	1
	Access to finance	Ensure financial sector capacity building to provide sufficient investment capital and build adequate liquidity (US \$700 M) for working capital requirements for the sector.	\$0.0	\$0.0	\$0.0	2006-2008	Banks with Central Bank and Ministry of Finance support	2
	Sub-total Institutionalization		\$202.8	\$5.5	\$197.3			

Annex 6.5: Summary of Current Projects in Horticulture

Horticulture Projects

Ongoing projects – Part 1*

Source of Funding & Implementation	Ongoing Activities	Coverage	Areas/Location	Existing Funding
USAID/RAMP	Grape production extension and technical assistance in marketing	2000 farmers in the major grape growing areas being provided regular extension services, 140 vineyard demonstrations being conducted	Shamali Plains, Kandahar province	\$5 million
USAID/RAMP	Nursery and micro-nursery development - nut and fruit tree	Foundation nursery established with improved grape cultivars, 30 private, micro-nurseries established	Helmand, Mazar, and Parwan provinces	Included above
USAID/RAMP	Nut production extension and technical assistance in marketing	To be determined	Mazar, Shamali Plains, and Kandahar/Zabul	\$1 million
NGOs	Nut and fruit tree nurseries	Many large nurseries capable of supplying 100,000s of nursery saplings	Nangarhar, Kunduz, Kabul, Helmand, and other provinces	NGO funded
USAID/RAMP	Greenhouse development	24 greenhouses constructed as demonstrations with farmers and farmer associations	Helmand, Kunduz, Kabul, Parwan, Ghazni, Nangarhar provinces	\$1.5 million

*Table courtesy of RAMP

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Horticulture Projects

Ongoing projects – Part 2*

Source of Funding & Implementation	Ongoing Activities	Coverage	Areas/Location	Existing Funding
USAID/RAMP	Drip irrigation	40 hectares of on-farm demonstrations in Helmand, and 12 demonstrations in Shamali Plains	Helmand, Kandahar, and Shamali Plains	Included above
USAID/CADG	Horticulture Development		Helmand, Kandahar, Uruzgan	\$3.5 million
EU	Rehabilitate Government perennial horticultural nurseries	7 nuclear nurseries rehabilitated	South, east, central, and west regions	\$15.5 million
EU	Preserve genetic resources of fruit and nut trees	Develop germplasm bank		Included above
EU	Organizational development of nurserymen and horticultural farmers			Included above
EU	Subsector policy development	Formulate and advocate for policy reforms		Included above
EU	Regulatory reforms	Formulate, develop, get approval, and implement regulatory reforms		Included above

*Table courtesy of RAMP

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Horticulture Projects

Ongoing projects – Part 3

Source of Funding & Implementation	Ongoing Activities	Coverage	Areas/Location	Existing Funding
USAID funded Alternative Livelihood Projects (ALP)	Seeking bankable business plans and opportunities to provide TA to producers.	Private businesses, NGOs, farmers	Kandahar, Helmand, Badakshan, Nangahar Provinces.	
DFID PAL projects				
FAO Alternative Agriculture Livelihood Projects				
UNDP/Altai	Horticulture subsector assessment		34 Provinces	
USAID/USDA	Assessment of pistachio growing areas		34 Provinces	\$100,000
USDA/CNFA	Horticulture assessment & development		34 Provinces	\$5 million
TOTAL				\$31.6 million

*Table courtesy of RAMP

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Horticulture Projects

Proposed Projects – Part 1

Short-Term Expanded/New Activities	Coverage	Areas/ Location	Remarks	Medium-Term Activities	Required Short Term Funding
Expand fruit and nut production extension and technical assistance in marketing to additional provinces	Train extension workers and begin production extension activities	Additional provinces in north, northeast, west, south, east, and central regions where fruit and nut tree crops predominate		Continue the activities	\$2 million the first year
Establish pilot integrated pest management programs for fruit and nut tree crops	Get trainers trained and farmers field schools established	3 provinces where production of tree crops are concentrated		Develop pilot IPM programs and expand into regional programs	\$1 million the first year
Establish pilot integrated pest management programs for annual horticultural crops	Get trainers trained and farmers field schools established	3 provinces where the integrated pest management programs are established for irrigated crops		Develop pilot IPM programs and expand into regional programs	\$1 million the first year
Expand greenhouse technical assistance and extension	Establish demonstrations of greenhouses	Expand to provinces near additional cities and to places which have good access to markets		Farmers are assisted in establishing their own greenhouses	\$1 million the first year

***Table courtesy of RAMP**

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Horticulture Projects

Proposed Projects – Part 2

Short-Term Expanded/New Activities	Coverage	Areas/ Location	Remarks	Medium-Term Activities	Required Short Term Funding
Increase the planting of fruit and nut tree crops and the development of nurseries through a targeted program	Determine the demand for credit and the delivery mechanism to assist large nurserymen who receive credit from targeted funds from banks	34 Provinces	Farmers receive credit from large nurserymen for planting trees	Large nurserymen receive credit from banks	\$2 million in technical assistance to startup and implement a credit program plus \$15 million in credit
MAAHF support to nursery development	Rehabilitate and provide operational assistance to government nurseries and their distribution activities	34 Provinces			\$5 million
Total					\$13 million plus \$15 million in credit

***Table courtesy of RAMP**

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HORTICULTURE INVESTMENT FOR AGRICULTURE MASTER PLAN:

ITEM	2006	2007	2008	2009	2010
ORCHARD ESTABLISHMENT and RENOVATION					
GRAPES	27.1	27.1	27.1	27.1	27.1
Technical assistance 15%	4.1	4.1	4.1	4.1	4.1
Grant aid to private investors 70%	19.0	19.0	19.0	19.0	19.0
Civil works and supplies 15%	4.1	4.1	4.1	4.1	4.1
ALMONDS	1.76	1.76	1.76	1.76	1.76
Technical assistance 15%	0.3	0.3	0.3	0.3	0.3
Grant aid to private investors 70%	1.2	1.2	1.2	1.2	1.2
Civil works and supplies 15%	0.3	0.3	0.3	0.3	0.3
PISTACHIO	5.09	5.09	5.09	5.09	5.09
Technical assistance 15%	0.8	0.8	0.8	0.8	0.8
Grant aid to private investors 70%	3.6	3.6	3.6	3.6	3.6
Civil works and supplies 15%	0.8	0.8	0.8	0.8	0.8
APRICOTS	1.1	1.1	1.1	1.1	1.1
Technical assistance 15%	0.2	0.2	0.2	0.2	0.2
Grant aid to private investors 70%	0.8	0.8	0.8	0.8	0.8
Civil works and supplies 15%	0.2	0.2	0.2	0.2	0.2
POMEGRANATES	0.38	0.38	0.38	0.38	0.38
Technical assistance 15%	0.1	0.1	0.1	0.1	0.1
Grant aid to private investors 70%	0.3	0.3	0.3	0.3	0.3
Civil works and supplies 15%	0.1	0.1	0.1	0.1	0.1
PROCESSING - INCENTIVES TO LENDERS					
RAISIN	0.38	0.38	0.38	0.38	0.38
Technical assistance 20%	0.1	0.1	0.1	0.1	0.1
Grant aid to private investors 80%	0.3	0.3	0.3	0.3	0.3
Civil works and supplies 0%					
NUTS PROCESSING	0.56	0.56	0.56	0.56	0.56
Technical assistance 20%	0.1	0.1	0.1	0.1	0.1
Grant aid to private investors 80%	0.4	0.4	0.4	0.4	0.4
Civil works and supplies 0%					
PACKING HOUSE GRAPES	5.59	5.59	5.59	5.59	5.59
Technical assistance 20%	1.1	1.1	1.1	1.1	1.1
Grant aid to private investors 80%	4.5	4.5	4.5	4.5	4.5
Civil works and supplies 0%					
PRODUCTION TOTAL OF ABOVE					
TOTAL CROPS	42.0	42.0	42.0	42.0	42.0
Technical assistance	6.6	6.6	6.6	6.6	6.6

Equipment etc, inc grants	30.0	30.0	30.0	30.0	30.0
Civil Works	5.3	5.3	5.3	5.3	5.3
Recurrent costs					

MARKETING and CERTIFICATION

TOTAL ACTIVITIES	1.12	0.72	0.72	0.72	0.72
Technical assistance	1.12	0.72	0.72	0.72	0.72
Equipment etc, inc grants					
Civil Works					
Recurrent costs					

INSTITUTIONALIZATION

TOTAL ACTIVITIES	18.7	18.7	18.7	18.7	18.7
Technical assistance	4.8	4.8	4.8	4.8	4.8
Equipment etc, inc grants					
Civil Works					
Recurrent costs	14.0	14.0	14.0	14.0	14.0

TOTAL HORTICULTURE

TOTAL ACTIVITIES	61.8	61.4	61.4	61.4	61.4
Technical assistance	12.5	12.1	12.1	12.1	12.1
Equipment etc, inc grants	30.0	30.0	30.0	30.0	30.0
Civil Works	5.3	5.3	5.3	5.3	5.3
Recurrent costs	14.0	14.0	14.0	14.0	14.0

Chapter 4

LIVESTOCK

1. BACKGROUND:

In 2002, Afghanistan's GDP/per capita was reported to be US\$180-190¹⁰ (or US\$ 300 including opium¹¹) with a total Gross Domestic Product of US\$4.6 billion, of which 53% was provided by agriculture. This is to be compared with figures compiled in 1979¹² (\$167 per capita) and 1983¹³ (\$137) equivalent in current terms to today \$450-500. About half of the agriculture GDP is now reported to derive from livestock production. The current population, estimated at 21.8 million, is overwhelmingly rural, but, of the thirty four provinces, that of Kabul contains 23% of the population. The great majority of people are subsistence farmers on small plots of land who face serious food security problems and continue to suffer from insufficient income opportunities, education and medical care.

Most of the Afghan governmental institutions are dysfunctional and need serious reforms and capacity building before being able to operate efficiently.

The Islamic Transitional State of Afghanistan (ITSA) was established in July 2002 to plan and manage the reconstruction of the country. It prepared a National Development Framework (NDF)¹⁴, meant to give a general framework for all sectoral policies, with policies based on a partnership with all stakeholders, community participation and a private sector-led growth and development, guaranteeing longer-term food security in the country supported by the 3 following investment 'pillars':

- Humanitarian and human and social capital : the goal of the human and social capital strategy is to create the conditions for people to live and secure lives and lay the foundations for formation of sustainable human capital.
- Physical reconstruction and natural resources : the goal is the effective utilization of external assistance to provide the physical infrastructure that lays the basis for a private sector led strategy of growth.
- Private sector development : the goal is the creation of sustainable growth in order for a competitive private sector to become the engine of development and the instrument of social inclusion through creation of opportunity.

In line with these policy guidelines, the Ministry of Agriculture and Animal Husbandry has developed a "Policy and Strategy Framework For The Rehabilitation and Development of Agriculture and Natural Resource Sector of Afghanistan"¹⁵ which

¹⁰ Rebuilding a macroeconomic framework for reconstruction and growth, International Monetary Fund, September 2003

¹¹ Afghanistan, State building, sustaining growth and reducing poverty, A country economic report, Document of the World Bank, June 2004

¹² Livestock – The Development challenge, A Sub-sector survey, Document of the World Bank, September 1979

¹³ Report on the socio-economic situation, development strategies and assistance needs, prepared for the Asian-Pacific round table meeting in Geneva, May 1983.

¹⁴ National Development Framework, 2002

¹⁵ A Policy and Strategy Framework for the Rehabilitation and Development of Agriculture and Natural Resource Sector of Afghanistan January 2004.

attempts to attract and mobilize external as well as domestic support and investment for its implementation, by reflecting the most important national and sector policies as well highlighting the roles and responsibilities of all the major stakeholders involved in the process of reconstruction.

The present work on the Livestock component of the MAAHF's Master Plan is the contribution to the overall plan for the Ministry of a Livestock Master Plan Team composed of veterinary and livestock production specialists. It was elaborated on the basis of a comprehensive Policy and Strategy Framework for the Livestock sub-sector to which contributed, for a period of about a year a number of managers from the Veterinary and Animal Husbandry Departments. The orientations and action plans proposed were discussed in a series of weekly meetings held from August to October 2005 between the members of this specific working group. These meetings followed a logical approach using directives given in terms of reference issued by the Ministry's Coordinating Task Force as presented in Annex 1.

2. The Current Livestock Subsector Situation

Livestock is a key component in the livelihoods of more than 85% of Afghanistan's largely rural population. Livestock represent a bank on the hoof, they provide the majority of the draught power available for crop farming, milk and meat for household consumption and sale, and manure used as a natural fertilizer as well as a fuel for cooking and heating in the winter. Sale of wool, hides and skins were once very important export earners. The nomadic Kuchi population, of which around 1.5 million are estimated to be still active pastoralists, is almost totally dependent on livestock for their livelihoods.

2.1. Livestock Resources

Over the past 30 years livestock populations in Afghanistan have fluctuated from between about 4 million cattle and over 30 million sheep and goats down to the current lowest levels recorded in the recent history of the country of 3.7 million cattle and approximately 16 million sheep and goats. A similar dramatic decline in numbers took place at the end of the Russian occupation of Afghanistan, when 6 million refugees fled to Pakistan and Iran. However the recovery in numbers between 1989 and 1995 was far more rapid than could be accounted for through reproductive means and improved access to animal health services alone. Much of the loss was due to outward migration, and once security improved, both nomads and sedentary farmers were able to bring their animals back.

The data presented below can be found in a comprehensive FAO document¹⁶ dated 1997 which compiled a number of information on the sub-sector from previous surveys and their own investigations. They were recently updated through a census undertaken in 2003 also by the FAO¹⁷ which results, although sometimes contested, have served as a basis for some of the analysis of this document (Annex 2). The

¹⁶ Promotion of agricultural rehabilitation and development programprograms for Afghanistan; Agricultural Strategy, FAO, January 1997.

¹⁷ Afghanistan National Livestock Census, FAO, 2003

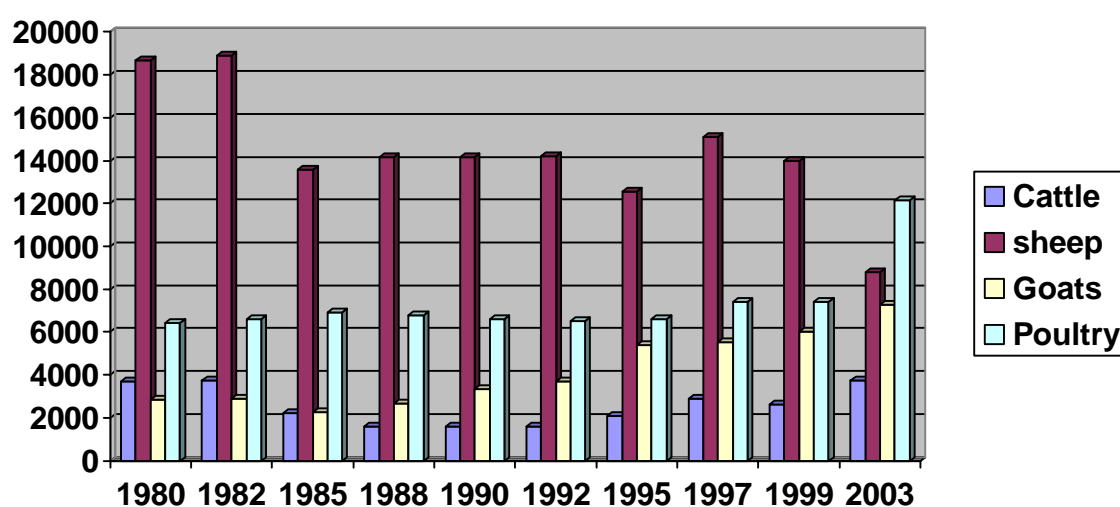
table below gives an idea of the estimated evolution of the various species over more than 30 years.

Table 1. Livestock numbers in Afghanistan 1967-2003
(‘000)

Species	1967 Central Stat. Office	1981 Central Stat. Office	1991 FAO estimates	1995 FAO estimates		2003 Census
				Resident farmers	Kuchis	
Cattle	3633	3750	4049	3495	198	3715
Sheep	21455	18900	18688	15504	6508	8772
Goats	3187	2900		5458	3472	7281
Horses	403	400	245	167	200	142
Donkeys	1328	1300	1131	872	147	1588
Camels	299	265	80	101	176	175
Poultry				11000		12200

It is clear from these figures that the war significantly affected the animal population of Afghanistan along with migration of the nomads with their livestock outside the country and lack of accessibility of proper veterinary services and drugs. It not only lowered the livestock numbers still present in the country but increased the already high mortality rate in young stock. The recent drought period (1997-2001) further reduced the number of livestock, particularly of the sheep population (about 60% between 1995 and 2003) with the result of a major change of structure of the small ruminants national herd: goats, which represented 15-18 % of the small ruminants in the 1960s and 1970s, today account for nearly half on them (45 %). Government official statistics¹⁸ do not however show such huge variations. Official figures are represented in the histogram below :

Chart 1 : Official Livestock numbers



¹⁸ Afghanistan Statistical Yearbook 2003

2.2. Livestock Production Systems

Farming systems are roughly to be divided into two main categories: sedentary mixed farming systems and nomadic systems.

The main staple crop on the cultivated land is wheat (57%). Other major crops include barley, maize and a range of vegetables and fruit trees. Others, such as clover used for hay, make up about 10% of the cropped area. Cattle, as a source of cash and provider of traction for ploughing and cultivation, are important for the farmers as are sheep and fowls for cash earnings and self consumption.

Unfortunately, their housing conditions during the winter, when they are shut in poorly ventilated stalls and hand fed, in addition to a poor level of nutrition make animals less resistant and predispose to a high incidence of various respiratory infections as well as foot rot.

The nomadic pastoralists are considered to be one of the largest vulnerable groups in the country (about 1.5 million pastoral “kouchis”)¹⁹. They are mostly nomadic in the South, semi-nomadic in the East, sedentary and semi-settled in the North and North-West. They migrate over various distances (transhumance to short-range migrations within the same district) to benefit to the maximum from seasonal pasture, lowlands during winter and mountain ranges in summer time. Milk products are an important part of their diet during the spring and meat during the winter. Many complement their revenues through artisan work (carpets). The contribution of nomadic and semi-nomadic systems to livestock production and Afghanistan’s export economy is large but often unrecognized. International trade in sheep related products (carpets, live sheep, wool, Karakul skins, intestines etc..) used to constitute 30% of Afghanistan’s official export earnings.²⁰ Many “Kuchis” lost their animals and had to leave the country during periods of insecurity but several indications suggest that nomadic production is still important and that the number of families involved in the management of flocks may be similar to the pre-war situation.

2.3. Disease status

Due to the long lasting periods of insecurity, the animal health situation has significantly worsened. Contagious diseases (anthrax, foot and mouth disease, hemorrhagic septicemia, blackleg, brucellosis and tuberculosis, in cattle, sheep pox, pasteurellosis and contagious caprine pleuropneumonia in small ruminants, Newcastle disease in poultry, rabies) have spread out throughout the country while parasitic diseases have increased in all species. In the meantime, new transboundary diseases (rinderpest, peste des petits ruminants, new serotypes of FMD as well as a range of poultry diseases) have been imported and widespread and zoonotic diseases have received little attention. Although some action have occasionally been undertaken to contain outbreaks (rinderpest was eradicated in 1997), the disease situation has become worrying in most provinces where heavy losses are periodically reported.

¹⁹ Vulnerability Analysis and Mapping, World Food Program, 2000

²⁰ Nomadic Pastoralists in Afghanistan; Reconstruction of the Pastoral Economy; Thomas J. Barfield, Boston University; April 2004

From 1988 onwards a subsidized animal health delivery system based on the establishment of Veterinary Field Units (VFUs) was established in much of eastern and southern Afghanistan by the then UNDP/OPS Refugee Rehabilitation Program. The management of most of the VFUs was taken over by FAO in 1993 and subsidies on drugs and salaries were withdrawn resulting in the collapse of many of them. However, many of the NGOs' supported VFUs which continued to enjoy salary supplements to VFU personnel have remained active. Since the fall of the Talibans, several sizeable programs were launched by major donors (USAID through the RAMP project and the European Commission) resulting in a large increase of active VFUs throughout the country. Their number is now nearing 500 and although subsidies are remaining vital for continued operation, a large proportion has made commendable progress towards cost recovery, which brings them closer to the objective of self sustainability and privatization.

2.4 Genetic Resources for Livestock

Very little work has been done to describe the livestock breeds of Afghanistan and their production capacities:

- **Cattle:** the regions of Afghanistan show a large variation of phenotypes. They have either small or no hump and show a wide range of colors with body weights, which determine the level of draught performances which are quite variable. The smallest cattle are kept in the Eastern and North-Eastern mountains (adult weights of about 190 kgs) while larger framed cattle are found around Herat, in the North and in the Kandahar area. The Kunari and Kandahari types of cows are known to be among the best dairy cattle with estimates of lactation yields ranging from 900-1100 to 1000-2000 kgs respectively. Average milk yields for local dairy cows are estimated to be around 750 kgs per lactation. Exotic cattle used to be kept in Government farms and bulls distributed for crossbreeding to farmers. Artificial insemination was also undertaken in a few provinces using fresh semen from Friesian, Brown Swiss and Jersey breeds. Traces of these activities are still visible in the cattle populations of some areas today. Some NGOs are now resuming some activities through import of exotic animals and AI and traders as well as returning refugees are reported to be importing Friesian and crossbred animals from Pakistan.
- **Sheep:** eight Afghan breeds have been described in detail, six of which are fat tailed (Karakul, Ghijai, Baluchi, Gadik, Hazaraghi and Kandahari) and two are fat-rumped (Arabi and Turki). By order of their population size, the Karakul, mostly present in Balkh, Jawsjan and Faryab is reputed for the production of pelts and mutton. The Ghijai (35 to 45 kgs live weight) is mostly raised in the Southern provinces. The Arabi is a large framed sheep of 45-50 kgs body weight as is the Turki (50-55 Kgs) respectively common in Northern and North-Eastern provinces. The Kandahari and the Baluchi in Southern and South-Western provinces, the Hazaraghi in Central Afghanistan and the Gadik in Eastern and North-Eastern mountains are smaller in size (25 to 35 kgs) but some of them (Gadik) are reputed to produce twins.
- **Goats** are made for 80% of them of the Vatani or native black goats. They are relatively small in size and grow, under long size hair, fine cashmere undercoat wool. Another larger breed is the Asmari.

- **Horses, donkeys and camels** are still playing an important role as pack or riding animals.
- **Poultry and ducks** are in large majority raised as backyard fowls with low productivity levels (30 to 90 eggs per year) due to Newcastle disease overwhelming endemic incidence and poor nutrition.

2.5 Livestock productivity and production

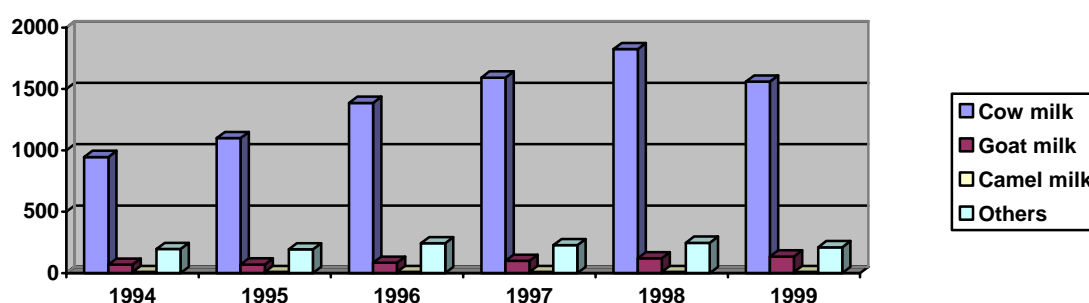
As shown above, present knowledge on productivity characteristics of the various species and breeds remains basic. Production estimates should therefore be taken with caution. Some surveys^{21 22} however attempted to appreciate the domestic production and are worth citing. Their findings are reported in the table below.

Table 2. Domestic production of Afghan livestock

Products	1977 (Tons and Units)	1979 (Tons and Units)	1995 (Tons and Units)	1997 (Tons and Units)	1999 (Tons and Units)
Milk production (Tons)					
Cattle	600,000	532,000	706,290	734,820	749,520
Sheep and Goats	261,000	260,000	623,790	661,780	681,630
Meat production (Tons)					
Beef	62,300	67,000	42,100	43,800	44,680
Mutton	92,200	120,000	103,970	110,290	113,600
Goat meat	25,000	...	...	...	...
Chicken and ducks	...	...	5,500	5,830	6,010
Other meat	6,800	...	...	...	...
Eggs ('000 units)	...	112,000,000	350,000,000	378,560,000	393,702,000
Other products (Tons)					
Wool	...	22,800	33,020	35,020	36,080
Hair	...	1,500	4,460	4,730	4,880
Cashmere	...	225	250	265	273
Karakul pelts (units)	1,584,000	1,294,000	450,000	253,120	189,840
Hides (units)	566,000	454,500	450,000	468,170	477,540
Skins (units)	1,200,000	3,657,000	6,500,000	6,893,530	7,100,340

Figures given in the Statistical yearbook only cover the years 1994 to 1999. They are summarized in the following histograms for milk and meat products :

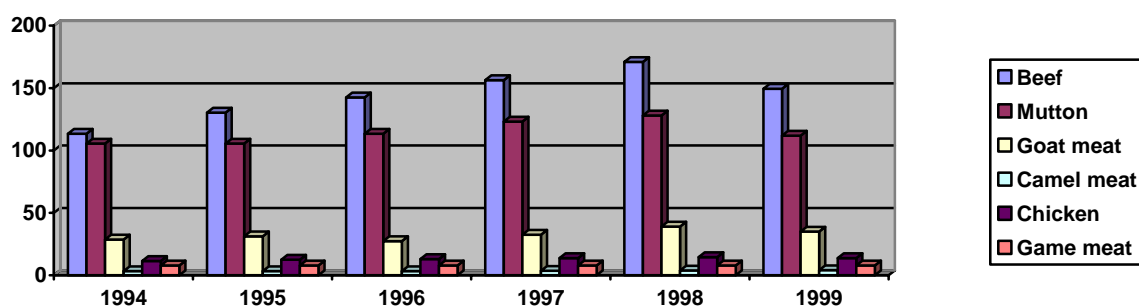
Chart 2. Official trend of milk production



²¹ Livestock – The Development Challenge; a sub-sector survey; Afghanistan; Document of the World Bank; September 1979

²² Role and size of the Livestock Sector in Afghanistan; Ulfat-Un-Nabi Khan and Muzzafa Iqbal, FAO Office in Islamabad, 2000

Chart 3. Official trend of meat production



Production parameters used to establish these production estimates are unclear so the interpretation of these figures should be taken with caution. Few surveys have attempted to verify productivity in the field and most productivity indicators often are the result of extrapolation from countries where similar production systems exist²³.

Table 3. Livestock productivity indicators

Indicators	WB 1979 document (3)	FAO Ag. Strategy (7)	WB 2000 document (12)	RAMP assessment (13)
Biological indicators				
Cattle				
Fertility rate		75 %		
Mortality 0-3 year			21 %	23.1 %
Adult mortality			5.3 %	6.5 %
Sheep				
Lambing %	75 %	80 %		
Mortality 0-1 year	25 %		25 %	31.4 %
Adult mortality	5 %		13.6 %	15.1 %
Goats				
Kidding %		80 %		
Mortality 0-1 year			25 %	29.5 %
Adult mortality			15.6 %	13.6 %
Production indicators				
Cattle				
Offtake rate	30 %		12 %	12 %
Carcass sale weight		95 Kgs.	95 Kgs.	95 Kgs.
% milky cows			30 %	
Milk/lactation		850 Kgs.	850 Kgs.	
Sheep				
Exploitation rate			20 %	20 %
Carcass sale weight	15-35 Kgs.	16 Kgs.	16 Kgs.	16 Kgs.
% milky ewes			80 %	
Milk/year	40-50 l.	40 Kgs.	40 l.	
Av. wool prod./head	1 Kg.	1.5 Kg.	1.5 Kg.	1.5 Kgs.
Goats				
Exploitation rate			20 %	20 %
Carcass sale weight		16 Kgs.	16 Kgs.	16 Kgs.
% milky goats			80 %	
Milk/lactation		40 Kgs.	40 l.	
Av. Hair prod./head	1 Kg.	0.5 Kg.	0.5 Kg.	0.5 Kg.
Av.			25 gr.	25 gr.
Cashm.prod./head			50	75
Poultry (eggs/year)				

²³ RAMP Impact assessment; Assistance to the Livestock sub-sector Program in Afghanistan; Teshome Lemma; July 2005.

As can be seen, there is not much difference between the various authors assumptions regarding production parameters as they tend to adopt the ones set out previously. Until in-depth surveys are undertaken there is no point in trying to use different parameters. Using animal populations determined for 2003 and prices given in the statistical yearbook, the production and value added of the Afghanistan's livestock sub-sector can be estimated.

Table 4. Estimated production and value added of the Afghanistan's livestock sub-sector based on 2003 populations

Products	Quantities (Tons or thousands)	Farm gate prices (Tons or units)	Estimated value (‘000 US \$)
Meat production (Tons)			
Beef	42,350	2,000	84,700
Mutton	28,070	2,600	72,980
Goat meat	23,300	2,500	58,250
Camel meat	2,625	2,000	5,250
Chicken and ducks	6,100	3,000	18,300
Game meat	5,000	2,000	10,000
Sub-total	107,445		249,280
Eggs (Tons)	15,000	3,200	48,000
Milk production (Tons)			
Cow milk :	945,000	300	283,500
Ewe milk	210,000	300	63,000
Goat milk	180,000	300	54,000
Camel milk	55,000	300	16,500
Sub-total	1,390,000		417,000
Fibers (Tons)			
Wool	11,200	1,800	20,160
Hair	3,075	1,500	4,600
Cashmere	1,500	20,000	30,000
Sub-total			54,760
Hides and skins (Number)			
Hides (Cattle, camel and horse)	550,000	14	7,700
Skins	3,210,000	5	16,050
Karakul	150,000	12	1,800
Sub-total			25,550
Other livestock products (Est.)			10,000
Grand total			797,590

Other livestock productions include honey, rough thread and processed silk, fish and game furs and pelts which quantities are difficult to estimate but which provide still notable revenues in the rural areas.

The annual added value of animal production would be of about US\$800 million. This represents a growth of the livestock GDP of about 4-5% per year at current prices since previous estimates for 1998 (Ref. 13). Such increase, which is coherent with the referred survey, is to be partly attributed to inflation in the market prices of livestock products which are reported to have steadily increased in recent years and partly to the relatively stable political situation since 2002.

The artisan and industrial products derived from these productions (essentially carpets and leather fabrics) are estimated to range from US\$350 to 400 million²⁴. Altogether they contribute to the level of 25-27% to the national GDP and more than 50% of the agriculture GDP.

2.6 Livestock feed base and resources

Livestock nutrition is considered by most authors²⁵ the main limiting production factor in Afghanistan. Livestock production is primarily dependent on natural pasture which has been estimated from satellite imagery to cover about 70% of the country area available for rough grazing²⁶. However, since only 40% of these are suitable for grazing in winter because of low temperature and long snow cover, primary feed resource of domestic animals in winter is wheat straw mixed with cultivated dried legumes, mainly alfalfa and clover hay. The small amount of protein-rich legumes that animals are fed with is however insufficient to cover their needs. The consequence is that livestock emerge from this period in much worse condition than they entered it. Other feed and crop by-products are also fed to these animals (cottonseed cake, maize and barley gain) but they are generally in short supply and are most often kept for poultry and lactating cows.

The primary feed resources in summer are the highland pastures, particularly in the North of the country and in the mountainous Hindu Kush range which includes the central Hazarajat region and parts of the Nuristan area in the North-East. Animals that move to these pastures in summer recover body condition far better than those left in the villages.

Very few investigations have been carried out to estimate the dry matter production of the grazing land. The level of productivity of the pastures significantly varies between areas, between seasons and from one year to another. Measurements made at different periods of time and in different areas show variations ranging from 0.4 to 1.5 tons of dry matter per ha with exceptions as high as 5 tons/ha with crude protein contents varying from 5 to 20% depending on the area and the season. It is thought that stocking rates on Afghanistan's pastures might be approaching the carrying capacity of the accessible pastures. This would explain in part the large variations of stock numbers in case of drought when livestock owners have to reduce

²⁴ YAMANA assessment of the Afghan carpet sector and Pilot Project proposal; 2004 and the National Statistical Yearbook

²⁵ Needs assessment on Feeds, Livestock and Rangelands in Afghanistan; Future Harvest Consortium to rebuild Agriculture in Afghanistan; ICARDA, August 2002

²⁶ Afghanistan; Country Pasture/Forage Resource Profile; Dr. Olaf Thieme, 2004

their stocks through emergency sales or when stock movements are restricted during war periods leading to under exploitation of the pasture lands. Assuming an average dry matter productivity of 700 kg/ha/year and a 50% utilization (Ref. 7), the total amount of dry matter available from the grasslands has been estimated at about 19 million tons.

Fodder crops are a traditional part of most farming systems in Afghanistan. The most important of them are Lucerne, trifolium and, in the hotter areas of Eastern Afghanistan, berseem. All these are mainly fed to large ruminants. They are also sold to other farmers either fresh or as hay. The proportion of arable land allocated to fodder crops varies depending on the regions from 3 to 10%. Assuming that fodder crops are grown on 5% of the arable land, at least 1 million tons of hay equivalent are produced yearly (Ref. 7).

Crop by-products have barely been investigated as a valuable source of roughage and concentrates for livestock feeding. On the basis of the composition of crops and yields as in the pre-war period, it has been calculated that another 3.5 million tons of roughage from agricultural by-products, mainly cereal straw and some small quantities of barn, can be and most certainly are utilized for livestock production (Ref. 7).

No detailed information is available about the existing amounts of concentrates or industrial or artisan by-products (cotton seeds and cakes, sesame cakes) used for feeding of livestock. Total amount has been estimated to be around 500,000 tons per year (Ref. 7).

It is clear that the feeding problem is first of all a matter of quantitative supply which is further aggravated by large seasonal and regional differences. Mobility of the livestock is one important strategy to deal with these aspects and fodder production from agricultural land another. It can be assumed that the present livestock systems already make full use of the mobility opportunities, and that agricultural by-products are largely utilized. There is therefore good reason to believe that a further substantial increase of feed production has to come from extra production from arable land, either directly from fodder crops or, through increase of production of other field crops and larger availability of agricultural and agricultural processing by-products. (Ref. 7)

Another option is the importation of feedstuff from abroad but obviously, such a possibility has to be based on a comprehensive analysis of the advantages and competitiveness of Afghanistan for selected animal production speculations.

2.6 Livestock Product Resources and Use

Resources in livestock products for consumption and use by the Afghan people consist in the addition of domestic production and import of livestock products minus official and unrecorded exports.

2.6.1 Importing Livestock Products

The Statistical Yearbook reports very few imports of animal products. Values of respectively \$50,000 and \$3.3 million of chicken (equivalent to about 50 and 3,300 tons of chicken) are reported to have been imported in 2001 and 2002 and only powder milk imports are noted for values of respectively \$95,000, 136,000, 80,000, 482,000 and 4,132,000 (equivalent to about 600, 900, 500, 3,200 and 28,000 tons of liquid milk). These figures are far from giving a fair account of the reality of imports of animal products.

Cattle and buffalo are imported live from Pakistan to be slaughtered in Afghanistan. These imports, which take place mainly in the East to satisfy the demand of Jalalabad and Kabul, probably involve some 20,000 heads per year or 2,000 tons carcass equivalent. The same practice, although for lesser quantities, also most probably concerns unreported live animals imports from Tajikistan in the direction of Kunduz or Mazar-e-Sharif, from Iran towards Herat and again from Pakistan toward the Kandahar area. Altogether, it can be estimated that some 3,000 tons of beef equivalent from the neighboring countries are illegally imported into Afghanistan each year.

With regard to poultry and eggs, a recent study²⁷ provides more light on effective imports into the country. It indicates that chicken imports have recently started in 2002 but have experienced increasing growth on a monthly basis. Chicken imports were close to 50,000 tons in 2004 (using marketing channels primarily through Herat for chicken coming through Iran and to a lesser extent into Mazar-e-Sharif through Uzbekistan and Turkmenistan) and were continuing to steadily increase. In parallel, the study estimates that import of eggs was that year at the level of about 200 million eggs and growing.

No details are available on the reality of the import of dairy products but a mere observation of the Kabul market suggests that the trend of imports for these is following a very rapid increase similar to that of frozen chicken and eggs. Unlike chicken, milk is however mostly imported from Pakistan. A conservative estimate can be made of yearly imports equivalent to about 100,000 tons liquid milk, the majority in the form of milk powder and the rest as long lasting Tetrapack packaged liquid milk.

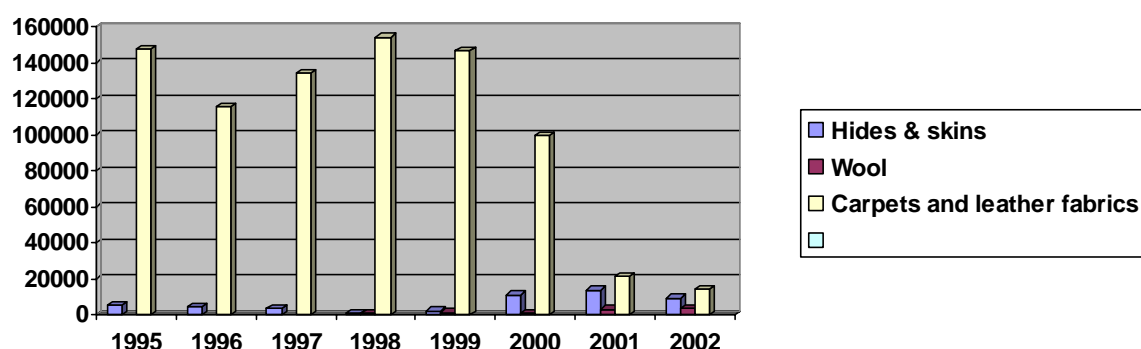
2.6.2. Exports of Livestock Products

For imports, official figures cannot be taken as fully reflecting the reality since unreported exports of live animals (particularly of sheep and goats) are known to take place principally in the direction of Iran and Pakistan and, for lesser numbers towards the Northern neighboring countries of Tajikistan and Uzbekistan.

Official figures however give an idea of recent trends for controlled products as represented in the following histogram (in thousand \$):

²⁷ Afghanistan Poultry Sub-sector assessment; Findings and recommendation; Chemonics International; Aoril 2004

Chart No 4. Reported exports of animal related products



These amounts, although significant between 1995 and 2000 (they then represented the bulk of recorded exports) are also far from representing the reality and the sharp decrease reported since 2000 cannot be explained but by the generalization of smuggling and a worrying degradation of custom controls.

Estimate of real exports of livestock products cannot be precise as they are made on the basis of indirect information. It is in particular the case for illegal exports of live animals which are made using roads and tracks which can hardly be controlled, and for sales made from nomadic herds when they are out of the country. However, recent studies carried out on the carpet industry^{28 29 30} clearly show the importance of livestock for the Afghan economy, for its exports and for employment of the people.

It was estimated in 1995-96 that about 20,000 cattle and 180,000 small ruminants were annually sold to Pakistan. Although this situation seems to have been reversed for cattle, the unrecorded trade of sheep and goats has certainly not been discontinued since nomads who continue to cross the border are reported to sell part of their stocks during their winter migrations there and demand from Eastern Iran drives significant quantities of sheep and goats through the border for trade. All together, it can be estimated that exports to these two countries may concern some 300,000 small ruminants per year or about 5,000 tons of meat equivalent.

Far more important is the contribution of fibers, carpets and leather fabrics to Afghanistan's exports. Although data on wool trade and the carpet industry have to be taken with much caution, the surveys referred to above show that the Afghan carpet economy is growing, partly due to the return of refugees from Pakistan where many had been making afghan carpets for the benefit of Pakistani traders. Some authors estimate the yearly Afghan added value of the carpet industry to be as much as from US\$290 to 325 million.

²⁸ Market Research on Afghan carpet industry and identification of opportunities for high value wool processing; Raphy Fabre, AADP, Kabul, January 2005

²⁹ Wool market and processing assessment in Afghanistan (Kabul, Ghazni, Nangharar, Maimana) and Pakistan (Quetta and Peshawar); Mohammad Ali Haideri; CNFA, January 2005

³⁰ Support to Branded High quality Hand spun Wool colored with vegetal dyes for top export quality carpet production; Concept Note; Raphy Fabre; AADP; January 2005

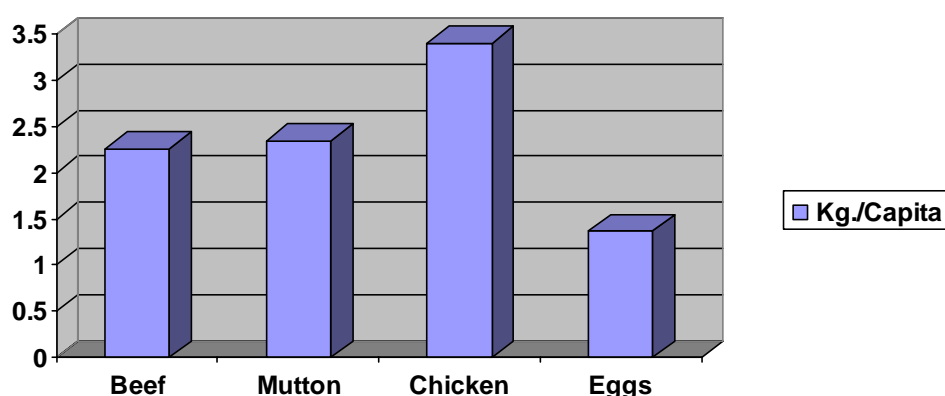
Fur seems to be mostly used locally but cashmere production is in principle fully exported since there is no processing industry at present in Afghanistan.

In total, the value of Afghan exports directly or indirectly related to livestock products may well be of the level of US \$400 million.

2.6.3 Domestic Consumption of Livestock Products

From the observations made in the aftermath of previous drought periods and the effects of war, some authors (7, 13) consider the reconstitution of Afghan herds may cause a few years growth of the livestock production at a rate of up to 3% per year for large ruminants and 5% for sheep and goats. Applying such growth level between 2003 and 2005 would lead to production estimates in 2005 of 116,700 tons of meat, 16,540 tons of eggs and 1,450,900 tons of milk. Adding imports and deducting exports of these products would result in the availability for the consumption of the Afghan population of respectively about 155,000 tons of meat, 500 million eggs and 1,500,000 tons of meat. The deducted yearly per capita consumption of the Afghans is represented in the following histogram.

Chart No 5: Average per capita consumption of meat in 2005 (kg.)



In total the level of meat consumption only approaches 10kg per inhabitant per year while the consumption of milk is of the order of 66kg. per year or 180 grams per day.

2.7 Livestock Marketing and Produce Competitiveness in Domestic and Export Markets

Complex livestock and livestock products marketing structures and chains exist in Afghanistan. No global survey on the marketing of livestock products has yet been undertaken but a few in-depth analysis of the market and processing of specific products have recently been carried out which highlight many of the problems faced by the Afghan producers to valorize their production.

2.7.1 Meat marketing

Afghan farmers rely on middlemen for selling their animals and poultry. These serve as intermediaries and spokesmen to supply small scale collectors at the level of weekly village markets. Farmers can generally bring their animals to such village markets at distances ranging from 10 to 20 kms. from their home. Kuchis may commercialize some of their stocks along their transhumance routes depending on their needs for cash or the level of prices they can obtain. Live animals are then transported or led to larger grouping markets where traders constitute commercial herds of 10 to 20 cattle or 20 to 50 small ruminants and organize their transport towards consumption markets located in the vicinity of the main consumption centers. There, they are sold to middlemen or butchers.

Markets generally are not equipped – or poorly equipped, even for watering the animals. Slaughtering is generally done on dirt soil in the open air, behind butcher stall or shops without any official inspection to guarantee the safety of the meat and organs. Meat inspection used to be in principle the responsibility of the Ministry of Public Health (MoPH), but they have no trained personnel to carry it out and the absence of slaughtering infrastructure and of relevant regulations makes it almost impossible to undertake any useful meat inspection program. Retail sale and cuttings are also made in the open air, most often on the day of slaughtering due to the absence of proper meat keeping or refrigerating equipment.

Before any standards can be put in place for meat and products, much is to be done to assess the livestock marketing and meat distribution situations, create adequate legislation and regulations, undertake adapted training for stakeholders and develop relevant infrastructure (markets improvement and slaughterhouses or slaughter slabs).

2.7.2 Marketing of Dairy Products

Very little fresh milk is sold by farmers as it is most often kept for family consumption. However, farm processing of milk into cheese, curd, ghee and butter, allows value added processing of surplus milk during spring and summer production. These are primarily sold to neighboring farmers and on nearby markets but collection has been organized by some NGOs to offer them for distribution in urban centers.

According to a recent assessment of the dairy sub-sector in Afghanistan³¹, based on previous FAO analysis and findings, about 74% of all farms have some cattle, but only 50% have cows and therefore have the capacity to produce milk and offspring. The other farms have only oxen that are used as draught animals.

FAO has developed since 2000 milk collection schemes in Kabul and Mazar-e-Sharif. Another one had been supported in Kandahar previously but had to be discontinued for security reasons. These schemes have generated considerable interest among the farmers but have remained quite limited in scale, reportedly because of late provision of needed equipment and insufficient financing. The two active collection centers collect milk at present from 400 to 500 farmers for Kabul and about 300 for Mazar-e-Sharif that were started more recently. Although very popular, these initiatives have not reached yet a level of development that could

³¹ Discussion on the dairy sector potential in Afghanistan; Raphy Fabre, AADP; November 2004

ensure their sustainability. FAO subsidizes the collection schemes with equipment, technical staff, a vehicle for collecting the milk, enriched animal feed, cattle health services, artificial insemination, equipment for improvement of cattle stable, fodder chopper and improved fodder crop seeds and fertilizers. Should the milk collection scheme not be subsidized by FAO, they would not be viable as their present level of operation.

Land-O-Lakes, in partnership with USARC and the Agha Khan Foundation (AKF) are proposing to increase milk/dairy production in Afghanistan. The project site was once to be located in Pul-e-Khumri in Northern Afghanistan where a Swiss project existed before the war, but may now be transferred closer to Kabul in the area of Bagram. The proposed plant would have a capacity of 15,000 liters/day using a Tetra Pak packing facility and will for the first few years run on dry milk imported from the US. It is expected that, after a few years, local milk production should replace the imported milk powder.

With exception of the FAO operation which is funded through GTZ, there has been no sizable attempt to promote milk producers organization to a functional level, and using technologies that could cope with the rapidly increasing imports of powder milk and other dairy products into Afghanistan.

2.7.3 Poultry and egg Marketing and Distribution

The recent RAMP assessment of the poultry sub-sector and another recent study of Afghanistan potential markets³² both give a comprehensive view of the present situation in the country. The main important points raised are that 98% of the national flock of chicken is raised under backyard scavenging conditions with little or no provision of additional feed or medication. There are no parent breeder farms and only three small feed mills in Afghanistan. However, there are an estimated 250 small (200-400 eggs capacity) incubators spread out throughout the country and only one commercial hatchery (25,000 eggs capacity) operates part time. Modern poultry farming is represented only by 10 to 15 layers farms with 135,000 hens producing 24 million eggs per year. Poultry production and demand is subject to strong seasonal effects for poultry products with the highest demand and prices occurring during the winter months. Market channels are not clear as rural farm chickens are generally sold on the local market places to local consumers or to collectors who transport them to urban centers for sale by retailers.

According to these surveys, the estimated import supply of table eggs in Afghanistan is 200-250 millions eggs per year and steadily growing and Kabul consumes nearly half of the table eggs imported into the country.

Frozen chicken imports in 2004 were close to 50,000 tons, consisting of 80% of frozen legs mostly from the US and 20% whole chicken, mostly from Brazil. Market channels are primarily through Herat through Iran and secondarily through Mazar-e-Sharif, arriving through Uzbekistan and Turkmenistan. The business of importing frozen chickens is an extremely efficient system involving brokers in Turkey or Dubai and a number of wholesalers ending with competitive prices for Afghan consumers.

³² Market sector assessment ; SME development ; Altaï Consulting; March 2005

Competing with imports of either frozen chickens or eggs imports will therefore be somewhat challenging for the Afghan producers, but these will have a competitive advantage through the supply of fresh chicken meat and colored eggs which meet the preference of local consumers.

2.7.4 Marketing Wool, Hair, Cashmere and Other Livestock Product's

The market and processing of wool is well described in two recent surveys referred to above (Ref. 20 and 21). Sheep are sheared twice a year, but the main season is when nomads are on their way to their summer grazing camps. The main markets for raw wool are Ghazni, the Mazar-Maimana area and the Kunduz-Badakshan area. Marketing flows for raw or washed wool are directed for part of the Ghazni production towards Kabul or the Northern markets which have also some exchanges with Kabul.

Exports to Pakistan are significant from Ghazni and Kabul and also occur to a lesser extent from Kandahar and Jalalabad. They generally concern raw or semi-processed wool for further processing in Pakistan. Part of these exports are later re-imported into Afghanistan to be used mostly for carpet making. Unfortunately, assessing the quantities involved in these trade routes is difficult to do other than by utilizing rough estimates. The wool market also includes imports from mainly the Middle East (Turkey and Syria) to supply the carpet industry. Altogether the balance between imports and exports seems to be at the disadvantage of Afghanistan.

Processing of the wool involves shaking, sorting of impurities, washing and drying. The wool is then distributed to individuals for spinning before being sold to users. These processing steps involve considerable manpower particularly because most of Afghan carpets are made with hand-spun wool, a distinctive characteristic of their quality. Improving the processing capacity within Afghanistan (not in terms of technology, but in terms of quantity and quality through multiplication and improvement of local processing plants) would allow for decreasing the both sides trade flow between Afghanistan and Pakistan and hence increase local added value while providing additional employment.

No information is available on the marketing and processing of goat hair. However, a detailed study on the development and market opportunities of cashmere (Ref. No 23) gives useful insights on the existing potential in this field. Afghanistan, although the world's third greatest producer of unprocessed cashmere behind China and Mongolia with 10% of the global production, is practically unheard of on the international market. Afghan cashmere is exported principally to Belgium and China with a significant proportion being channeled through Iran and relabeled as Iranian cashmere. It is priced at lower levels than Mongolian (20%) or Chinese (40%) cashmere because of its quality and the lack of processing capacities.

There is a potential for Afghanistan to capture more of the added value of its cashmere through simple improvements aiming at training herders in combing, breeding, vaccination, fiber analysis and marketing in order to improve the initial quality of the product. Further improvement in quality and hence reputation of Afghan cashmere could be carried out through the set up in the country of scouring and

dehairing facilities that would allow Afghan cashmere to fetch much higher prices than raw cashmere wool and to greatly reduce the volume of the cashmere products to be exported, thus reducing the cost of shipping.

There is no substantiated information about the market of other livestock products. Hides and skins should however be mentioned as having a significant development potential as their value as raw material is important and moreover they have a potential for generating processing and garment added-value products which were once much more developed, and may well be still active. Karakul pelts indeed deserve special mention since they used to be major exports before the war. However, the drastic fall of the international demand for these products because of the process involved calls for limiting future expectations to relatively limited world exports and the domestic and regional (Asian) markets.

Honey and other bees generated products (propolis, pollen and royal jelly) do have a potential for development, due to the peculiarity of the high altitude Afghan environment and its specific flora. Silk production is a traditional activity which will deserve to be restored with the addition of quality enhancement techniques. It is not known whether other productions like small ruminant's intestines or sheep and goat sausages which used to be of interest for niche export markets still have a potential market nowadays.

2.7.5 The Carpet Industry: High Value Processing and Marketing of Livestock Products

The monthly production of Afghan carpets in both Afghanistan is said to be about 300,000 square meters (Ref. No 15). A marginal part of this production is finished in Afghanistan or directly exported from here and the unfinished carpets are sold to Pakistani exporters at prices well below the price they could fetch if directly exported from Afghanistan.

As a result, the yearly turnover of the Afghan carpet industry is estimated to be US\$ 290 to 325 million, while the yearly Pakistani turnover from Afghan production is US\$540 to 630 million. The reason for this dependence are linked to Afghan refugees in Pakistan during the war period which facilitated the establishment of new market channels more favorable to Pakistani dealers and the use of the Pakistani currency in the carpet business.

A substantial part of the present economic loss for Afghan producers and the Afghan Government could however be recovered by finishing the carpets in Afghanistan and exporting from Afghanistan but also by improving the global quality (technical, social and environmental) of the carpets. The study findings particularly show that most workers in the finishing of Afghan carpets in Pakistan are Afghans and that, although the wool used comes from various parts of the world, the one produced in Afghanistan is reputed to be the best (because of hand spinning). With the recent return of Afghan refugees, there is an opportunity to revitalize the Afghan carpet industry. This would require resettling the Afghan carpet production process, under fair labor standards, to Afghanistan, and building an Afghan label.

2.8 The Livestock Sub-Sector Institutional Environment

The state veterinary and animal husbandry services today are largely manned by employees of the former centrally managed system of the 70's. They lack modern management skills, especially participatory planning skills. Physical damage, looting and lack of financial resources have left these departments almost totally unable to perform any of their core functions. Moreover, the present structure does not respond to the present Government policies and strategies which changed the role of Government services to become exclusively regulatory and facilitator. This left the role of implementor to the private sector. There is an urgent need to reshape both the veterinary and Animal Husbandry services, in order to separate the roles and responsibilities of the public and private sectors. Both sectors should work in partnership, sharing the responsibility for providing livestock keepers with veterinary services and regulating the provision of services and inputs to provide good quality and safe products for human consumption. The new policy clearly states that the role of government will be to formulate policy and development strategy, and act as a monitor and regulator in order to create an enabling environment for the private sector to take full responsibility for production, services and input supplies.

As part of the sectoral reform currently under review, the Veterinary and Animal Husbandry Departments within the MAAHF will be amalgamated to form an Animal Health and Production Department. This decision will greatly enhance coordination in the process of improving delivery of public services to livestock keepers. A new structure has been prepared by the relevant Departments (Annex 3) as well as the detailed definition of its functions and the relevant job description. The present Master Plan is based on this new structure and its defined functions

2.8.1 The Regulatory Environment

The existing legal environment was set up in the early 1970's before the Russian invasion of Afghanistan. It is in many instances outdated and not adapted to the liberal approach now adopted by the Government nor fitted to the evolving international context. Moreover, as far as the livestock sub-sector is concerned, new general laws were issued during the Taliban period in 2000 which specifically superseded the former regulations but were not translated into detailed decrees and regulations. There is thus an urgent need to define and set up a new and modern regulatory framework adapted to Afghanistan new challenges and to the international environment.

3. Issues to be Addressed and Priorities

The main issues being faced by the livestock sub-sector are to be classified in three main categories as : 1) general issues common to both animal health and production; 2) problems particularly related to veterinary services; and 3) issues pertaining to animal husbandry matters.

3.1. General issues of the Livestock Sub-Sector

The general issues identified in relation to the development of the sub-sector have been identified as :

- The lack of co-ordination between Government, donors and NGO's activities.
- The lack of adequately trained personnel in almost all areas of veterinary and animal husbandry services provision either to undertake public or private functions.
- The lack of reliable information on the livestock situation.
- The weak organization of the public services and inadequate distribution and motivating treatment of human resources.

These might have been the main reason for the past apparent lack of long term commitment on the part of donors to invest in the reconstruction of the livestock sector.

3.2. Issues Related to Animal Health

Issues particularly related to animal health include:

- The lack of a disease surveillance network, of laboratory services to carry out disease diagnosis and investigation and of an Epidemiology Unit to manage livestock information in such a way that it can inform and feed the planning process.
- The increasing incidence of livestock diseases marked by the recent importation of exotic diseases (Gumboro disease, Peste des Petits Ruminants, new strains of Foot and Mouth Disease) and an increasing incidence of endemic diseases (Anthrax, Blackleg, Hemorrhagic Septicemia..) and zoonotic diseases (Rabies, Brucellosis) resulting in increased mortality and morbidity and insecurity for the population.
- The lack of quality vaccines produced in Afghanistan because of the unavailability of the necessary equipment, in spite of adequate buildings and some well trained personnel.
- The absence of animal movement control at the borders and within the country due to the lack of quarantine facilities and border control inspections for imported live animals and of facilities for inspection of trade animals in transit within the country;
- Inadequate separation of trade and slaughter animals at market places allowing for possible contamination of farm animals by trade animals.
- Inadequate slaughter facilities and trained meat inspectors to enforce sanitary measures for the protection of consumers.
- Inadequate assignment of meat and other animal products inspection responsibility, now under the Ministry of Public Health when it should be placed under the responsibility of veterinary services within the MAAHF to comply with international OIE and WTO Government commitments.
- The insufficient and outdated legal framework for the control of livestock diseases, the regulation of private animal health service providers, the importation of veterinary medicines, biological products and animal feed, standards and regulations governing meat inspection, the processing of livestock products including slaughter facilities and dairy processing plants.

- The slow progress toward meeting the conditions for the sustainability of the private delivery of animal health and production services and input supplies through the donor/NGO financially supported VFU system.
- The lack of information and planning on professionals and paraprofessionals manpower needs in veterinary medicine.

3.3. Specific Problems in Animal Husbandry

- The poor knowledge and monitoring regarding livestock numbers, productivity and production. The census undertaken in 2002 gives indications but its results are questionable.
- The poor standards of livestock management, including housing and nutrition.
- The periodic lack of pastures or feed caused by frequent droughts and insufficient availability of agriculture by-products which affects production and growth of national herds. This is aggravated by the undue occupation of a number of traditional pasture areas by powerful people (commanders).
- The lack of marketing facilities for live animals and animal products. Farmers have little information on marketing possibilities and opportunities, particularly concerning livestock by-products like hides and skins, wool, etc.
- Inadequate organization of processing and marketing of livestock by-products, including hides, skins, wool, poultry and milk products.
- Lack of clear and adapted extension messages and of a coherent extension organization.
- Inadequate information on, or access to, genetic material (grade reproducers, semen, embryo-transfer) for upgrading indigenous livestock. There is a need to upgrade local animal breeds but the department lacks the required equipment and materials.
- The lack of research initiatives regarding locally adapted livestock management practices.
- Insufficient and outdated legal frameworks for the control of livestock inputs and feeds, reproduction and genetics, livestock trade, processing of livestock products, etc.
- Lack of any coherent legislation on land rights which generates conflict between nomads and sedentary farmers over land rights, severe conflict of interests between winter grazing rights and sedentary farmers in many regions.
- The inadequate financing of animal production investments. Existing financing tools are not anymore operational.
- Insufficient investment in feed manufacturing.
- The lack of co-ordination between security institutions and department services, particularly along the borders.

3.4. Priorities to be Addressed

As stability returns to Afghanistan there is an urgent need to reshape both private and public sector delivery systems in a carefully planned process whereby the two sectors form a partnership through innovative institutional and organizational relationship. The proposed EC Animal Health Development Program (AHDP) and the USAID/RAMP funded Livestock Health, Production and Marketing Improvement

Program, implemented by DCA in collaboration with a group of partner NGOs will form the backbone of veterinary support to the Livestock Sector for the coming 5 years. These interventions should be viewed as just Phase 1 of a multi-annual support Program which will be required for many years to come in order that a fully sustainable animal health service delivery system can be put in place. In a parallel manner, complementary to the above mentioned donors' commitments, livestock development programs are in preparation to assist the Afghan Government in rebuilding and developing the Afghan Livestock sub-sector economy.

4. Sectoral Policies

A comprehensive Policy and Strategy Framework³³ has been elaborated in 2004 and 2005 to serve as a reference guide on priorities and principles governing the action programs and investment plan of the MAAHF. It is attached as Annex 4 and summarized below.

4.1 Overall Objectives

The **overall goal** of the MAAHF is:

“To increase livestock productivity and improve livestock products competitiveness to provide improved availability of animal proteins to the people and increased revenues and well being of the livestock owners.”

This general objective is to be attained through the protection of livestock against animal diseases and the improvement of livestock raising practices in accordance with the three pillars of the National Development framework.

The **medium term objectives** are that the majority of rural households practicing animal husbandry will:

- have improved significantly their animal husbandry practices and raised their level of income.
- have reached better security regarding health and nutrition of their animals to sustain food security and commercial productions generating farm capital.
- contribute to the national economy through efficient traditional and intensive quality productions for national and export markets.

4.2 The Respective Roles and Responsibilities of the Public and Private sectors

The role of the Government, as articulated in the National Development Framework, is shifting from implementer to regulator. The Government will aim to optimise the Ministry services support to the sub-sector by increasing their capacity to fulfil their core functions: **policy, regulatory, monitoring and evaluation, provision of selected inputs and services, and fostering the establishment of partnerships.**

³³ Policy and Strategy Framework for the Livestock Sub-Sector in Afghanistan; Ministry of Agriculture, Animal Husbandry and Food; June 2005

The medium-term objective is to **decentralize** activities that can be delivered best by other organizations, public or private, when they have reached the necessary level of development. Socially accepted norms and regulations will be developed to **balance between market forces and social responsibilities** with a view to ensure maximum long-term benefit for all Afghans.

4.2.1. In the Field of Animal Health

A good understanding of the roles of the public and private sector in **disease control** is essential to implement the policies.

- The official veterinary services will co-ordinate and promote the setting of the required strategies, organisation of the disease detection systems and epidemiology services, the control of disease by focal vaccination, movement control, ensure supply of quality vaccine, implement sanitary measures (quarantine of movement control or infected premises, village, epidemiological units) and ensure public and stakeholders awareness.
- The private sector (NGOs for the medium term and other stakeholders) will ensure delivery of veterinary services, drugs and private good vaccines, participate to epidemicsurveillance and disease intelligence networks through disease detection and reporting and contribute to control programs (including the use of contracting arrangements for the private sector to provide disease control services to the public sector, e.g., vaccinations).

Regarding **veterinary services and drug delivery**, the Department's strategies will be to ensure that NGOs, private animal health care providers and registered stakeholders are:

- Actively engaged in the commercial provision of veterinary services and in drugs and vaccine supply.
- Enabled (under conditions to be specified) to have access to and use of state-owned assets and property.
- Encouraged and promoted to be involved in the exercise of the veterinary profession and marketing of veterinary products.

In the meantime, the Department will:

- Improve co-ordination between public services and private stakeholders and develop a system of partnership based on regular consultation with and involvement of the private service providers through their participation to disease detection, surveillance, reporting and control programs.
- Develop rules of partnership and promote co-ordination of approaches for services and drugs delivery.
- Encourage private service delivery initiatives, including the use of Government assets (VFUs) and contractual arrangements for implementation of certain public services.
- Ensure planning, in consultation with concerned stakeholders, for progressively introducing full cost recovery of services and inputs.

- Regulate and control the quality, safety and efficiency of drugs and vaccines to be authorised for import, manufacture and distribution within the country.

The **control of zoonotic diseases** and **veterinary public hygiene** are to be classified as public goods. Implementation of the activities they imply can however be contracted to private professionals if needed.

4.2.2. In the Field of Animal Husbandry

Production, processing and marketing of animals and livestock products as well as inputs supply are clearly the role of the private sector. Public services might be involved in limited animal husbandry activities for the sake of preserving or selecting specific breeds or for demonstration purpose. However, the role of the government is primarily to:

- Define or participate to the definition, development and implementation of appropriate regulations in the field of the property and management of live animals, animals and the environment, animal movements and marketing, animal products processing, marketing, distribution and exports, animal feed, supplements and additives and the prevention of cruelty to animals.
- Monitor the situation of production systems, productivity and dynamics of national herds and flocks through periodic assessments of the numbers of different species and sampling analysis of their performances.
- Monitor the situation and evolution of animal feed resources through regular natural pasture accessibility and productivity analysis, the periodic production, in co-ordination with the Department of Agriculture, of statistics on fodder crops and regular estimates and control of animal feed production and imports.
- Elaborate, together with researchers adapted technical innovations that can benefit farmers to improve productivity and production of their livestock.
- Control and regulate marketing of livestock and livestock feed resources and ensure availability of needed inputs.
- Promote production of quality products for the domestic market and exports.
- Encourage and assist modern production investments.

4.3 Livestock Sub-sector Policy and Strategy Framework

In the context of the above mentioned complex of policies, a set of strategic approaches and targeted interventions is required to achieve the policy objectives in the agriculture and natural resources sector. The MAAHF's orientations have been designed for this purpose in the "Livestock Sub-Sector Policy and Strategy Framework" (Ref. 23 and Annex 3) to define the basic principles to be applied and serve as a reference and guide in the design of development programs setting and planning for the sub-sector. However, detailed strategy setting is to be a continuous process involving knowledge of existing livestock raising systems and practices, monitoring of the livestock situation and evolution and close co-ordination between stakeholders.

Afghanistan's problems cannot be resolved over night. Time and patience is needed to ensure the sustainability of changes. Appropriate mechanisms will be required to adapt and improve management practices in order to make changes a success, both within the government institutions and the farming community. Rushing through reforms and transformations with austerity measures will be painful for many people and the government needs to find out the best solutions and the required financial resources if the reform and transformation processes are to be successful. Therefore, strategic interventions are required to achieve the policy objectives, given the magnitude of problems facing Afghanistan, and to remain flexible in the implementation arrangements.

In line with the three pillars of the National Development Strategy, the major strategic interventions to be undertaken by the Government in the short (1 to 3 years), medium (3 to 7 years) and long term (7 to 15 years) are to follow carefully designed specific animal health and production policies and strategies which in turn require:

- Coherent Institutional reforms
- Comprehensive Human development programs
- Well designed and implemented legislation and regulations

4.3.1 Specific Strategic Approaches

While concurrently participating to the same overall objectives, veterinary and animal husbandry services will have to be developed along specific approaches inherent to their different nature and the different technological knowledge they involve, inducing specific policies and strategies. These are summarized below.

4.3.1.1. Specific Veterinary Policies and Strategies

The general objective of the MAAHF regarding veterinary services is to be defined as:

“To decrease the mortality and morbidity of animals through prevention and provision of quality veterinary services and drugs for the treatment of animal disease and to protect humans from contamination by zoonotic diseases and ensure quality and safety of products of animal origin”

In order to reach this objective, the Ministry's veterinary strategies will be to :

- Develop prevention and control programs to decrease the impact of contagious transboundary and emerging diseases based on modern disease intelligence networks and systems, through improved co-ordination with all stakeholders.
- Create a favourable environment for the promotion and generalization of private veterinary services and drugs delivery.
- Intensify control measures against zoonotic diseases.
- Implement throughout the country systematic inspection of products of animal origin.

4.3.1.2. Animal Production Policies and Strategies

The general objective of the MAAHF in the field of animal husbandry is:

“To increase and secure livestock productivity and the national production of livestock products through the promotion and development of improved traditional and appropriate animal husbandry practices”.

This objective is to be reached through the implementation of policies and strategies aiming at:

- Improvement of animal nutrition and feed resources to procure secured and quality forage and feed to domestic animals according to their expected production and nutrition requirements through better access and management of natural pasture, development of artificial fodder, and encouragement of the use of agricultural by products and of balanced animal feed.
- Genetic improvement of animal species according to their specificity and the nature of production expected, in order to improve the genetic standard of the domestic herds through selection and preservation of indigenous breeds and well planned importation of chosen highly productive exotic animals and genetic materials; and
- Development of better animal husbandry techniques to rationalize and secure traditional livestock raising practices and promote commercially competitive livestock practices.

4.3.2. Supporting Strategies

4.3.2.1. Institutional Reform

In practical terms, the MAAHF's strategy for institutional reform in the livestock sub-sector will include :

- The establishment and maintenance of proper co-ordination mechanisms to allow for maximum involvement of public and private stakeholders and avoid duplication of, or competition between, existing development forces.
- The rapid implementation of the new structural organization of the public services in charge of the sub-sector (Veterinary and Animal Husbandry services) along the Priority Restructuring and Reforms (PRR) process principles in order to increase their capacity to fulfil their core functions on the basis of clearly defined modern structures and job descriptions.
- The design and implementation of better management systems to implement identified core functions of the department concerned through a change of statute and/or the privatization of a number of infrastructures and institutions presently owned and managed by government, the reconsideration of the level of involvement and types of activities the public services are expected to implement and the progressive and co-ordinated lift of subsidies presently applied for services and input supplies by both Government and NGOs throughout the country.
- The re-equipment and/or rehabilitation of public services infrastructure and equipment that are necessary to fulfil their defined core functions to allow them to operate efficiently.

4.3.2.2. Human Development

Human development rightly constitutes the first pillar of the NDF and the lack of adequately trained personnel in almost all areas of veterinary and animal husbandry services in both public and private sectors has been identified as one of the main issues Afghanistan has to face. The capacity to implement the defined policies for the sector is therefore vitally dependent on adequate resources to undertake thorough human resources needs assessment study for the livestock sector and ensure that relevant training and extension programs are funded and implemented in the short and medium term.

Such a policy is to be shared with the relevant Government institutions and donors to ensure that all possible national and international resources can be mobilized as soon as possible. Strategies to be developed have to involve all levels of the livestock industry, from the livestock owners themselves to specialized post graduate degree level. They will include:

- The reassessment, in co-ordination with the existing veterinary faculties and the Ministry of Higher Education, of the needed intake for the coming ten-year period for DVMs and animal husbandry engineers, as well as for assistant and technician level trainees.
- The identification of areas where post graduate specialists are needed and of the individuals who could satisfy the conditions for applying to international institutions providing such courses.
- The listing and planning of specific short or medium term external training that are needed to fulfil urgent functions in the public or private sectors.
- The listing and planning of short term courses which could be provided in Afghanistan using international visiting specialists.
- The review of existing training facilities for paraprofessionals and the definition of training standards for such categories of personnel.
- The identification of subject matters which require the organization and implementation of specific extension systems.
- The creation of communication systems and media to be used for awareness of farmers or other stakeholders concerned by the development programs.

It is critical that the veterinary schools develop new strategies for recruitment of veterinary students to ensure regional distribution and to encourage the possibility that graduates might actually be willing to go to the rural areas to conduct veterinary activities. It is also critical that veterinary manpower needs be evaluated with realistic assessments of the use of both professional and paraprofessionals in animal health care delivery in the country.

4.3.2.3. Legislation and Regulations

Policies can hardly be implemented without an adequate regulatory environment which determines the conditions to sustain them and guarantee the stakeholders of their rights and duties.

The Ministry's policy is therefore to review and renew the livestock sub-sector legislation in order to create an enabling environment for enforcement of the Government policies and to secure and promote private sector initiatives and investments. This will however have to be done on the basis of well defined detailed policies and strategies and will therefore follow the path of the policy and strategy making process.

The laws and regulations which are necessary to sustain the policies and strategies presented above include, but are not necessarily limited to:

- An Act on the life of animals which should include:
- A Decree or a set of regulations on animal diseases including specific regulations governing notifiable diseases.
- A Decree or a set of regulations on the exercise of veterinary medicine.
- A Decree or a set of regulations on the veterinary pharmacy and biological inputs.
- A Decree or a set of regulations on animals and the environment.

An Act on human use of animals including:

- A Decree or a set of regulations on the property and management of live domestic animals;
- A Decree or a set of regulations on animal movements and marketing;
- A Decree or a set of regulations on animal products processing, marketing, distribution and export;
- A Decree or a set of regulations on animal feed, supplements and additives.
- A Decree or a set of regulations on the prevention of cruelty to animals.

5. Action Plan and Development Programs

5.1. Priorities and Timeline

The Master Plan working team for the livestock sub-sector ranked the categories of actions overall and came up with a consensus agreement on the following ranking by priorities:

1. Policy/Legislation/Rule Making and Human Development share first position as the highest priorities for MAAHF to address.
2. Animal Health and Feed and Nutrition shared the second position as the next highest priorities to be addressed by MAAHF.
3. Animal Husbandry and Genetic Resources shared third position as priorities to be addressed by MAAHF.

This does not mean however that activities or programs in the fields ranked as second or third priorities should only be started after the first or second ranked fields have fully been satisfied nor that are they considered as less important than the first ranked ones. The ranking has rather been made on the urgency to start

implementation of and emphasis to be given at each point of time to fields that are considered as indispensable to allow for effective implementation of others.

5.2. Development Programs

5.2.1 Animal Health

5.2.1.1. Control of Animal Diseases

To meet the general objective, the Department will ensure that it has the capacity to mobilise co-operation from all interested stakeholders and gather epidemiological clarification on the main diseases.

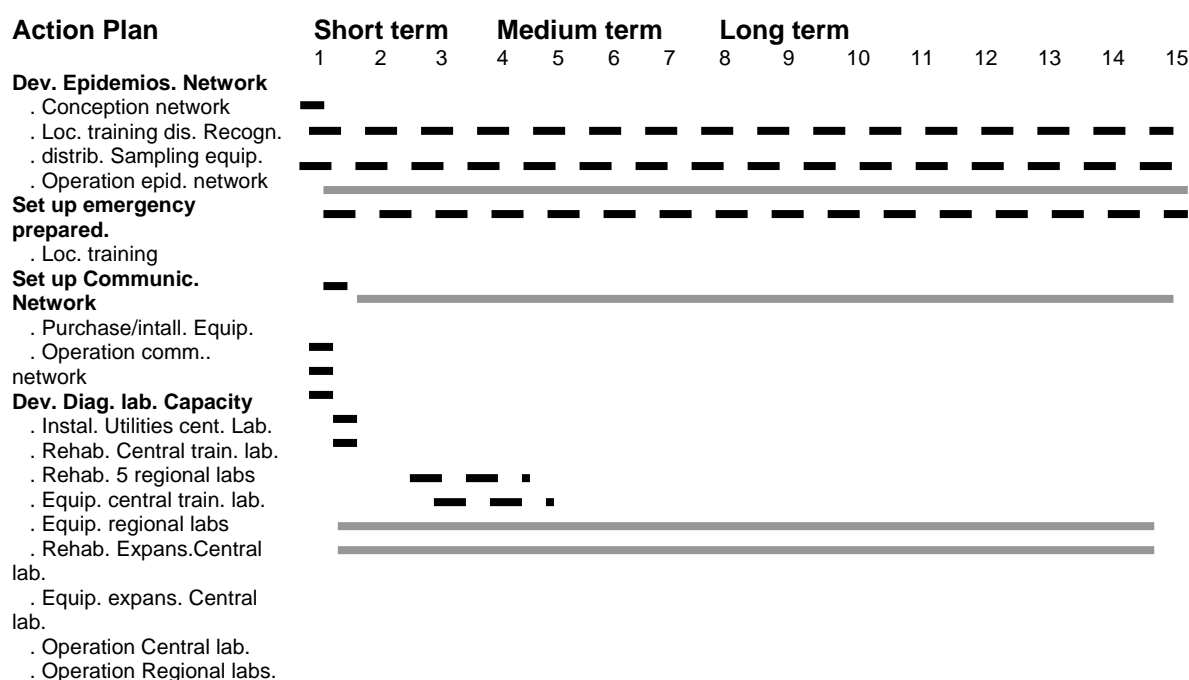
- Develop communication and information and train field professionals in disease recognition and clinical diagnosis.
- Increase farmers awareness and information through participatory epidemiology teams used for extension at the same time as they collect data.
- Improve awareness and organization of traders.
- Determine the impact and incidence of diseases through participatory epidemiology and epidemiosurveillance.
- Specify how the causal agent is being transmitted and maintained;
- Find out where the most important contamination spots are and determine the vulnerable points to attack.
- Ensure effective clinical diagnosis and laboratory confirmation;
- Organize laboratory support for surveillance.
- Recommend and implement possible interventions or mandatory control, and
- Set up a notifiable disease list and reporting protocol that requires private sector animal health care providers and other private stakeholders to report listed disease to government authorities.

Except for some equipment and training from the FAO and the Italian Cooperation, the Ministry of Agriculture Livestock department has thus far received very little direct assistance. Two FAO implemented projects included a German funded FMF control operation which allowed for the installation and operation of a virology laboratory in Dar-UI-Aman, and the collection of about 2,000 sera in various part of the country. A regional Central Asia project for the control of Trans Boundary Diseases (TAD) was started in 2005 through which field epidemiosurveillance surveys were started in several provinces of Afghanistan.

In addition, substantial programs involving donors such as the ED and USAID have been designed and are due to begin implementation in the very near future.

Programs to be implemented in the short, medium and long term for Government Veterinary services in the field of disease control are presented in the following table. They include the development and operation of a comprehensive epidemiosurveillance network, the set up of an emergency preparedness plan, the installation and operation of a communication network between the central veterinary services, the regional laboratories and the regional public services veterinarians and the rehabilitation, equipment and operation of the central and regional diagnostic laboratories as represented below in the form of chronogram.

Chronogram 1. Timeline for Animal Disease Control Programs



5.2.1.2. Veterinary Services and Drug Delivery

Projects developed since the end of the Taliban regime have been primarily directed toward field veterinary services and procuring and dispersing drugs and vaccines to livestock owners. These activities, implemented by NGOs (DCA, AVA, PRB, MADeR, MCI, AKDN, OXFAM, etc.) were financially supported by USAID, the EC, AKF, DFID and other donors.

The provision of professional veterinary services and appropriate drugs to livestock owners is essential for reducing animal losses and increasing productivity. Since these services require large numbers of veterinary professionals throughout the country, the Department will ensure that NGOs, private animal health care providers and registered stakeholders are:

- Actively engaged in the commercial provision of veterinary services and in drugs and vaccine supply.
- Enabled (under conditions to be specified) to have access to and use of state-owned assets and property.
- Encouraged and promoted to be involved in the exercise of the veterinary profession and marketing of veterinary products.

Necessary measures to be taken include:

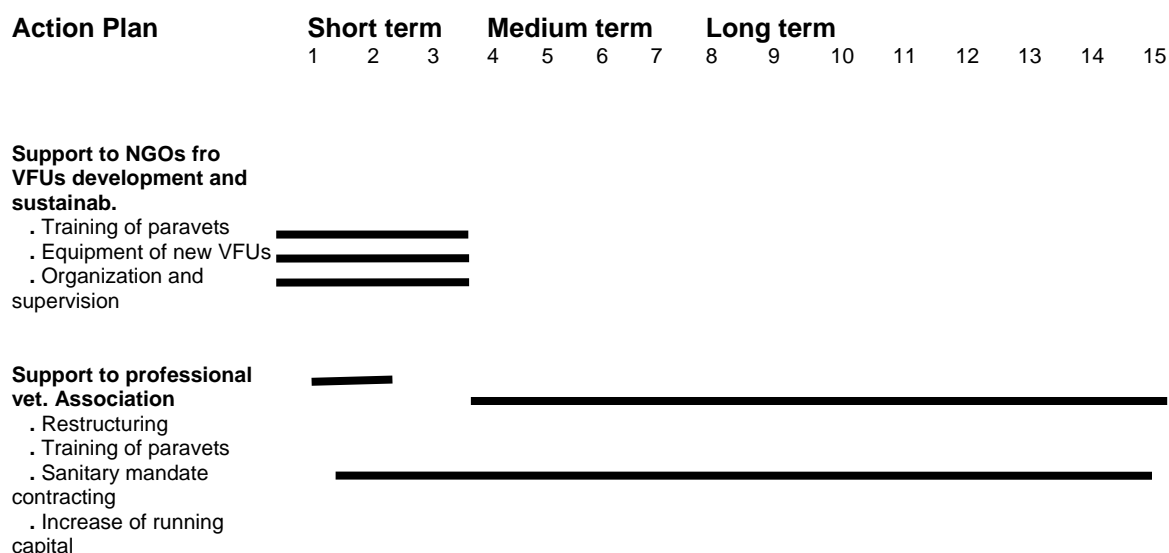
- Improve coordination between public services and private stakeholders and develop a system of partnership based on regular consultation and

involvement through contracting for participation to disease detection, surveillance, reporting and control programs in the framework of a “sanitary mandate” system.

- Develop rules of partnership for support to services and drugs delivery with private professional veterinary association.
- Encourage private service delivery initiatives, including the use of Government assets and contractual arrangements for implementation of certain public services.
- Ensure planning, in consultation with concerned stakeholders, for progressively introducing full cost recovery of services and inputs, and
- Regulate and control the quality, safety and efficiency of drugs and vaccines to be authorised for import, manufacture and distribution within the country.

In practical terms, such a program requires that NGOs operating veterinary field units continue to be supported in the short term to achieve the country coverage regarding accessibility to veterinary services and drugs as well as to reach their objective of privatization and sustainability. In the meantime, the existing Veterinary Association will be restructured and reinforced in order to prepare it to provide medium and long term support to the profession in terms of quality drugs and vaccine supply. The Veterinary Association will also be made responsible for carrying out paravet training and to manage and supervise sanitary mandate contractual arrangements. In the long term, only paravets training and sanitary mandate contracts will require Government funding. The schedule chronogram to meet these objectives is presented below.

Chronogram 2. Timeline for Achieving National Coverage and Sustainable Veterinary Services



5.2.1.3. Control of Zoonotic Diseases

Decreasing the prevalence of zoonotic diseases in Afghanistan and preventing epidemics will require following the same principles as those envisaged for the control of priority contagious diseases. Meeting objectives will require that the Department’s capacity be developed to allow for early detection and early reaction

regarding these diseases. In this case, epidemiology intelligence will have to be organized concurrently and share with human health institutions. Activities will include:

- The development of investigation and laboratory diagnostic capacities as for the main contagious animal diseases.
- The implementation of public awareness programs to inform the population of the existing potential contamination risks.
- The coordination of efforts and resources with the Ministry of Public Health.

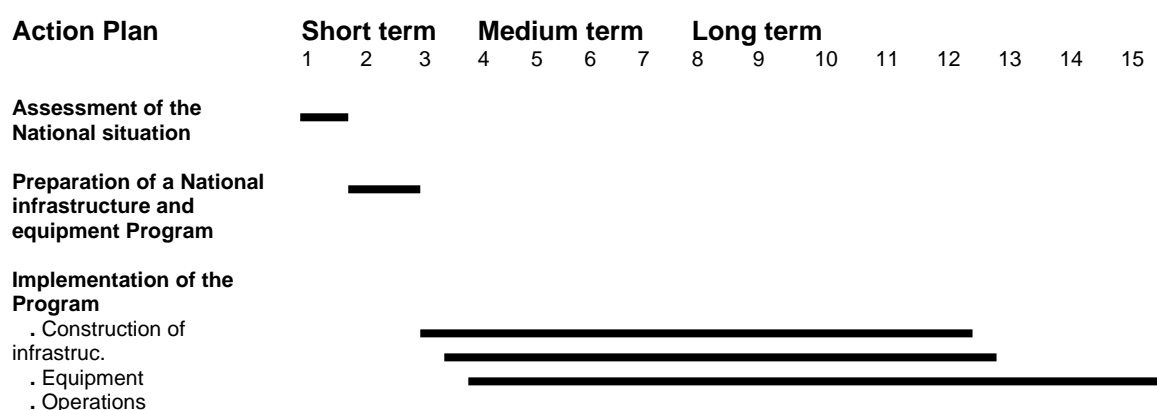
5.2.1.4. Organization of Veterinary Public Hygiene and Development of Quarantine

Improving and preserving the quality and safety of livestock products, both for the protection of Afghan consumers or for complying with international standards for the development of exports is an essential veterinary public benefit. To organize, regulate and implement quality and safety control of products of animal origin in order to protect Afghan consumers and promote exportation requires careful organization and investments implying :

- A detailed review of the conditions which presently prevail regarding marketing and slaughtering of animals and processing of animal products, in particular regarding meat and milk supply of urban centers.
- Consultation of traders and distributors of animal products on the problems they have to face and possible solutions.
- A detailed study to determine priorities and specify the infrastructure, equipment, training and organization needed.
- The design of an implementation program, including technical justifications, costing, and feasibility and possible time schedule to progressively expand efficient veterinary public hygiene activities.
- The clear leadership of the restructured Veterinary Department over all animal products control activities related to the sanitary and safety status of the products.
- Relevant legislation and regulations to create an appropriate regulatory environment coherent with international standards.

The practical activities to be developed include in the short term an initial comprehensive and nationwide assessment of the situation of livestock markets, slaughtering facilities and retailers infrastructure and equipment. This will be followed by the preparation of a national program of infrastructures and equipment designed to reach reasonable hygienic standards in the marketing and slaughtering of animals for human consumption. Such a program will include a detailed description and justification of all investments envisaged, plans of infrastructure, lists of equipment and costing for consideration by the donors. It is expected that implementation of the investment plan will be carried out in a period of ten years starting in the medium term. The chronogram of the Organization of public veterinary hygiene action plan is presented below.

3. Veterinary Public Hygiene Timeline



5.2.2. Animal Husbandry

5.2.2.1. Feed and Nutrition

Procuring adequate quality forage and feed for domestic animals is essential for productivity improvement. The Department role is to ensure that balanced nutrition is available through better access and management of natural pasture, development of artificial fodder, encouragement of the use of agricultural by products animal and of feed production for intensive production investments.

Natural pasture

To improve or restore access to traditional pasture, improve their management and utilization rate and reduce risks of malnutrition in case of drought. Pasture improvement requires:

- A comprehensive assessment of the existing natural pastures nationwide, their accessibility and management and their productivity.
- Implementation of pasture monitoring activities.
- Undertaking of specific intermediation through participative appraisal involving local and national authorities.
- Promotion of formal contracting between pastures' users.
- Improvement of access to water through adapted investment in watering points.
- Co-ordination with other public services (Forestry department, Home office..) and environment issues taken into account.
- Promotion and monitoring of pasture management practices among users.

Fodder production

To increase artificial forage production in order to improve and complement animal nutrition and increase food security during winter and drought periods. This will include:

- A comprehensive assessment of existing fodder production practices, of the species and varieties used, their productivity and their use in order to

assess the availability of fodder to animals, particularly during winter, in case of drought and for feeding productive animals.

- Determination in coordination with research of adapted and productive varieties that may be introduced in the existing farming systems in different ecological zones of the country.
- Extension of adapted forage plantation techniques (forage trees fencing, interspacing forage plantation, forage planting in rain fed areas.) to increase forage crops in and around cropping areas.

Increase of agricultural by-products

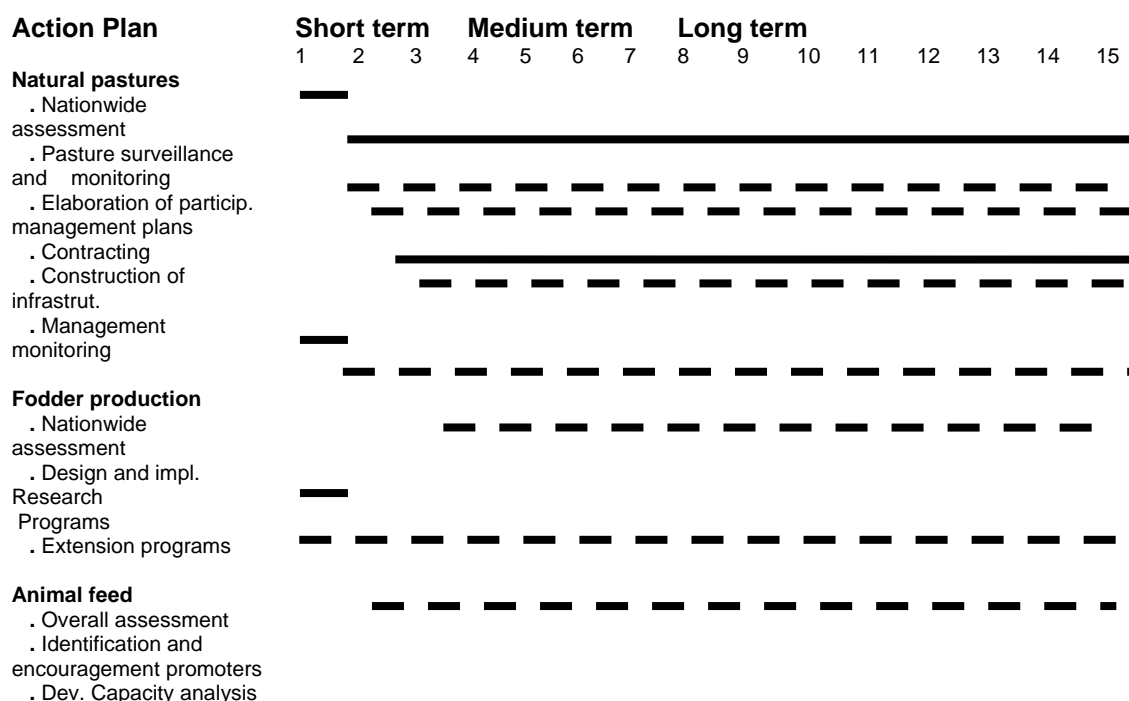
Through crop production or crop productivity improvement.

Animal feed production

To facilitate availability of balanced feed to allow for the development of modern and intensive animal production practices, including :

- Assessment of the availability of agricultural products and by-products, feed complements and additives either locally produced or imported.
- Encouragement of promoters to invest in intensive raising practices and animal feed production.
- Accessibility to feed production technology technical advice.
- Local feed analysis capacity for quality control and content of feed products.

Chronogram 4. Animal feed and nutrition improvement timeline



5.2.2.2 Genetic Improvement

Livestock production improvement will also require raising the genetic standard of the domestic herds through selection and preservation of indigenous breeds and well planned importation of exotic animals and genetic materials. Related activities will vary according to the species involved and the nature of production expected, in particular:

For **cattle and buffalo**, they will consist in increasing the production of meat and milk according to regional specificities and feeding resources through:

- The preservation and selection through adapted breeding practices using local breeds according to their proven qualities (for example the Kunari breed for the high fat content of its meat, its modest demand in feed and its good adaptation to the local climate) and disease resistance.
- The collection and/or import of sperm for the development of dairy production and the development, with close involvement of the private sector of artificial insemination practices.

For **sheep and goats**, the target will be to increase the national production of meat, milk and specific products like wool and cashmere through:

- The preservation and selection of breeds known for their meat production qualities (Ghalijai, Azaragi, Gadi).
- The selection of breeds producing high value products (cashmere) or of dual purpose goats that could provide both improved carcass for meat and increased milk production.
- The protection and selection of breeds of special interest (Karakul).

For **poultry and fowl**, increase of the national production of meat and eggs to develop availability of low cost animal proteins for the population and for import substitution will be achieved in two main directions:

- The increase of backyard production in rural areas through selection and careful crossing of local breeds (poultry, ducks, geese, turkeys).
- The development of modern poultry farming (layers and broilers) in the vicinity of urban centers through import and multiplication of chosen exotic strains and investments in hatcheries.

For **bee keeping**, activities will be directed to the promotion of bee-keeping for honey production and cross-pollination through:

- Selection of local breeds and extension of reproduction and multiplication techniques.
- Careful import of queens from exotic breeds for local breeds improvement.

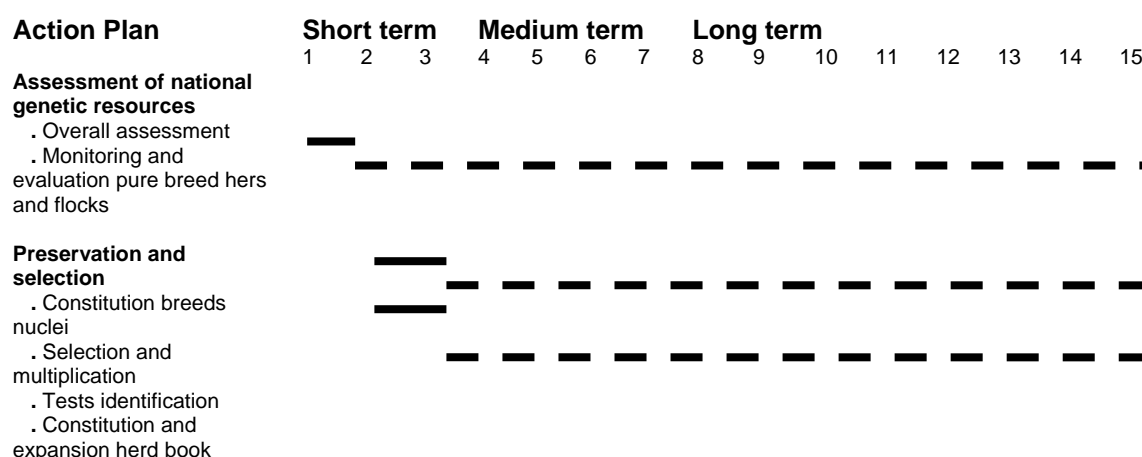
For **silk worms**, the Department will facilitate increase of the national production of silk and increase export of silk worms eggs through the import and multiplication of Japanese and Chinese breeds and the increased plantation of selected mulberry trees.

For **fish farming**, programs will aim to facilitate increase of the production and availability of fish proteins in Afghanistan through the multiplication and development of local species (trouts and carps) and the study of possible import of exotic species.

The Department will undertake a full assessment and detailed description of the existing national resources for all species in order to better specify their performances and productivity potential. Then, specific preservation and selection programs will be defined and carried out in the medium term through the constitution of small pure breed nuclei of chosen cattle, sheep and goats of local breeds with recognized production and resistance qualities.

Artificial insemination will be promoted in the context of well monitored dairy development operations using private sector operators. Finally, systems of animal identification will be tested in the medium term in order to be progressively expanded in the long term to pure breed herds and flocks with a view to constitute a herd book for the promotion of quality animals and animal products. The chronogram of the scheduled operations is presented below.

Chronogram 5. Genetic Improvement Timeline



5.2.2.3. Animal Husbandry Techniques

The Department of Animal Husbandry will concentrate efforts to rationalize and secure traditional livestock raising practices and promote modern and intensive livestock practices.

Traditional livestock practices

- Provision of advise to livestock owners regarding watering points, hygiene of animal shelter and other premises.
- Provision of information on market conditions and access to markets;
- Encouragement of specific productions.
- Promotion of quality production and safety of animal products.

Modern commercial productions

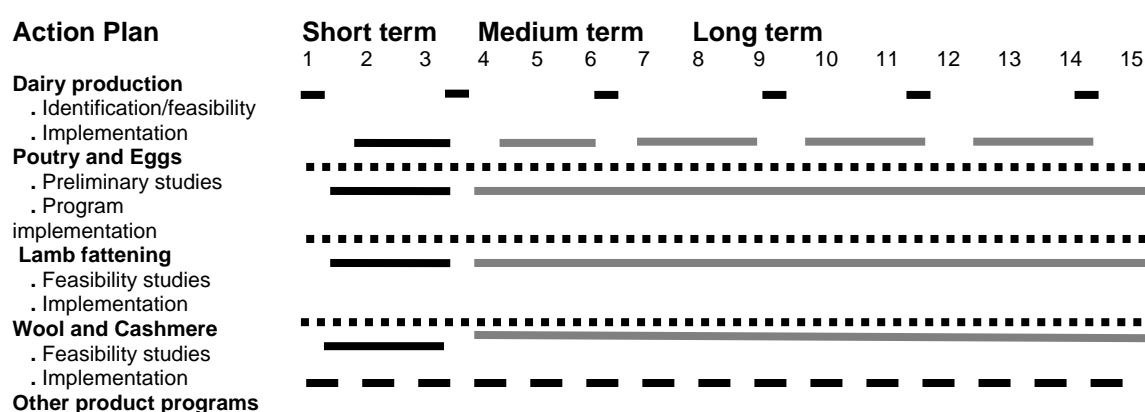
- Promotion and development of modern poultry farming in rural areas where favourable feed and market conditions exist and where conditions allow for competitiveness;
- Encouragement of dairy production along proven organizational systems (Operation Flood) where favourable feed and market conditions exist;
- Promotion of intensive meat production of cattle, buffaloes, small ruminants and poultry where favourable feed, market and animal health conditions exist;
- Development of extension services to promote honey, silk worms and fish production;
- Systematic promotion of quality animal products.

In practice, besides information and extension work aiming at providing advice for better animal husbandry practices, the Department will promote the development of substantial programs for increasing the volume of animal products produced in the country. Goals include:

- Increasing the Afghan people's consumption of animal proteins,
- Substituting Afghan products to presently growing imports.
- Ensuring a better supply of local high value industrial productions.

Such programs will also address dairy production and processing, poultry and table eggs, lamb fattening and wool and cashmere production. Smaller programs will involve bee-keeping, silk worms and fish farming.

Chronogram 6. Promotion of Production and Marketing *Initiatives*



5.2.3 Development Support Programs

5.3.1.1 Coordination Mechanisms

The Department intends to develop, regulate and enforce co-ordination mechanisms to allow for maximum involvement of public and private stakeholders and avoid duplication of or competition between existing development forces. It will:

- Confirm the Animal Health and Husbandry Steering Committee in its role of overall co-ordination and guidance for animal health and husbandry programs in Afghanistan.
- Create the Livestock Coordination Secretariat within the Animal Health and Husbandry Department to organize and conduct co-ordination meetings under instruction from the Steering Committee, ensure secretariat of such meetings and report results and issues.
- Define, in consultation with the concerned stakeholders, the relationship principles to be applied between public services and other stakeholders (NGOs, private entrepreneurs, services and inputs providers, etc..) in terms of registration, programming, reporting, and conditions of exercise of activities related to animal health and husbandry services and inputs supply.
- Develop and enforce adapted legislation and regulations to ensure enabling of a favourable environment for the development of private sector production as well as marketing and services initiatives.

5.3.1.2 Restructure and Reform of Animal Health and Husbandry Public Services

The Islamic State of Afghanistan has committed itself to restructuring and reforming public administration, improving civil service human resource capacity and civil service pay and grading. The Priority Restructuring and Reform (PRR) Decree has for primary objective to enable government ministries, agencies and departments to carry out key reforms that are central to improving the delivery of priority functions and services. In this context, extensive work and thinking have been undertaken in an effort to specify the functions of the livestock sub-sector Government's services and to develop proposals for a rational and adapted structure for these services.

The Department will pursue the restructuring exercise to its end in order to increase its capacity to fulfil its core functions on the basis of clearly defined modern structures and job descriptions.

5.3.1.3 Public Services Management Systems and Privatization

Governmental institutions are in the process of reconsidering functions and responsibilities to better support the private sector. Some of these considerations include:

- A change of statute for a number of infrastructures and institutions presently owned and managed by the government and using government budget and resources to fulfil functions relevant to the private sector. Among these are the vaccine production laboratory and the diagnostic laboratories, the Badam

Bagh poultry farm, the Rish Khoo dairy project, the Bini Hissar animal husbandry facility and other production enterprises or projects which are limited by lack of budgetary allocations and administrative procedures and cannot operate on a commercial basis. These activities will be studied to assess their economic and financial viability and sustainability. Eventually, they will be recommended for partial or full commercial autonomy or privatization. A considered, deliberative approach should be applied given the importance of some of these programs, particularly diagnostic laboratories. This would allow a transition without a loss of important services.

- Reconsideration of what activities and what level of government involvement is necessary to protect animal health and ensure the quality of livestock products. The Veterinary and Animal Husbandry Departments will progressively disengage from activities that can be best implemented by the private sector. Amongst these are the provision of veterinary services, drugs and private good vaccines, artificial insemination services, provision of feed and grade animals and all production activities which should be undertaken in the short term (3 years).
- A gradual discontinuation of government and NGO subsidies for services and input supplies. The variations in subsidy amounts and management practices cause confusion and a sense of unfair competition, which is detrimental to all private sector support activities.

5.3.1.4 Rehabilitation of Public Service Infrastructure and Equipment

Much of the physical infrastructure of the veterinary and animal husbandry government services has been destroyed or looted. The MAAHF intends to restore the facilities and equipment necessary to fulfil these core functions. As indicated in the National Development Framework (NDF), the approach to physical infrastructure will be based on lessons from international experience. The state will define areas of priorities, but will not be the implementing agency and instead will turn to national and international private sector to design and implement the projects. Particular attention will be paid to the operation and maintenance costs of these projects with a close look on their financial and economic sustainability. As far as the livestock sub-sector services are concerned, these principles will be applied:

- For veterinary services: (i) the central and regional diagnostic laboratories which will serve both the public sector (accounted for above as part of a disease surveillance network to be made operational) and the private sector (for confirmation of their clinical findings); (ii) the vaccine production laboratory, with a view to expand its activities on a commercial basis and its eventual privatization; (iii) the market places, quarantine stations and check posts needed for the control of animal movements and border control; and the urban slaughterhouses for quality control and processing products of animal origin (accounted for in the veterinary public hygiene program).
- For animal husbandry services: laboratory facilities for quality control of animal feed and those facilities and equipment necessary in the short term for promotion of modern husbandry practices (artificial insemination, import of grade animals or genetic material, hatcheries and day-old chick production,

- etc.). Also, the rehabilitation, reconstruction and/or refurbishing of administrative infrastructure, both at the central level and in the provinces.
- The rehabilitation, reconstruction and/or refurbishing of administrative infrastructure, both at the central government level and in the provinces.

5.3.2 Monitoring and Evaluation Mechanisms

The regular monitoring and evaluation of programs scheduled in this Master Plan will verify that activities are implemented as scheduled and that economic assumptions are still valid. The Livestock Department will develop its internal monitoring capacity through adequate training on monitoring techniques and standards. However, independent supervisions from donors and the relevant Ministry services will be welcomed.

5.3.3 Audit and Inspection

It will be the responsibility of the Finance Department and the Inspection Services of the MAAHF to carry out annual inspections and audits and whenever determined to be necessary.

5.4 Financial Implications and Investment Plan

The Master Plan for the Livestock sub-sector has been developed around five major programs:

- Control of contagious diseases.
- Veterinary services and drug delivery.
- Veterinary public hygiene.
- Animal husbandry services.
- Production and marketing operations.

These programs cover a 15 year period according to the priority ranking and the feasibility of the operations. A rough estimate has been made of the financial implications of the various programs included in this Master Plan for the livestock sub-sector regarding the investments required. These are divided into 4 categories, technical assistance and training, equipment, infrastructure and recurrent costs. These were then arranged by short term (2006 to 2008), medium (2009 to 2012) and long term investments. More detailed calculations have been made upon request of the Master Plan Coordination Group to present investments and recurrent costs evolution for the 5 first years of the Master Plan.

5.4.1 Estimated Program Costs

The total estimated cost of the five programs over a 15 year period from 2006 to 2020 amounts to US\$167,642,600. Detailed budgets are provided in Annex 4 for each program. A summary by phase (2006-2008, 2009-2012, 2013-2020) and a summary of the costs for the five first years (2006 to 2010) are below.

5.4.2 Investment Plan for the Short, Medium and Long Term

Investments in the short and medium term focus on institution building through technical assistance and training, infrastructure and private services development. Long term investments will consolidate the public institutions using more and more Afghan technical assistance and on completing infrastructure needed to improve the quality of livestock products in the country. A summary of the Global Livestock Master Plan costs is given below:

Table 5: Master Plan Summary Cost Table

Programs	Short Term Costs (2006- 2008) US\$ '000	Medium Term Costs (2009- 2012) US\$ '000	Long Term Costs (2013- 2020) US\$ '000	TOTAL US\$ '000
<u>Animal Health Programs</u>				
Control of contagious diseases				
Sub-total Technical Assistance	3765.0	2080.0	3408.0	9253.0
Sub-total Equipment	1990.0	1340.0	800.0	4130.0
Sub Total Civil Works	3155.0	1130.0	1030.0	5315.0
Total Recurrent Cost	1417.5	1890.0	3780.0	7087.5
Sub-total	10327.5	6440.0	9018.0	25785.5
Veterinary Services and drug delivery				
Sub-total Technical Assistance	3624.0	1420.0	2840.0	7884.0
Sub-total Equipment	755.0	166.0	160.0	1081.0
Sub Total Civil Works	240.0	500.0	260.0	1000.0
Total Recurrent Cost	11320.4	2790.4	3960.8	18071.6
Sub-total	15939.4	4876.4	7220.8	28036.6
Veterinary Public Hygiene				
Sub-total Technical Assistance	1308.0	1798.0	2266.0	5372.0
Sub-total Equipment	273.0	5014.0	2164.0	7451.0
Sub Total Civil Works	0.0	19000.0	6500.0	25500.0
Total Recurrent Cost	436.5	1994.5	6068.0	8499.0
Sub-total	2017.5	27806.5	16998.0	46822.0
<u>Animal Production programs</u>				
Reinforcement of Animal Husbandry Services				
Sub-total Technical Assistance	1620.0	2460.0	4440.0	8520.0
Sub-total Equipment	1199.0	514.0	874.0	2587.0
Sub Total Civil Works	310.0	0.0	0.0	310.0
Total Recurrent Cost	1366.5	1896.0	3792.0	7054.5
Sub-total	4495.5	4870.0	9106.0	18471.5
Animal Production and Marketing Operations				
Sub-total Technical Assistance	3766.0	4148.0	5966.0	13880.0
Sub-total Equipment	1510.0	730.0	160.0	2400.0
Sub Total Civil Works	10580.0	10840.0	3120.0	24540.0
Total Recurrent Cost	1479.0	2076.0	4152.0	7707.0

Sub-total	17335.0	17794.0	13398.0	48527.0
Total				
Sub-total Technical Assistance	14083.0	11906.0	18920.0	44909.0
Sub-total Equipment	5727.0	7764.0	4158.0	17649.0
Sub Total Civil Works	14285.0	31470.0	10910.0	56665.0
Total Recurrent Cost	16019.9	10646.9	21752.8	48419.6
GRAND TOTAL	50114.9	61786.9	55740.8	167642.6

The distribution of the costs per phase (short, medium and long term), per category of expenses (technical assistance and training, equipment, infrastructure and recurrent costs) and per program is represented in the following charts:

Chart No. 6: Master Plan Global Costs 2006 - 2020

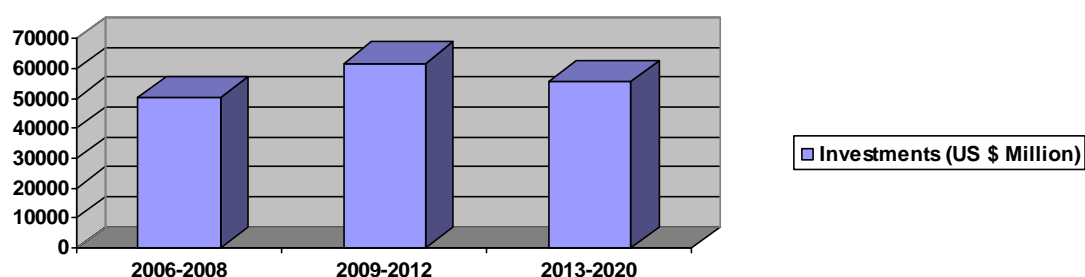


Chart No. 7: Master Plan Global Costs Per Category

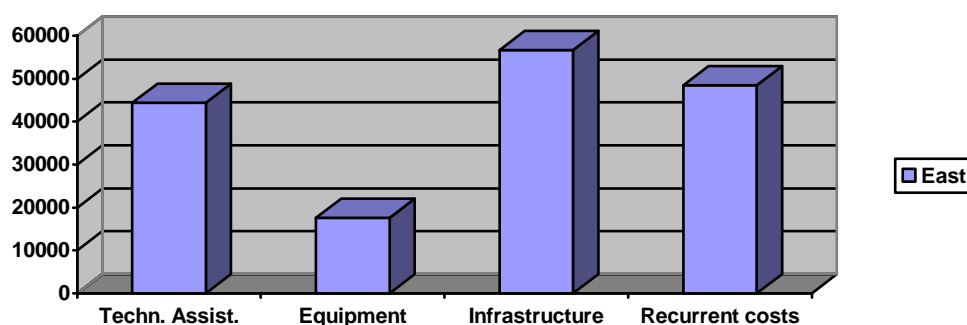
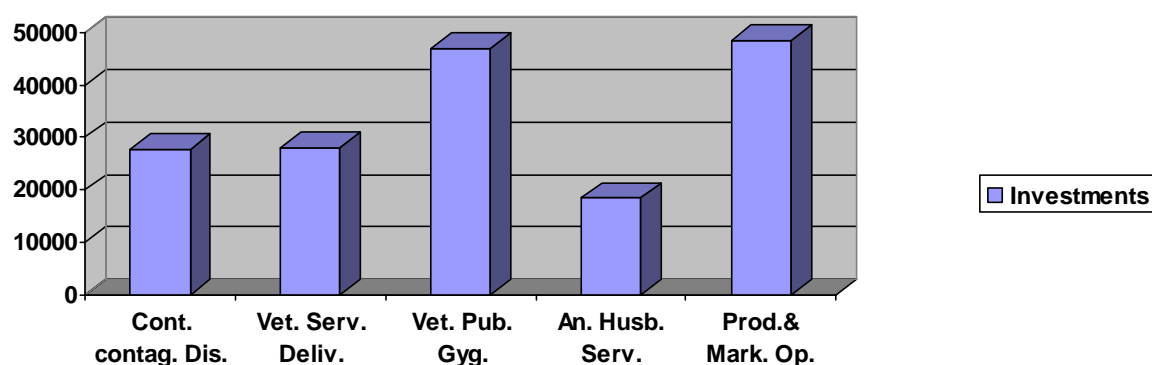


Chart No. 8: Master Plan Global Costs Per Program



5.5. Five Year Investment Plan

The investments needed for the five first years of the Master Plan are summarized in the table below:

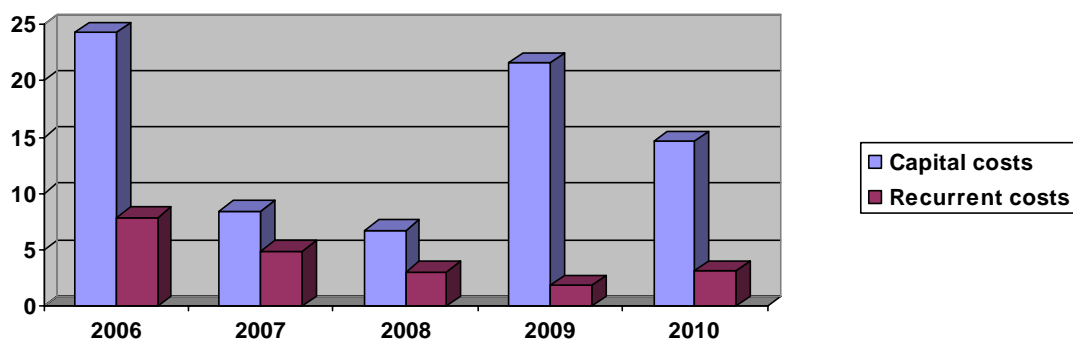
Table 6: Five Year Summary Cost Table

Programs	2006 US\$ '000	2007 US\$ '000	2008 US\$ '000	2009 US\$ '000	2010 US\$ '000
Animal Health programs					
Control of contagious diseases					
Sub-total Technical Assistance	1205.0	1280.0	1280.0	515.0	535.0
Sub-total Equipment	3090.0	1400.0	0.0	0.0	1410.0
Sub Total Civil Works	1805.0	675.0	975.0	75.0	1675.0
Total Recurrent Cost	472.5	472.5	472.5	472.5	472.5
Sub-total	6572.5	3827.5	2727.5	1062.5	4092.5
Veterinary Services and drug delivery					
Sub-total Technical Assistance	1208.0	1208.0	1208.0	435.0	435.0
Sub-total Equipment	355.0	200.0	200.0	166.0	0.0
Sub Total Civil Works	80.0	0.0	160.0	500.0	0.0
Total Recurrent Cost	6401.3	3412.3	1506.4	260.1	510.1
Sub-total	8044.3	4820.3	3074.4	1361.1	945.1
Veterinary Public Hygiene					
Sub-total Technical Assistance	301.0	414.0	458.0	511.0	418.0
Sub-total Equipment	271.0	1.0	1.0	1401.0	1691.0
Sub Total Civil Works	0.0	0.0	0.0	6000.0	6000.0
Total Recurrent Cost	145.5	145.5	145.5	193.5	206.0
Sub-total	717.5	560.5	604.5	8105.5	8315.0
Animal Production programs					
Reinforcement of Animal Husbandry Services					
Sub-total Technical Assistance	1420.0	1095.0	875.0	510.0	600.0
Sub-total Equipment	889.0	310.0	0.0	0.0	245.0
Sub Total Civil Works	610.0	0.0	0.0	0.0	0.0
Total Recurrent Cost	418.5	474.0	474.0	474.0	474.0
	3337.5	1879.0	1349.0	984.0	1319.0
Animal Production and Marketing Operations					

Sub-total Technical Assistance	2192.0	1132.0	1132.0	1445.0	1025.0
Sub-total Equipment	1165.0	300.0	45.0	545.0	120.0
Sub Total Civil Works	9660.0	460.0	460.0	9460.0	460.0
Total Recurrent Cost	411.0	459.0	459.0	459.0	459.0
	13428.0	2351.0	2096.0	11909.0	2064.0
Total					
Sub-total Technical Assistance	6326.0	5129.0	4953.0	3416.0	3013.0
Sub-total Equipment	5770.0	2211.0	246.0	2112.0	3466.0
Sub Total Civil Works	12155.0	1135.0	1595.0	16035.0	8135.0
Total Investissements	24251.0	8475.0	6794.0	21563.0	14614.0
Total Recurrent Cost	7848.8	4963.3	3057.4	1859.1	2121.6
GRAND TOTAL	32099.8	21913.3	16645.4	44985.1	31349.6

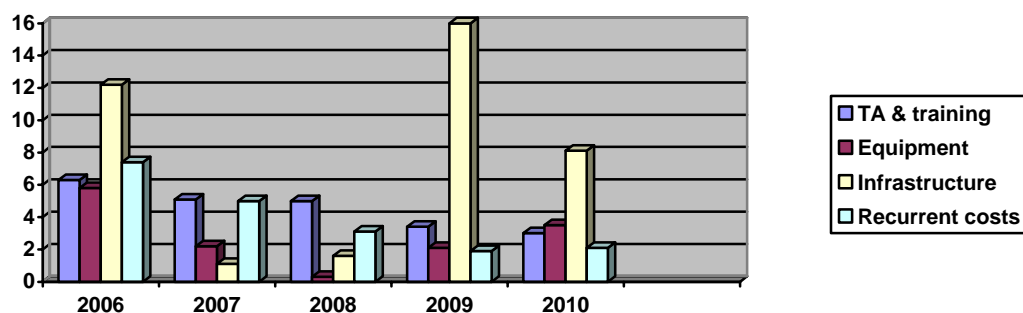
The charts below represent the evolution of investments in the next five years and the distribution of the costs per category of expenses and per program.

Chart No. 9: Master Plan Costs for the Next 5 Years



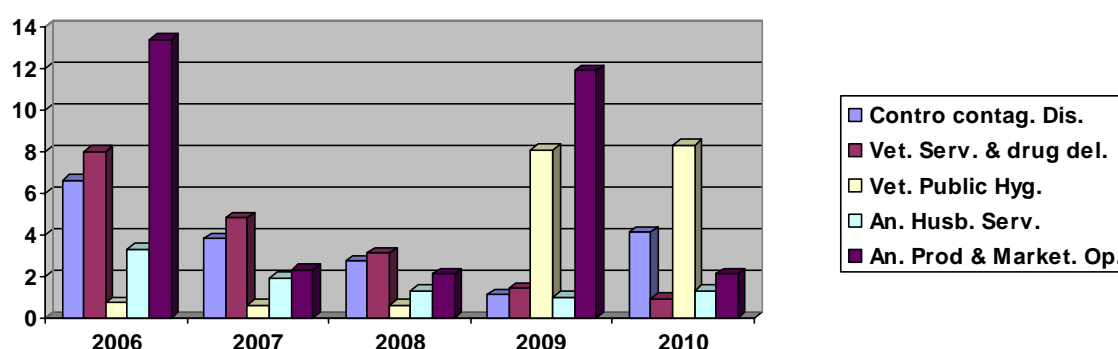
Capital expenditures are to be mobilized immediately for urgent needs (in this case, dairy and animal feed plants). The high initial level of recurrent expenditures refers to the need to continue expanding veterinary services and drug delivery activities which, although making progress in drastically reducing subsidies, will still require financial support in the two years to come.

Chart No 10 : Evolution of the Master Plan Costs Per Category Between 2006 - 2010



The Master Plan places a priority on technical assistance and training to ensure MAAHF capacity. Equipment and infrastructure expenses are arranged in phases to accommodate more urgent needs (diagnostic laboratory, dairy and feed plant) with other facilities to be developed over the medium and long term.

Chart No 11 : Evolution of Master Plan Costs Per Program, 2006-- 2010



The control of contagious diseases and national access to animal treatments and drugs is an urgent matter requiring immediate action. The level of investment is therefore initially high and progressively decreases. The level of capital expenditures is expected to be less important once diagnostic facilities and the epidemiosurveillance network have been put in place. Some of these responsibilities will also be transferred to the private sector. The cost of building MAAHF capacity to conduct public animal husbandry services will also decline over time. Finally, animal production and marketing operations need to be phased up to cope with the evolution of the national technical capacity and the absorption capacity of the sector.

5.6. Expected Economic and Social Benefits

Implementation of the Master Plan as scheduled is expected to increase the presently estimated 4 to 5% economic growth of the sector by 1 to 1.5 points, thus increasing the livestock GDP by US\$8 to 12 million annually. The plan would also significantly lower the risks livestock owners had to face regarding losses due to contagious diseases and the lack of accessible animal health care and the incidence of potential prolonged droughts. In addition, well targeted support to production and marketing initiatives is expected to result in a stabilization or reduction of livestock products imports (poultry, dairy products) and in the recapturing of substantial benefits on the export market through better processing and marketing in Afghanistan of traditional products (wool, cashmere, carpets, hides and skins). Import substitution and export increases of livestock related products of better quality and finishing should have a significant positive incidence in the medium term on the country's present unfavourable balance of payments.

5.7. Donor Involvement - Ongoing Projects and Financial Commitments

Many donors have identified the livestock sub-sector as one of the most potentially promising sectors in the Afghan economy. Afghanistan enjoys a number of comparative advantages because of its historical and traditional practices in livestock rearing, consumption of livestock products and processing of livestock related high value garments and carpets.

In recent years, major donors mainly concentrated their efforts on improvement of the health condition of the national herds. USAID, through the RAMP project, contracted with three NGOs that were active in Afghanistan during the period of conflict. This was a major operation that revived and developed a network of veterinary field units throughout the country. The European Commission funded two other NGOs for similar purposes.

Rebuilding government livestock services is also being considered by major donors, but delays in implementing necessary reforms and in developing policies are still at this time postponing direct support to the concerned public sector institutions. The European Commission in 2003 launched the preparation of the Animal Health Development Project aiming at developing the capacity of the Afghan veterinary services to fulfil their core functions. The EC is also putting in place a medium term technical assistance project to conduct a comprehensive assessment of meat and animal products inspection conditions and prepare an investment project in this yet untouched field.

The World Bank is in the process of preparing a large project to develop the MAAHF Animal Husbandry Department capacity, as well as production and marketing operations. USAID and USDA have become active beyond the involvement in veterinary services and drug delivery to include projects in veterinary training and disease surveillance.

Soon, the Asia Development Bank will launch a comprehensive feasibility study for a project which could begin operating by 2007. Other bilateral donors and NGOs are also already supporting or have expressed interest in participating in the sub-sector development. On top of all this existing or potential support, different organizations (FAO, World Bank, bilateral aids) also involved themselves in important regional operations including Afghanistan for the control of transboundary diseases, the setting of preparedness plans for the avian influenza, etc.

These commitments demonstrate considerable consensus among donors to support the livestock sub-sector of Afghanistan with an estimated US\$60 to 80 million in funding for the short and medium term (or some 60% of the estimated Master Plan requirements). It is of the utmost urgency that steps are taken by the government to make official the already prepared government livestock structures that can cope with these much needed support programs. The long awaited decisions on policies and structures of government services constitutes an indispensable milestone, without which, the success of these programs is compromised before they are started.

Chapter 5

FOOD SECURITY

5.1. INTRODUCTION

Food security is an important pillar of the agricultural Master Plan. Access to adequate, nutritious and healthy food is a fundamental human right. The FAO Voluntary Guidelines of the Right to Adequate Food attest to this.

Food security refers to public access to a healthy diet throughout the year for a reasonable cost. The achievement of this goal does not imply food self-sufficiency at any cost. This means that the entire population of a nation has the ability to purchase food over and above what the country produces.

In a predominantly rural economy like Afghanistan, agriculture is the engine of growth and the mainstay of the majority of the population. In such an economy, food security and vibrant agriculture are intrinsically intertwined. A diversified and market oriented agriculture is the prime promoter of national food security. A weak agricultural economy implies rural poverty and perpetual food insecurity.

Food security is the result of several interlocking factors: physical, human, institutional and economic. External factors also play a significant role in the shaping national food security. Orchestrating these factors in the right direction and in a balanced manner will enhance national food security on a sustainable basis. This chapter discusses the multiplicity of the factors that influence the prospects of food security in Afghanistan in the years to come.

5.2. Situational Analysis

5.2.1 Current Food Security and Nutrition Situation

No less than 80% of the rural population of 18 million people suffer from extreme poverty. With an annual per capita GDP of US\$ 200, Afghanistan has become one of the poorest countries in the world and approximately 80-85% of the population lives on less than one dollar a day, the common indicator used in measuring global poverty. Although economic growth has picked up in recent years, job creation remains a major challenge. Poverty is widespread in the rural areas where 85% of the population resides. Progress in agriculture is the only hope of breaking the vicious cycle of poverty.

Because of war and prolonged drought, agriculture grew at less than 1% per annum during 1978 to 2001, compared to 2.2% during 1961-1978. In the next decade, agriculture must grow at least by 5% annually in real terms in order to achieve progressive improvement in the living standards of the rural population.

In the last ten years annual cereal production has fluctuated between 1.76 and 5.37 million tons. Even in a good year (2005), self-sufficiency in cereals is barely reaching the 90 percent mark (Table 1).

Table 1: 2005 Cereal Production in Afghanistan Compared to Recent Years

Crop	Production ('000 tonnes)							
	1998	1999	2000	2001	2002	2003	2004	2005
<i>Irrigated wheat</i>	2,020	1,988	1,329	1,514	2,110	3,017	1,867	2,728
<i>Rainfed wheat</i>	814	512	140	83	576	1,345	426	1,538
Total wheat	2,834	2,500	1,469	1,597	2,686	4,362	2,293	4,266
Milled Rice	301	188	105	122	260	291	310	325
Maize	330	240	115	160	298	310	234	315
Barley	240	216	74	87	345	410	220	337
Total cereals	3,705	3,144	1,763	1,966	3,589	5,373	3,057	5,243

Sources: Data for 1998-2004 from FAO/WFP CFSAM; 2005 MAAHF

Total cereal utilization in 2005 is estimated at 5.8 million tons, of which 4.7 million tons (81%) is wheat. Commercial imports of cereals in 2005 are estimated at 440,000 tons, or 8% of the total utilization. This includes 337,000 tons of wheat, 101,000 tons of milled rice and 2,000 tons of maize. In addition, 120,000 tons are expected as food aid from WFP (Table 2). Annual consumption per capita is 160kg of wheat, 17kg of rice, 2kg of maize and 1kg of barley. Post harvest losses of cereals are very high (15%). Even in a bumper crop year like 2005 the country faces deficit in cereals.

Table 2: The 2005 Cereal Balance ('000 tonnes) for Afghanistan

Description	Wheat	Rice (milled)	Maize	Barley	Total
A. Domestic availability	4,386	325	315	337	5,363
Food aid (WFP)	120	--	--	--	120
Domestic production	4,266	325	315	337	5,243
B. Utilization	4,723	426	317	337	5,803
Food use	3,688	392	46	23	4,149
Animal feed	--	--	208	236	444
Seed provision	295	11	16	26	348
Losses	640	23	47	52	762
Year ending stock-build-up	100	--	--	--	100
Commercial Import (B-A)	337	101	2	--	440

Source: Agriculture Prospects Report (August/ September, 2005), MAAHF

5.2.1.1 Seeds

Every year a number of international organizations distribute wheat seeds to farmers. In 2004, about 11,000 tons of Quality Declared Seeds (QDS) of wheat were

distributed by FAO, ICARDA, RAMP (Rebuilding Agricultural Markets Program), the French Embassy and the Swedish Committee. The demand for the QDS of wheat and other crops is growing and substantially more such seeds will be required in future years. A Master Plan for seeds is being prepared by MAAHF.

5.2.1.2 Post Harvest Losses

Reducing post harvest losses will contribute directly to food security. Since 2002, FAO has coordinated emergency locust control program in northern Afghanistan. The 2005 campaign started at the earliest two stages of the locusts' life cycle. As a result, the population was better controlled this year. Had there been an uncontrolled outbreak, cereal losses would have been substantial. Donor support for programs controlling both locust and Sunn pest is critical.

Without an annual campaign, cereal losses due to crop pests can be as high as one-fifth of the total output. This calculation does not include the potential losses to other crops like rice, melons, cotton and vegetables. Food aid costs over \$250 per tonne, while the control of crop pests costs much less per ton of crop saved. For the control of Sunn pest in Herat, 4,000 liters of chemicals and 10,000 insect collection nets were utilized.

At present post-harvest loss of cereals is very high (15% of production). About 75,000-100,000 tons of cereals will be available for human consumption if the post harvest losses were to be reduced by 3 percentage points. The areas of interventions for reducing losses, in order of priority, are the control of locust and Sunn pest, proper storage facilities, control of rodents, weed control and the prevention of rust and smut.

Expanded donor support is needed to prevent post harvest losses by controlling crop pests. This can be done in a sustainable manner through interventions currently outlined by MAAHF and FAO that utilize Integrated Pest Management techniques.

5.2.1.3 Storage

Over 14,200 grain storage silos are being distributed to farmers in seven provinces of Afghanistan through the German funded project executed by FAO. The project aims to help reduce post-harvest losses, improve grain quality, increase the income of farmers by allowing them to sell grain during the off-season when prices are more favorable to them, and to enhance household food security. This \$2.4 million project will develop a grain storage-capacity of 10,000 tons with small metal silos and 250 tons through ten Community Warehouses. Many non-beneficiary farmers have made requests for similar silos.

Non-commercial grain storage capacity available in the country is about 200,000 tonnes. (Table 3)

Table 3: Non-commercial Grain Storage Capacity

Description	Storage
-------------	---------

	Capacity (tonnes)
Government	150,000
WFP	40,000
FAO grain silos project	10,000
FAO warehouse rehabilitation schemes	250
Total (excluding private storage facilities)	200,250

Repair and maintenance of existing storage facilities is required to make them available to farmers, cooperatives, and traders. New storage facilities are also needed.

5.2.1.4 Nutrition

According to FAO/WFP estimates, some 35% of the population consumes less than 2,100 calories per person per day, which is about 30% and 40% below the level of Pakistan and Iran respectively. This ratio is even higher in provinces like Bamiyan, Kunar, Nimroz, Paktika and Zabul. In 2004, a fairly good year for cereals production, 14 out of 32 provinces did not produce enough wheat to meet their population's requirements.

Malnutrition is prevalent throughout Afghanistan. Between 45 and 59% of children under the age of five suffer from chronic malnutrition as indicated by low height-for-age, while between 6 and 10% are wasted. There is a very high level of micronutrient deficiency which is caused mainly by the absence of a balanced diet, combined with a high disease burden. Results from the 2003 National Rural Vulnerability Assessment show that 57% of the population has very low diet diversity. In fact poor diet diversity was found to be the strongest indicator of vulnerability.

The three important micronutrient deficiencies are lack of iron, Vitamin A and iodine. The prevalence of anemia is estimated at 37.5% among children 6-59 months and around 25% for women of child-bearing age. Close to 72% of children aged 7-11 years are iodine deficient; and 10.2% of children of 6-59 months have vitamin A deficiency. In some regions, outbreaks of scurvy due to vitamin C deficiency have been recorded. This indicates severe lack of diet diversity. Not only do micronutrient deficiencies lead to clinical symptoms such as blindness (vitamin A) and goiters, they also lead to increased vulnerability to disease and death. Micronutrient deficiencies such as iodine and iron deficiency also severely affect individual's intellectual development and work capacity. Malnutrition is therefore a key symbol of the lack of progress in a balanced development of agriculture in Afghanistan. This highlights the importance of improving food security and human nutrition as the twin objectives of agricultural development.

The access of household to food availability is determined both by its own level of food production and by its purchasing power. Food security means boosting agricultural production for greater food availability at the household level and the markets as well as to raise the level of income to purchase food when needed. Addressing malnutrition means working on issues of food safety, food preparation

and food consumption. The realization of both objectives calls for close collaboration with the Ministry of Rehabilitation and Rural Development and the Ministry of Health.

5.2.1.5 Issues to be Addressed

The following are the main issues that need to be addressed by the agricultural sector in improving food security and nutrition.

- Efficient management of water.
- Crop intensification.
- Diversification of production, notably through horticulture, animal production, poultry production, tree planting, aquaculture, and other agricultural product (apiculture, flower production, medicinal plants, etc.).
- Reducing pre and post harvest losses (IPM).
- Rehabilitation of existing government warehouses and construction of new warehouses.
- Expansion of community based grain-storage-silos.
- Food safety.
- Food preservation and processing.
- Food preparation and consumption.

Addressing food security and human nutrition requires the involvement of all members of Afghan society, notably women, who play a key role in agriculture and in the interface between food production and food consumption. Two-pronged approach would be necessary to address the food security issues: (i) emergency intervention to give hungry people access to food; (ii) development initiatives to increase employment, income and food production.

5.2.2 Role of Private and Public Sector

The eradication of hunger and poverty is primarily the responsibility of the government and the people of that country. In countries where the political will is strong and assertive, the level of resources for hunger and poverty eradication is high and progress is steady and rapid. China and India are two striking examples. Moreover, firm political commitment and higher domestic resource mobilization invites greater contributions from external partners to underpin national efforts. The case of Uganda is a good example.

This said, good public and private sector collaboration is essential in improving food security and promoting good nutrition. In Afghanistan, the division of responsibilities between the private and public sector are as follows.

- Agriculture will remain the domain of the private sector and the State will privatize its agricultural related production-oriented entities. But the State will retain facilities that provide public services such as research stations, storage facilities for strategic reserves of essential cereals, diagnostic laboratories and food safety control facilities.
- The State will promote competitive agriculture and will refrain from price control and production subsidies, though subsidy for capital formation in the

promotion of market agriculture and small agro-business may be warranted on a case by case basis. Farmers and their organizations will have to abide on free market forces. No monopolies will be permitted.

- In conformity with FAO Voluntary Guidelines of the Right to Adequate Food, the State will promote better nutrition for all Afghans, especially children, pregnant women and the vulnerable segment of the population. With assistance from WFP, school feeding and food-for-work will be encouraged.
- The state will collaborate closely with the private sector to enhance the availability of micronutrient-rich and safe foods, such as through food fortification and food processing initiatives. The State will establish a regulatory framework and quality standards for foods to guide private sector outputs.
- The National Program for Food Security will be used to bring public services to the rural people and enhance the synergy between rural population and public institutions.
- The National Program for Food Security will serve as the vehicle for building the technical, programmatic and managerial skills of the employees of MAAHF, both at the central government level and the provinces with support from other partners.

5.2.3 Predominant Production Systems and Geographical Differences

Afghan agriculture is highly region-specific not only from agro-ecological point of view but also from the view of land ownership, sources of water, access to productive assets and markets. The mountain and remote regions are at a disadvantage. The agrarian structure consists of big landowners, smallholders, sharecroppers, the landless and recently, female-headed households. In view of these disparities within rural communities, the appropriate strategy for reconstruction and development appears to be the community based approach in which priorities are demand-driven and determined by the beneficiaries themselves. The National Solidarity Program and the recent Alternative Livelihoods strategy are consistent with the community-based approach.

In view of regional differences in farming systems and food production, addressing food security and nutrition will require a differentiated approach, building on the comparative advantages of each area, and using local agricultural resources and food preservation and processing.

5.2.4 Strengths, Weaknesses, Opportunities and Threats Analysis:

Strengths

Agriculture is the predominant sector of the national economy. Before the war, agriculture was performing well. The country was self-sufficient in cereals and it had a thriving export market in horticultural products, cotton, live animals and wool. The war put an end to that promising horizon. However, the recovery of agriculture has

started but the institutions to steer it towards a sustainable phase are fragile and ill prepared.

The strengths of the agricultural sector for food security and nutrition include the following:

- A diversity of agro-ecological systems allowing for a diverse range of agricultural products.
- The diversity of crop varieties (biodiversity).
- The existence and potential for mixed farming systems.
- The existence and use of diverse food processing techniques (notably drying).
- The potential for producing high-value crops (nuts, dried fruits).
- The resilience and adaptability of farmers to extreme conditions.
- The responsiveness of farmers to interesting innovations (e.g. pilot projects for the NSPFS showed that “farmers respond enthusiastically to new initiatives provided they are given the opportunity to participate freely in making their own choices and deciding on actions affecting their livelihoods”).
- The existence of traditional water management systems.

Weaknesses

Weaknesses of the agricultural sector for food security and nutrition include:

- Harsh weather conditions and lack of water in many areas.
- Difficult access to land for many families (land is very expensive).
- Poor marketing systems.
- Poor infrastructure, notably roads.
- The destruction of irrigation networks and agricultural production systems due to the war.
- The loss of key assets (livestock, orchards) during the drought.
- Farmers with limited technical expertise.
- Limited extension services preventing the transfer of new technology to farmers.
- Poor knowledge of nutrition and food handling habits that prevent the optimal use of food items at the household level.
- Increased pressure on agricultural resources due to population growth and return of IDPs and refugees.
- The malnourishment of the population and high incidence of disease put limitations on productivity.

Opportunities

A number of good opportunities exist for the development of a vibrant agricultural sector in Afghanistan.

A supportive international environment such as the Millennium Development Goals.

In the Plan of Action of the World Food Summit 1996 and in the Millennium Declaration, the international community has expressed its determination to eradicate hunger and poverty in the world. The Plan of Action sets the target of reducing by 2015 the number of hungry people in the world by half. For the same

year, the Millennium Development Goal 1 (MDG1) is to halve the proportion of people in the world who live in poverty and suffer from hunger. The World Food Summit: five years later highlighted the lack of progress in hunger eradication and underscored the need for strong and sustained political commitment and for greater resource mobilization. The Hunger Task Force Report of the UN Millennium Project is another milestone in articulating the programs that can lead to rapid progress in achieving the MDG1, which is labelled as the over-arching component of the 8 Millennium Development Goals. Achieving food security is definitely the leading aim of MDG1. The vivid commitment of the donor community in support of the Millennium Development Goals, especially MDG1, opens the window of opportunity for the Government of Afghanistan to seek greater international support in favor of food security and improved nutrition for its population.

- *The Up-scaling of the National Special Program for Food Security (NSPFS)*

Recently, MAAHF and FAO have agreed on the up-scaling of the NSPFS, a multi-dimensional umbrella program aiming to improve the food security and livelihoods of the farming community in Afghanistan. Based on the encouraging response from farmers and their neighbours in the two pilot areas of Surkhrod and Taluqan, the Government has decided to up-scale the NSPFS to eventually include the 371 districts in 34 provinces of the country. This program can be used as the pace setter for food security in Afghanistan as well as a venue for attracting resources from the donor community, international financing institutions and the NGOs.

- *The National Development Framework (NDF)*

The National Development Framework (NDF) provides the policy road map for socio-economic development in Afghanistan. The NDF states:

- The nature of the development agenda and its execution will remain the ownership of the people of Afghanistan. In other word the elected Government, with the support of the people, will be in the driving seat for immediate rehabilitation and reconstruction as well as for longer term development;
- The Government will facilitate the enabling environment for development but will leave the management of the economy to the private sector;
- The rural population would participate in decision making affecting their livelihoods and this participation will be sought through elected community based organizations, namely the Community Development Councils (CDCs);
- Investment in human capital, for both men and women, will receive high priority;
- External aid and investment will be governed by sector policies and priorities and will be embedded in the annual national budget for the sector concerned.

In April 2005, the Minister of Agriculture, Animal Husbandry and Food elaborated on the ramification of the NDF on the strategy for agriculture in the coming two years. The objective was defined as raising the income of individual farmers to US\$500 by 1386 (March 2007-March 2008). The elements of the strategy were pronounced to include:

- The intensification and diversification of agriculture.
- Reliance on the principle of comparative advantage.
- Promoting the active participation of farmers and private sector in the rehabilitation and development of the sector.
- Planning to be based on needs and priorities as defined by farmers.
- Raising the production of wheat and improving its marketing.
- Promoting high value horticultural and industrial crops.
- Protection and development of livestock resources.
- Improving the on-farm management of irrigation.
- Adequate and responsive credit system for farmers, and agri-business.
- Support for agricultural research and technology transfer and farmers' cooperative and associations.
- Better storage facilities, especially cereals, for price stability and food security.
- Mobilization of rural communities for the protection, rehabilitation and development of forests, the pistachio belt, rangelands and wildlife resources.
- Enhanced coordination by aid agencies.
- Increased role exercised by NGOs.
- Support for the participation of national and foreign traders in the production and distribution of farm inputs.

To address this strategy, some 94 projects were proposed to the donor community with a total sum of US\$710 million.

- *National Nutrition policies and programs*

FAO is supporting the MAAHF to address malnutrition problems through a diverse range of food-based approaches and through the integration of nutrition education in agricultural and food security programs. Furthermore, many stakeholders are actively involved in nutrition policies and programs. The Ministry of Public Health has designed and is working to implement a Public Nutrition Policy and Strategy for Afghanistan. Other active partners in the field of nutrition include MRRD, MOWA, MOE and a number of agencies, notably UNICEF and WFP, are supporting these ministries through programs on salt iodisation, flour fortification and infant and young child feeding. MAAHF and FAO are working closely with these stakeholders.

Threats

A number of risks threaten the achievement of food security and adequate nutrition in Afghanistan:

- Political instability in many parts of the country.
- The risk of conflict over scarce land resources.
- The vulnerability of people to natural hazards (drought, earthquakes, floods, etc.).
- Increased population pressure on scarce resources.
- Increasing inequity in the distribution of resources.

5.2.5 Problems to be Addressed in Order of Importance:

The problems to be addressed include:

- Malnutrition due to poor diet diversity and food consumption.
- Low household availability of diverse foods throughout the year.
- Lack of income to purchase adequate foods and meet basic household needs.
- Degradation of natural resources.
- Shortages of water for irrigation at critical months of the crop cycle.
- Low productivity of major crops and livestock.
- Sub-optimal agricultural production (in terms of productivity, use of high-value crops, lack of diversification, etc.).
- Too much land being devoted to wheat production.
- Poor domestic markets.
- Poor extension service.
- Lack of adequate credit at reasonable rates.
- Absence of a robust agro-industry.
- Lack of effective farm organizations.
- Poor coordination among national institutions.

These problems should be addressed in an integrated manner, through a diverse range of strategies, including water management, diversification, intensification, added value to agricultural products, etc., as mentioned in 2.1 above. This should be done through a capacity-building effort in the sector of food and agriculture, both in the public and private sector.

5.3 Causal Analysis

With the erosion of productive assets, the vulnerability of the rural population has spread rapidly in all parts of Afghanistan. Many poor rural households have either retreated into subsistence or have opted for a survival strategy of being incorporated into the illicit poppy market. The expansion of the poppy economy has prompted inflation, high land rental prices, conspicuous consumption and widening wealth gap between population groups. The poppy economy has created a nouveau riche element into the village economy which has contributed to social tension.

The SWAT analysis explained above clearly shows that the prime objective over the next five years is to accelerate the process by which the poor rural households move beyond the subsistence economy and be empowered to employ diverse livelihood strategies for spreading risks and attaining the benefits of development. To do so, the disruption in the market must be corrected, disinvestment in rural areas must be reversed. The out-migration of skilled workers should be disrupted and profiteering from conflict should end. The smuggling and massive extraction of natural resources should be curtailed and external assistance for recovery and reconstruction should be directed to make the maximum impact on the livelihoods of the poor and the vulnerable.

Achieving food security in a war-stricken country necessitates a package of well designed policies to overcome the many obstacles. For Afghanistan, emerging from

the present dilemma demands a set of guiding principles, the most important of which are:

- The promotion of a liberal and market-oriented economy does not have to be at the expense of dismantling the economic power of the state. In fact, a proactive state can accelerate the process of a liberal economy. A weak enabling state will not be up to the challenge.
- The community has to be actively involved in decision making and in the implementation of the development process.
- The state must take decisive measures to put an end to the destruction of natural resources which constitute the basis for the survival of primary producers.
- The state and the community must work hand in hand to bridge the gap in knowledge and skills caused by the 25 years of neglect in human development.
- Economic and social development needs to be managed in a way that promises the uplifting of the poor and assisting them to benefits from the fruits of an expanding economy.
- A strong, coherent and sustained dose of external assistance is required to buttress the proactive role of the state in economic reconstruction and social development.

5.4 Strategies to Address Food Insecurity and Malnutrition

Afghanistan's objectives in achieving food security and human nutrition are:

- To reduce malnutrition of the Afghan population, especially micronutrient deficiency and diseases.
- To accelerate food production and productivity and improve the distribution of food among the population.
- To improve households consumption of diverse and safe foods.
- To improve households incomes and living standards.
- To provide a food safety net for the poor.
- To improving food production by increasing productivity and promoting agricultural diversification.

The Master Plan will make technology-based agriculture the main vehicle for economic growth. Technology-based agriculture demands extensive use of research and extension, effective use of water for irrigation, optimal use of agricultural inputs, crop and livestock diversification and the intensification of the commodity producing sector. In this context, horticultural and livestock development will be given priority and the main focus will be on encouraging the commercialization of agriculture.. Agro businesses will be encouraged.

The focus on commercialization would encourage rapid growth in high-value crops, especially crops that have the comparative advantage. This will bring accelerated growth in agriculture as well as trade. Accelerated growth in agriculture and trade would, in turn, further increase private investment in the production of high value crops. It will also encourage small agro-businesses to prosper. All these will open up

employment and investment opportunities for the farmers and increase their incomes and savings.

The diversity of agro-ecological conditions in Afghanistan calls for a region-based package approach to agricultural development. Development and policy initiatives will be gradually put into place to ensure that the Master Plan becomes regionally balanced. Investment in human resources, physical and institutional infrastructure will be made to ensure sustainable economic growth. Sustainable economic growth, in turn, will act as an effective instrument for food security.

In achieving food security the Master Plan will pay special attention to the following sub-sectors.

5.4.1 Water Management

Water is scarce in most parts of Afghanistan and it must be used in the most productive manner. One dilemma facing the country is that areas with relatively more water lack suitable land for cultivation and vice versa. Hence the critical factor in matching water with relatively rich land is the ability to transport water from one place to another. This element is seriously lacking in the country and it also involves high costs in investment outlays.

The war and the drought have had severe repercussions on the availability of water for agriculture. Compared with 1993, the area under irrigation has declined and functional irrigation systems are running at 33% efficiency against their potential of 40-60% efficiency. The indiscriminate exploitation of groundwater has depleted the aquifers to the detriment of poor and marginal farmers.

Fortunately, the policy framework for water management is gradually coming into shape. The policy as recently formulated stipulates that:

- The planning, development and management of water resources will be decentralized according to river basin boundaries.
- Water delivery will be delegated to public, private and/or cooperative agencies.
- Water User Associations will be promoted.
- Water development activities will be transparent, participatory, consultative and equitable.
- Capacity building will be an important component of the new water policy.

Under the Master plan the following activities will be initiated to improve water management for the use of agriculture.

- Establishing a 'river basin approach' so as to have an integrated management of water resources.
- Encouraging farmers to form water user associations with full responsibility for operation and maintenance of the water source under their control.
- Transforming the current Mirab system into a management-oriented institution under the umbrella of the Water User Associations.

- Promoting supplementary irrigation.
- Introducing affordable technologies that can raise water use efficiency, like drip system and overhead irrigation.
- Rainwater harvesting which in terms of financial cost is a fraction of the irrigation cost.
- Training of the extension staff of MAAHF and farmers in simple water management practices.

5.4.2 Crop Intensification

In the crop sector, the focus of interventions would be to raise productivity per hectare and per person engaged in farming, to diversify the mix of products through better rotation practices, to produce more fodder for animals and to grow more cash crops for the market. These decisions will be governed on the nature of the farming systems prevailing in the country. Broadly speaking, there are 5 farming systems in Afghanistan:

- The irrigated system confined to selected areas in the north, west, east and south.
- The crop/livestock mixed system in the centre of the country.
- The pastoral system with low productivity due to extreme aridity in many parts of the country.
- The sparse arid system in the southwest with very low productivity and least development potential.
- The sparse mountain system of the northeast.

The crop improvement program for national food security will have to accommodate to the characteristics of the prevailing farming systems.

Wheat production is the pillar of Afghan agriculture at the present time and accounts for more than 80% of cereal production. Wheat yields are low both under rainfed and irrigation. However, with high-yielding input responsive varieties, improvements in the use of irrigation water, increased use of organic and chemical fertilizers, integrated pest management and improved cultural practices, it is very possible to increase the yields of irrigated wheat by 40-50 % in a period of five years. Similarly, with drought tolerant and disease resistant varieties rainfed wheat production can be made stable and even yields could be raised, especially in regions with relatively high rainfall. Wheat production could also be boosted through supplementary irrigation and through better crop rotation.

The increase in the yields of wheat, both irrigated and rainfed, is paramount for two compelling reasons. The first is to feed the growing population of the country, which is increasing very rapidly. The UN estimates that the population of Afghanistan could reach 41 million by 2015 (medium variant). Assuming a per capita human requirement of 180 Kg of wheat per annum (the standard commonly used in Afghanistan), the nation's wheat requirements for human consumption will be of the order of 7.38 million metric tons in 2015 (current requirements being 4.3 million metric tons). The second reason is that the increase in yields will make it possible for farmers to switch land currently used for wheat production into the production of

other annual crops, such as rice, maize, pulses, potatoes, vegetables, cotton, sugar beets, soybean as well as permanent horticulture.

Other crop related activities would include the provision of seeds and fertilizers for the production of fodder crops like alfalfa, berseem, oats, sorghum, red clover; the production of improved wheat and other seeds through small seed enterprises; the establishment of home gardens; reducing post harvest losses; the primary processing of farm produce, linkage with markets and the introduction of mechanization adapted to Afghan farming systems.

5.4.3 Diversification

Diversification is the most promising opportunity for farmers to make a break from subsistence to market agriculture. MAAHF will concentrate on the following sub-sectors.

Horticulture

Horticulture has always played an important role in Afghan agriculture and is significant for both domestic and international markets. It can lead the country's agricultural recovery. The sub-sector was severely damaged during the war years and at present the 13 public owned nurseries are operating at very low capacity and concentrate mainly on fruit seedlings at the neglect of vegetables. At present the production is fragmented and the main constraints facing the sub-sector are lack of variety, minimum number of commercial nurseries, improper pruning, excessive irrigation and the presence of several damaging pests and viruses. As a result the productivity per hectare is low. For example, the yield per hectare of grapes is 8.5 metric tons in Afghanistan compared with 24.5 tons in India; the yield of walnuts is 12.3 metric tons per hectare in Afghanistan compared with 33 metric tons in China and the yield per hectare of tomatoes in Afghanistan is 10.7 metric tons compared with 70 metric tons in the USA.

Horticulture is a promising venue for raising the income of farm households. Research has confirmed that one hectare of orchard could generate 17 times more income than a hectare of wheat. Fruit trees are also a good substitute for poppy cultivation, though it has a gestation period. The expert opinion is that half a hectare of fruit trees can generate the same income as one hectare of a poppy field.

Interventions by the MAAHF will include access to high quality vegetable seeds that farmers can reproduce (at present a good portion of the vegetable seeds are hybrid), timely and appropriate irrigation, pest and virus control, the encouragement of private nurseries, vegetable seed production for the market, intercropping of vegetable in fruit gardens and better packaging of fruits and vegetable for domestic and export market. To facilitate the development of horticulture at household level, simple tools like knives, scissors and saws need to be provided to producers who are often women.

Another potential area to be considered is vegetable production under plastic cover. There has been some experience in the provinces of Farah and Balkh, and many small-scale interventions implemented by NGOs and other agencies around the

country, but the potential can be very high in the southern and eastern provinces of the country.

Animal Production

Animal husbandry is an integral part of agriculture in all villages of Afghanistan and small ruminants are the main source of household food security as well as a venue for cash income. The recent drought has had a devastating effect on livestock numbers, especially of the Kuchi population, and this loss needs to be recouped as rapidly as possible. A special program for the recovery of Kuchi held stock of animals should be provided in the Master Plan.

Two aspects of livestock improvement will receive increasing attention. One will be improvement in animal health through vaccination campaign against FMD and the provision of better veterinary services at village level, including the role played by private veterinarians. The second will involve rangeland improvement under community management, and increased fodder production to enable intensive animal production at household level, such as dairy cattle, sheep fattening and raising milking goats. With increased inputs (better genetic material, fodder, supplementary feed and veterinary services) animal production can be intensified in a significant way.

With respect to milk production at village level, the emphasis will remain on integrated dairy development that includes production, processing and marketing. Particular attention will be given to increasing fodder production and improving its quality, raising awareness about the health aspects of dairy cattle, using artificial insemination to improve the breeds of animals, the creation of milk producing groups and improved access to markets for milk and milk products. In this respect, FAO dairy projects (e.g. Development of Integrated Dairy Scheme in Afghanistan; GCP/AFG/040/GER) will be of assistance for dairy development. Where feasible, buffalos may be introduced for milk production. As to small ruminants, concentration will remain on sheep fattening and raising milking goats at household level where women exercise a major role.

Poultry Production

Most rural households in Afghanistan have family flocks of local breeds and commercial poultry remains on a limited scale. The management of the village chickens often falls on women and in most cases it is their only source of income. Unfortunately, the public institutions have not paid much attention to the development of village poultry which is constrained by low quality of breeds, heavy losses due to diseases, especially Newcastle disease, bad shelter and poor feeding regime.

Under the Master Plan, village poultry production, both meat and eggs, will be promoted through the creation of Village Producer Groups who, in turn, will facilitate the provision of micro credit to individual households for the construction of modern coops, provision of starter kit, drinkers and feeders, mixed feed, vaccination against diseases and the marketing of eggs. It may also be possible to establish integration with commercial poultry farmers. The FAO executed project- Poultry Production

Program in Afghanistan (GCP/AFG/030/USA) should be able to assist in the development of village based poultry production. .

Tree Planting

The war has been an environmental disaster to the country. The forest area has declined sharply, the pistachio belt has been devastated, there is danger to biodiversity and the range land is badly in need of recovery. In this connection the Green Afghanistan Initiative (GAIN) is a sound and timely intervention and donors are receptive to assist it. Two important components of GAIN are tree planting outside forests and the establishment of community based forestry. Both these components are articulated in the recently declared “Policy and Strategy for Forest and Range Management Sub-sector” issued by the Department of Forests and Range of MAAHF. In the Master Plan special attention will be given to tree planting in view of its multiple benefits, namely the prevention of soil and water erosion, combating salinity, providing animal feed, being the source of fuel and commercial wood and generating employment for men and women in rural areas.

Aquaculture

Fish consumption is insignificant in the diet of the people of Afghanistan and this deficiency needs to be corrected through the promotion of aquaculture which is possible in many parts of Afghanistan. This new aspect will be pursued and the FAO pipeline project for fisheries development in Qunduz and Jalalabad for funding by Germany will be of major assistance.

Other aspects of diversification

These will include the promotion of sericulture, apiculture, commercial flowers, mushrooms cultivation, harvesting of wild medicinal plants, and the introduction of trial on selected commercial crops as substitute for poppy cultivation based on the advice of the Research Department of the MAAHF and with the financial support of the Ministry of Counter Narcotics.

5.4.4 Developing Market Access

Developing market access, notably by improving the road infrastructure, is absolutely essential for income generation from agriculture and in improving households' access to diverse foods.

Markets are performing relatively well in Afghanistan, but face a bottleneck in access to more remote districts. Developing markets at the district and sub-district levels, and the construction/rehabilitation of secondary and tertiary roads will be essential in improving food security across the country. Experiences from other countries show that investing in secondary roads has a greater impact on food security of isolated, and therefore more vulnerable, communities than investment in large-scale, primary road projects. MAAHF will work in close collaboration with other ministries responsible for such infrastructure, notably to influence where roads should be constructed.

5.4.5 Increasing Storage and Preservation Capacity

Currently, the wheat storage capacity in Afghanistan is 200 thousand metric tons. Afghanistan's population has increased from 8.2 million in the 1950's (when the silos were built) to around 25 million people today. Consequently, the present storage capacity is insufficient to meet the needs of the population. Crop storage capacity should be increased through large silos to enable the government to better manage cereal stocks, as well as small silos at the community level to better manage cereal stocks at the village level. Storage and preservation capacity for other agricultural products, such as vegetables, fruits and animal products should also be developed, notably at the vicinity of markets to ensure availability of these foods items throughout the year.

5.4.6 Food Safety

Food safety as a means of protecting the health of the consumers is an essential feature of food security. Unfortunately, this important public responsibility has not received the attention that it deserves. At present there is no legislation regarding food safety, especially of slaughtered meat and no border controls to check the quality of food items imported or exported. Moreover, the absence of internationally agreed safety standards is a major obstacle for the exportation of fresh and dried fruits from Afghanistan and needs to be corrected without further delay. Lack of food safety is also a key health issue, since diarrhea from food-borne and water-borne vectors is one of the main causes of acute malnutrition, notably among children under 5.

Addressing food safety will require actions in the following areas:

- Updating legislation and food regulations in line with international food standards (c.f. *Codex Alimentarius*; Afghanistan is now a member of Codex Alimentarius Commission).
- Establishing an integrated government food quality control system, involving the relevant ministries (MAAHF, MOPH, Ministry of Commerce, Ministry of Finance, Ministry of Trade, Ministry of Mining).
- Developing in-country capacity for quality control analyses (laboratories and technical expertise).
- Sensitizing and informing the private sector regarding food laws and their implementation; working with the private sector to enforce food regulations.
- Raising awareness and educating the general public on food safety and food hygiene in the home.

5.4.7 Integrating Nutrition Activities in Agricultural Interventions

While improving the nutritional status of the population is a clear objective of agricultural policies and programs, it cannot be assumed that improving incomes from agriculture and increasing food production will automatically result in improved household food availability and food consumption.

Ensuring that agricultural products lead to improved household consumption of diverse and safe foods requires:

- Focusing agricultural production on crops and products with high nutritional value, such as fruits and vegetables and animal source foods.
- Providing training and education to households on how to diversify their own food production (e.g. vegetable gardening, home orchards, etc.).
- Integrating nutrition education in all agricultural programs; education messages need to be designed to address obstacles to changing food consumption practices. Education should encourage households to make optimal use of the foods they have access to, and influence their purchasing decisions when foods are procured in local markets.
- Education on food preparation methods should be provided along with the newly introduced crops (e.g. cooking classes).
- Small-scale food processing and preservation techniques should be enhanced and disseminated so as to enable households to preserve foods for consumption throughout the year (especially for winter), and to sell extra produce on local markets to generate income.

These activities are not to be implemented in isolation of other agricultural activities, but integrated in current and future agricultural programs, implemented by Government institutions, NGOs, UN agencies, and the private sector.

MAAHF will work closely with the MOPH on all issues related to nutrition, giving that improving food consumption is only one of the requirements for preventing and treating malnutrition. Working on health and caring practices is also required.

5.4.8 Food Fortification

The fortification of staples such as wheat flour with micronutrients, is one of the most effective strategies for increasing the micronutrient intake of the population. MOPH and UNICEF have successfully launched a salt iodization campaign since 2002, which includes the opening of over 10 salt iodization factories around the country and a national education campaign on the use of iodized salt. This program should be expanded.

Fortifying wheat flour is the next priority for food fortification in Afghanistan, given the widespread consumption of wheat in the country and the potential impact of fortification on the health of the population. Projects are now underway that include both small-scale fortification and fortification in large mills. These projects are being implemented by the World Food Program, in collaboration with MOPH and UNICEF.

5.4.9 Early Warning to Prevent Food Crises

Afghanistan is subject to recurrent shocks such as droughts, floods, earthquakes, and pest infestations like locusts. Some of these shocks can be prevented and better managed with sufficient advanced notice. It is essential that the government develop an effective Early Warning System through the close monitoring of agro-meteorological factors. Agro-meteorological data, food prices, and information on plant and animal diseases should therefore be collected regularly and information

disseminated in a timely manner to government officials for rapid response to shocks. This work is currently done by FAAHM, and should be pursued and strengthened in the following years. MAAHF can work in close collaboration with other government institutions (e.g. CSO, MRRD Vulnerability Analysis Unit) to gather all relevant data and improve its response capacity to disasters.

MAAHF should also develop its capacity to respond to disasters through strong disaster-preparedness strategies. This can include developing the country's food storage capacity, developing mechanisms to mobilize needed resources rapidly (e.g. pesticides for locust control, seeds for emergency seed distributions, etc.) and the creation of a strategic reserve of wheat. .

5.4.10 Plant Protection

Plant protection programs should be implemented, in a way that respects the environment and natural resources (water, land, etc.) and causes no threat to human and animal health. The Integrated Pest Management approach should be used vigorously.

5.5 Other Features of the Food Security Strategy

5.5.1 The Role of Women in Agriculture

Women in Afghanistan still face obstacles in rural areas as traditional values keep them at a distance from mainstream development. Nevertheless, events are changing and more and more women are coming forward to claim their equal rights. The Ministry of Women Affairs is actively pursuing a policy of promoting the rights of women in all aspects of social and economic life. In each province it maintains a department of women affairs and in some provinces this presence is extended to the district (Uluswali) level. The ministry also maintains through special protocols close collaboration with other ministries on social, legal, educational and economic matters affecting women. The income generating activities promoted by the ministry include sericulture, carpet weaving, and embroidery.

Every effort will be made to empower rural women to become income earners. The Community Development Council (CDC) in each district would have a representative from women who will articulate agricultural based income generating activities for young girls and women at the district level and seek assistance to implement them. The activities would include home gardening, animal husbandry, egg and poultry production, bee-keeping, management of nurseries, aquaculture, fruit picking, food preservation and marketing. Micro credit at reasonable rates will be provided to facilitate asset ownership. Where applicable, free dairy goats could be supplied to women. Then, the first female offspring of the free goat would be passed on to another woman of need. Other important aspects to be dealt with are the establishment of tree nurseries and the training of women for extension.

It is also essential that the capacity of women staff members of the MAAHF be strengthened and that their key role and responsibilities in agriculture be recognized. This means ensuring that women be employed in MAAHF provincial and district offices, notably for extension activities with women farmers. This will require strong

political will from MAAHF at all levels, to help women overcome the numerous barriers (social pressure, difficulty of finding transport) that prevent them from actively engaging with communities.

5.5.2 The Role of Extension

Extension services play a vital role in addressing food insecurity and malnutrition. Farmers need sound and timely advice in making decisions on how best to make use of the limited assets available to them and what kind of risks can they afford to take in improving their livelihoods. Unfortunately, in the past 25 years the extension service had been incapacitated and needs to be resuscitated and reformed. Such a reform is now in process with a view to making the Extension Department of MAAHF an effective transmitter of improved technology at the service of the rural community.

Broadly speaking, Afghan agriculture is made of three subsets. A large segment consists of subsistence farming in which the main asset is the farmer's labor. Another segment is potentially market oriented but is constrained by the lack of adequate assets in possession of the farmer. Only a small portion of agriculture is truly market driven and the operator has adequate assets commensurate with the demands of market agriculture. The extension service must maintain the flexibility to respond to the needs of each subset, particularly the second subset which is capable of making Afghan agriculture a prosperous enterprise. Therefore, making hard choices would be inevitable.

The reform which is fairly advanced in the planning stage involves the establishment of a functional multidisciplinary extension team in each of the 371 districts (Uluswali) in the country. The team will consist of 7 trained persons (2 in extension, 1 in plant protection, 1 in horticulture, 1 in animal production, 1 in veterinary science and one in forestry). Missing from the team is the person knowledgeable in water management. However, it is hoped that this gap will be filled once the transfer of the Water Management Department from MEW to MAAHF is materialized.

The goal is to make the extension service more responsive to the income generating needs of rural women, such as dairy development, sheep fattening, poultry production, home gardening, sericulture and apiculture. The inclusion of this dimension would transform the Extension Department as an effective tool of rural extension. The reform is expected to take 5 years culminating in the establishment of 2500 trained extension staff covering all districts of the country. There are promising signs of donor assistance in the reform process including support for the provision of the necessary infrastructure at the district level.

An issue currently on the agenda is the extent to which the extension service can be privatized. The opinions expressed are diverse. While there may be some room for privatization in specific branches of extension, such as veterinary, the dominant view among the national experts is that any move towards rapid privatization would be a premature gesture at the present time simply because Afghan agriculture is still in the very early stages of market orientation and farmers are not in a position to bear the cost of privatized extension services. The problem is further complicated by the current policy emphasis of reaching the poor and the vulnerable which are in no position to afford privatized extension service.

5.5.3 Capacity Building

Addressing food security and malnutrition will require that capacity-building efforts be integrated in all the strategies aiming to improve food security and nutrition.

Capacity-building activities should include:

- The training of MAAHF staff members and other partners, including national NGOs, in a variety of technical disciplines appropriate to activities initiated by MAAHF, giving special attention to the extension agents at the district level.
- The training of key members of the farmers' association in accounting and good management practices, including simple techniques of financial analysis at farm level.
- The training of the staff of Community Development Councils (CDCs) in project identification, preparation, appraisal, monitoring and built-in evaluation.
- The training of lead farmers to serve as facilitators and agents of change in the district.
- Orientation-cum-training visits of farmers to demonstration farms.

5.5.4 Research

Research needs to be carried out on all of the strategies presented above, to find optimal ways of implementing them specifically in the Afghan context. This entails strengthening in-country research capacity, notably through faculties of agriculture and by strengthening links between MAAHF and relevant research and training institutions abroad.

5.5.5 Pilot Areas to Strengthen Interventions

In order to ground interventions on solid evidence and experience, interventions will be piloted before being scaled-up across the country. The pilot areas will be used to train farmers and the leaders of farmers' organizations in improved technologies as successfully practiced in demonstration farms. The economic analysis of the interventions in the pilot areas will be undertaken, including the profitability assessment of farm holdings and of farm households.

5.5.6 South-South Cooperation

The FAO Special Program for Food Security (SPFS) has been operating in the past decade in more than 100 developing countries. As a result, a considerable amount of knowledge about the operational aspects of pursuing food security under different environments has been documented and a range of expertise is available for assistance elsewhere. The MAAHF can make use of this knowledge and expertise through the FAO sponsored program of South-South Cooperation, the aim of which is to facilitate the transfer of successfully tested experience from one developing country to another. The cost of the South-South Cooperation is much less than other forms of securing services of similar quality. Afghanistan should make use of the South-South Cooperation on a case by case basis with other developing countries through the aegis of FAO.

5.6 Institutional Arrangements and Management for Food Security

The achievement of food security involves the packaging of a number of specific programs and processes within a common planning framework. A piecemeal approach is unlikely to produce the results required. But a comprehensive, overarching and a well planned course of action can lead to the successful achievement of sustained national food security within a reasonable time period. For this reason that the Government will establish, within the framework of the Master Plan, a Special National Program for Food Security (SNPFS) that can provide shelter to all programs and special activities outlined in Section 5 of this chapter. In short, the SNPFS will serve as an umbrella that has a special purpose and a clear focus. In addition, such an a comprehensive approach would ensure coherence, facilitate better coordination and be instrumental in creating an enabling environment for an effective system of monitoring and evaluation of food security related programs and projects in the country. The SNPFS would also serve as a reference point for many agricultural and rural development activities as well as a focal point for technical and financial assistance by the donor community.

The successful implementation of a program for food security in Afghanistan calls for a strong political will and a clear policy direction from the highest level of the Government. The policy direction needs to be matched by a strong implementation arm and a competent technical advisory capacity. In this respect, the Government will adopt the following institutional arrangement for the implementation of the national program for food security.

5.6.1 Food Policy Board

In view of the severity of food insecurity in the country and the urgency of addressing it in a coherent manner, it is advisable to establish a Food Policy Board chaired by the President of the Republic or the Vice President who oversees the work of MAAHF. Its members should include the Ministers of MAAHF, MRRD, MEW, Counter Narcotics, Economy, Trade, Finance, Public Works, Interior and Women Affairs. The Minister of MAAHF would serve as Secretary of the Food Policy Board. The functions of the Food Policy Board would include:

- All policy issues related to the production, storage and distribution of food, including export and imports of food, as well as cases of food emergencies.
- Inter-ministerial coordination related to the food and agricultural sector.
- Policy decisions with respect to national food security.
- Resource allocation for national food security in the context of the annual national development budget.
- Advocacy for national food security with the donor community.
- Periodic assessment of the progress achieved in the implementation of the SNPFS.

The Food Policy Board should meet at least every six months.

Once established, the Food Policy Board should be proclaimed to the public through the official gazette and the media. All provincial governors should be instructed about the creation and functions of the Food Policy Board. The Food Policy Board may

decide to appoint a high level liaison officer with the Parliament that was elected in September 2005.

5.6.2 National Steering Committee

The implementation of the decisions made by the Food Policy Board necessitates the creation of a National Steering Committee for the SNPFS. The Committee should be chaired by the Minister or Secretary-General of MAAHF and its members should include the Secretary General of each of the following ministries (MEW, MRRD, Women Affairs, Counter Narcotic, Economics, Finance, Public Works, Interior, Transport, Education and Health). The representative of UN agencies, international financing institutions and the donor community may be invited to attend the meetings of the National Steering Committee as observers. The National Coordinator of the SNPFS, as mentioned below, should serve as Secretary of the National Steering Committee but without voting rights.

The functions of the National Steering Committee shall include:

- Implementation of the directives received from the Food Policy Board.
- The planning, coordination and funding arrangements for the SNPFS.
- The coordination of external inputs by donors and international financing institutions in support of the SNPFS.
- Mobilization and coordination of domestic resources from national institutions for the implementation of the programs sponsored by the SNPFS.
- Periodic assessment of the results achieved by the SNPFS.
- Resolution of constraints and conflicts that may arise in the implementation of activities undertaken under the umbrella of the SNPFS.
- Making decisions on the contribution of the on-going externally funded projects in support of SNPFS.
- Sanctioning the periodic evaluation of the SNPFS.

5.6.3 National Coordinator

The Minister of MAAHF shall appoint a National Coordinator to manage the SNPFS under the guidance and supervision of the National Steering Committee. He/She shall be directly responsible to the Secretary-General of MAAHF and through him to the Minister of MAAHF. The President of the Department with responsibility for food security in MAAHF should be appointed as the National Coordinator. The National Coordinator shall have direct links with the provincial and district coordinators responsible for the implementation of the components of the SNPFS in their respective geographical areas and shall organize support for them as requested.

5.6.4 Technical Advisory Panel

For technical guidance, especially in choosing among alternative technologies to fit local conditions and the special needs of the inhabitants, it is imperative to seek advice from a competent and experienced group of experts in various disciplines. Therefore, a Technical Advisory Panel should be established to advise the National

Steering Committee and the National Coordinator on the technical aspects of the SNPFS. It should be chaired by the Secretary-General of MAAHF or the person to be designated by him. The members of the Technical Advisory Panel should include specialists in different fields of agriculture and should be chosen purely on the basis of their technical competence and experience. Expatriate experts working in the country should be included as members of the Technical Advisory Panel. The Technical Advisory Panel should meet at the request of the National Coordinator and/or the Chairman of the National Steering Committee.

5.6.5 Community Based Organizations

Under the National Solidarity Program (*Hambastagi Milli*), which comes under the jurisdiction of the Ministry for Rural Rehabilitation and Development (MRRD), in each village a Community Development Council (CDC) is established which plans and administers development activities funded by the grant that it receives from the State based on the criterion of US\$200 per household. The CDC is the symbol of good governance at the village level. To be able to receive the grant, the CDC must be registered with the Government and the village community must match the grant by another 10% from its own resources. The CDC is governed by the *Shura* which is freely elected by the villagers. Some *Shuras* have established women's groups which represent the interests of village women.

The CDC goes through two phases. The first phase involves its establishment with the assistance of the facilitating partner (which is one of the 23 NGOs collaborating with the Solidarity Program). In this phase the CDC relies on the facilitating partner in articulating its demands into development actions. After some experience, the CDC advances to phase two (the maturity stage) and takes full responsibility for all developmental activities in the district. Once it reaches maturity, the CDC relies on its own momentum and is expected to link up directly with Government institutions, the private sector and other internal and external partners for technical and financial support. It is no longer eligible for receiving any grant from the Solidarity Program and hence the end of assistance from NGOs.

There are approximately 25,000 villages in Afghanistan and so far 8140 villages in 159 out of 371 districts have established the CDCs. Some 1,000-1,500 CDCs are reaching their maturity. The next target is to establish another 11,000 CDCs. The school construction program is an additional window of the Solidarity Program.

The Trust Fund under the Alternative Livelihoods program, which falls under the jurisdiction of the new Ministry of Counter Narcotics, is fairly well funded by several donors (particularly USA and UK). The Trust Fund disperses funds for development purposes at the village level including support for agriculture. However, the operating agents at the field level are the NGOs and not the CDCs. There is, therefore, a dual track for development activities at the village level, one based on governance (CDC) and another relying on external agent (Alternative Livelihoods Program). The situation could become further complicated if the latter shifts to governance and creates its own structure outside the CDC. At present the Alternative Livelihoods Program concentrates its activities in the seven provinces where more than 70% of poppy cultivation took place in 2004 (Badakhshan, Farah, Ghor, Helmand,

Kandahar, Nangarhar and Uruzgan). However, it is the intention to use the Trust Fund to serve all the provinces in Afghanistan.

With respect to the SNPFS, there is no need to establish any other community level organization. The village CDC can serve as the interlocutor for the farmers of the village. To ensure the solidarity of the village population and avoid duplication, any other institutional arrangement by farmers, such as farmers' group or water user association, should be kept under the umbrella of the CDC.

5.6.6 Field-Level Structure

In each district the Provincial Office of MAAHF should appoint a competent person who shall be solely responsible for the coordination of activities sponsored by SNPFS and implemented by the village or district CDCs. He/She should receive a salary incentive. The person should serve as the contact point for the CDCs in securing advice and assistance from the district administration for support. He/She shall also liaise with the National Coordinator with respect to problems encountered during implementation and seek advice and support.

5.7 Implementation Strategy

The implementation of the SNPFS should be a decentralized type of operation. In each district the activities falling under the umbrella of the SNPFS should be implemented by the respective CDCs with assistance from the staff of the provincial departments of MAAHF and with the backstopping provided by facilitators, such as FAO on-going project SPFS/AFG/2301 and other partners and NGOs.

A decentralized result-based operation demands a robust monitoring system to ensure that what is being planned is executed with reasonable efficiency. This responsibility falls on the National Coordinator of the SNPFS.

5.8 Estimates of Public Investment in Support of SNPFS

The estimates of investment for the food security and nutrition chapter of the Master Plan as shown below are tentative and relate only to public sector investment. The level of investment is estimated at US\$321 million in five years. The estimates exclude outlays related to horticulture, livestock development, animal health, poultry, dairy development, range management, market development and research and extension. The investment outlays for these sub-sectors are shown in their respective chapters.

Similar to the Solidarity Program and the Alternative Livelihoods initiative, it would be advisable for the Government of Afghanistan to create a Food Security Trust Fund to which all interested parties can contribute money for technical and financial assistance. The Trust Fund would be administered by MAAHF, subject to the prevailing rules and regulations of the Ministry of Finance. The major contributor to the Trust Fund can be designated as caretaker on behalf of the other contributors and would liaise with the disperser of the Trust Fund in MAAHF (the National Coordinator) on a continuing basis. As a starter, the interested parties could be requested to contribute US\$ 20 million to the Trust Fund for the year 1385

(March 2006-March 2007).

The SNPFS would be a decentralized program covering all districts at some later date. By necessity a decentralized operation requires strong technical back-up in several specialized fields. Therefore, it would seem advisable to investigate the possibilities of initiating a number of well defined and highly focussed individual projects that could assist the operations of the SNPFS. The following projects could be of high priority for the successful implementation of the SNPFS:

- An irrigation project with focus on water management at village level. Perhaps an expansion of the on-going World Bank funded project.
- A research project for food crops, especially wheat, pulses and oilseeds.
- A horticulture project for high-yielding fruit trees and vegetables, including potatoes, and the grafting of locally available wild species with improved varieties like vines and olives.
- An animal production project with emphasis on dairy development.
- An animal health project.
- A poultry development project.
- An extension/training project with focus on developing agricultural skills at the district level.
- An integrated watershed development project, including agro-forestry.
- A project for tree planting.
- A project for village level agro-processing.
- A food safety project.
- A special credit window for the SNPFS.

Some of the above projects may already exist with external assistance and some may be in the pipeline. Regarding the FAO executed program in Afghanistan, the following operational and pipeline projects can serve as core projects:

On-going projects

- UTF/AFG/035/AFG- Emergency Irrigation Rehabilitation Project (EIRP).
- GCP/AFG/040/GER- Development of Integrated Dairy Schemes in Afghanistan.
- GCP/AFG/030/USA- Poultry Production Program in Afghanistan.
- TCP/AFG/3001- Support to Forestry Sector Rehabilitation.
- Green Afghanistan Initiative funded by several donors (administered by WFP but with participation by several other UN agencies).

Pipeline projects

- Vaccination Campaign to be funded by DFID.
- Wheat Seed Distribution to be funded by Switzerland.
- Soil and Water Conservation, donor not yet identified.
- Rural Poultry Production, donor not yet identified.
- Agro-forestry and Dairy Goat Production, donor not yet identified.
- Fisheries Development for possible funding by Germany.

Follow-up

The transformation of the SNPFS into implementation plans by districts calls for considerable preparatory work, involving data collection, consultation with the members of the CDC and target beneficiaries and the preparation of a program package for each districts. Such preparatory work requires the active involvement of a National Team to be assisted by expatriates already engaged in on-going projects implemented by FAO, donor agencies and NGOs. The National Team, consisting of 6-7 persons, would require external assistance and it is recommended that FAO provide such assistance under the current project SPFS/ASFG/2301 and the proposed technical assistance request for food security from the Islamic Development Bank.

Food Security and Human Nutrition

(Estimates of Public Sector Investment in five years) *

(US \$ thousands)

Sub-sector	Target by the end of the fifth year	Assumptions	Public sector means of action	Public investment in US \$ thousand
<u>Irrigation</u> Rehabilitation	Rehabilitate additional 300,000 Ha	Average cost of US\$ 500 per Ha minus 10% for farmers contribution	Rehabilitation of small and medium-scale irrigation schemes with community participation	135,000
New Technology	New technology installed on 25,000 Ha	Raising water use efficiency	Support to farmers in installing new irrigation technology	10,000
Network of Hydrological stations	Rehabilitate Existing Stations and establish 30 snow measuring stations and 30 river flow measuring stations	Essential for improved water management and crop forecasting	Essential public goods, no private sector investment feasible	8,000

Production of
Cereals and
Pulses

Wheat

Irrigated	Increase yield by 40% from 2.4 to 3.3 tons /Ha on 1.1 million Ha of irrigated wheat	Improved water management	Demonstration of efficient water use techniques	2,000
		80% of wheat area under the HYV	Rehabilitation of 5 stations for producing breeder seeds	5,000
		Increased fertilizer use	Demonstrations and support for efficient fertilizer use	1,000
		IPM	IPM demonstrations on farmers' fields	1,000
Rainfed	Stabilize production on half of the rainfed area (0.6 million Ha) and raise yield by 10%	Rain harvesting		5,000
		Drought resistant varieties	Support to farmers in harvesting rain water	2,000
		Best cultivation practices	Rehabilitation of 2 seed farms for breeder seeds	1,000
		IPM	Demonstration on farmers' fields	1,000
		Improved water use	Demonstration on farmers' fields	1,000
Rice (paddy)	Increase the yield of paddy by 25% on 160 Ha of paddy land	All paddy area under the HYV	Demonstration on the efficient use of	

Maize	Increase area under maize by 20%, from 160 to 192 thousand Ha and raise the yield by 25% from 1.2 to 1.5 tons per Ha		water	1,000
		Greater fertilizer use	Rehabilitation of one seed farm for breeder seeds	1,000
		IPM	Demonstration of fertilizers on farmers' fields	1,000
		Improved water use	Demonstration on farmers' fields	1,000
		All area under maize covered by HYV	Demonstration on efficient use of water	1,000
			Rehabilitation of one seed farm for producing breeder seeds	1,000
Barley	Stabilize production on half of area cultivated by barley, 120 thousand Ha	Greater use of fertilizers	Demonstration of fertilizers on farmers' fields	1.000
		IPM	Demonstration on farmers' fields	1,000
		Rain harvesting	Assistance to farmers in harvesting rain water	1,000
Pulses	Increase area by 20% and yields by 25%	Drought resistant varieties	Rehabilitation of one seed farm for breeder seeds	500
		Best cultivation practices	Demonstration on farmers' fields	500
		IPM	Demonstration on farmers' fields	1,000
		Improved varieties, more use of	Rehabilitation of one research farm for the production	

		fertilizers and IPM	of quality seeds for pulses and demonstration on farmers' fields	
Root crops	Increase the production of root crops by 20%	Increase the consumption of root crops	Potatoes seed production; IPM and fertilizers demonstration on farmers' fields	1000
			Seed production of other root crops, IPM and demonstration on farmers' fields	1,000
<u>Protection of Cereal Crops</u>				
Locust Control	Covering all the cereal areas of the affected five provinces	Full control by the use of chemical	Eradication campaign with the communities sharing 20% of the cost	5,000
Sunn Pest	Covering all the cereal areas of the affected five provinces	Full control by the use of nets and chemicals	Eradication campaign with the community sharing 20% of the cost	5,000
Post harvest loss prevention	Reduce the post harvest losses by 50%	Intervention at community and household level	Demonstration and support to farmers	5,000
Fodder Production	Increase yields by 20%	Use of improved fodder seeds and better rotation	Improved varieties, better cultural practices, efficient irrigation and IPM	1,000
Assistance to Kuchis	Animal health and improved	Gradual settlement of	Free vaccination Establishing feed	5,000

	feeding	the nomadic population	reserves	
Aquaculture	Increased fish production for home consumption	Encouraging fisheries as a source of income in the rural areas	Establish fish breeding farms and provide technical and material assistance to fish farmers	2,000
Tree Planting	Increase wood production for construction and, charcoal making; planting trees for environmental protection	Encouraging tree planting as an essential component of the cropping system	Support to communities and individual farmers in establishing tree nurseries and community based forestry	5,000
Apiculture	Rapid increase in honey production and ending its imports	As a new source of raising household income	Assist farmers both technically and materially	2,000
Agro-processing	Rapid expansion in the processing of agricultural produce at village level for domestic consumption and for import substitution feasible	To open new opportunities for income generation in rural areas and increase their access to the market	Technical and material assistance to households and small rural enterprises	5,000
			Flour mills	6,000
Storage	Stabilize market prices and meet contingencies	An essential factor in reaching national food security	Emphasis on small-scale household and village level storage facilities	15,000
Strategic Reserve	100,000 tons	To overcome the effects of disaster	Public good	16,000
Food safety	Improving public health through safe food and for export promotion	Legislative actions and border control	Legislation Labs Border control Training	500 5,000 3,000 500
Nutrition	Improve child nutrition, prevent	An essential factor of food security	Nutrition education	5,000 20,000

	micronutrient deficiency, encourage breast feeding and reduce the under-nutrition of the population		Nutrition safety net for the poor (provision of food rations, iodized salt, Vitamin A and iron and school feeding)	
Capacity building	Strengthening the institutional base of MAAHF and other national partners	Building trained manpower and providing it with the necessary means	Training of the staff of MAAHF and its provincial offices	3,000
			Training the staff of other national partners	1000
			Infrastructure for training	6,000
Contribution to FAO sponsored National Program for Food Security (NPFS)	Already under implementation	Up-scaling by diversifying the agricultural base	Covering about 100 districts out of 371 districts in the country	20,000
Total Estimated Planned Investment				321,000

The investment period covers five years and relate only to public investment. The figures for each component are indicative and subject to change after further scrutiny.

Chapter 6

MANAGEMENT OF NATURAL RESOURCES, LAND, WATER, FORESTRY, WILDLIFE, AND RANGELAND AND ENVIRONMENTAL PROTECTION

6.1 Objective

To identify viable and economically sound strategic trends, directions and options for critical issues within the sector in the context of a sustainable rural livelihoods framework aimed at economic growth and poverty reduction. The Master Plan will provide clear guidance for the MAAHF's work during the next five years. It will be expressed through three documents:

- A strategy, identifying priorities in the sector.
- An implementation plan, showing the clear consequence of action to undertake for which funding must be sought from donors.
- An investment program, which will feed into the 1385 budget preparation process.
- This paper deals only with the first objective i.e. situational analysis, strategy and identifying priorities in the sector.

6.2 Situation Analysis

In a country where over 80 percent of the population relies directly on the natural resource base to meet its daily needs, widespread environmental degradation poses an immense threat to livelihoods. More than two decades of conflict, military activities, refugee movements, collapse of national, provincial and local forms of governance, lack of management and institutional capacity, and over exploitation have heavily damaged Afghanistan's natural resource base. The recent drought has had an additional negative impact. As a result, the country's vulnerability to natural disasters and food shortages has increased. Of Afghanistan's 655,000 square kilometers of total land area, only 12% (7.9 million hectares) is arable and 4% irrigated. An additional 46% is under permanent pastures and 3% under forest cover. The remaining 39% is mountainous. Geographically, nearly 75% of the arable area is concentrated in three of the eight agricultural planning regions of the country – north, northeast, and west. Of the total arable area, not more than half is actually cultivated annually, mainly because of water availability problems.

Overall, the natural resource base continues to suffer due to:

- Competing land use (agriculture, human settlements, forests and rangeland, wetlands and protected areas).
- Ambiguous legal status of ownership and access to natural resources (land, water,
- forests and rangeland, biodiversity, wetlands, and protected areas).
- Lack of enabling policy, legislation and regulatory framework for managing natural

- resources, along with weak governance and management of natural resources.
- Negative impact of war, increasing population, human settlements, drought, overexploitation and landmines on natural resources.

Other challenges for natural resource and environmental management are insufficient institutional capacities and the current absence of legislation in many areas. Linked to this is the need to develop sound information programs and monitoring systems, which would allow the government to establish a link between the quality of health and environmental conditions.

Communities lack awareness of sound environmental practices, which needs to be addressed simultaneously with the improvement of their livelihoods and economic conditions. In the urban environment, human health is being placed at risk by poor waste management practices and lack of proper sanitation. Hospitals are significant 'hotspots' as medical wastes are disposed of improperly. There are no proper landfills in any of the towns and cities, and none of the dumpsites are taking measures to prevent groundwater contamination or toxic air pollution from burning wastes. In some cases dumpsites have been located in dry riverbeds upstream from the city. The first period of sustained rainfall wash the dump's contents back down into the city center.

Proper management of sewage and wastes is clearly an urgent priority to protect human health. There is also evidence of a few polluting industrial activities operating without regard for environmental protection or the health of workers. These findings are especially alarming in observed cases where workers, including children, are exposed to chemical pollution. In urban centers, poor waste management practices (including medical wastes) and lack of proper sanitation are the main environmental factors affecting human health. Dust (partly due to drought and the loss of vegetation) and vehicle emissions in Afghanistan's urban centers are the main factors behind air pollution. This is further compounded in the winter by the use of ovens, stoves and open fires, and by toxic fumes from the burning of plastic and tires due to firewood and electricity shortage.

It is believed that the levels of air pollution in Afghan cities are above recommended international norms and that there are high levels of lead in the air, which has been shown to slow the physical and intellectual growth of children. It has been recognized that a failure to address environmental degradation would negatively impact the populations' health and increase poverty and hunger. Environmental degradation, besides hampering economic growth in the agriculture sector, impacts in a particularly negative way the lives of the poor, and more specifically of female-headed households, households with physically impaired members and households of landless or those farming small rain-fed plots only.

The specter of violated human rights due to environmental degradation exists. Issues such as the right to the highest attainable standard of health, the right to an adequate standard of living, including access to safe food, water, and housing, the right of the child to live in an environment appropriate for physical and mental development and, not least, the right to life. Economic development that leaves out the poor and enhances distributive injustices is not sustainable and will be a source

of subsequent conflicts. Environmental degradation in Afghanistan, often the consequence of socio-economic inequities, thus is to be seen as a factor contributing to prevalent insecurity.

6.3 Causal Analysis

6.3.1 Causal Analysis: Forests, Rangeland and Wildlife

The forests and woodlands of Afghanistan supply important sources of fuel wood and construction materials critical for cooking, shelter and overall survival. Some trees, such as pistachio and almond, also supply nuts that can supplement diets and generate modest incomes. Illegal harvesting is depleting forests and woodland resources, and widespread grazing is preventing regeneration. UNEP's satellite analyses revealed that conifer forests in the provinces of Nangarhar, Kunar and Nuristan have been reduced by an average of 50% since 1978.

Similarly, pistachio woodlands in the provinces of Badghis and Takhar were found to be highly degraded. With the loss of forests and vegetation, and excessive grazing and dry land cultivation, soils are being exposed to serious erosion from wind and rain. The productivity of the land base is declining, driving people from rural to urban areas in search of food and employment. Riverbanks are also eroding with the loss of stabilizing vegetation, and flood risks are increasing. Restoration of forests and other vegetation cover combined with grazing management are high priorities to combat erosion, desertification and flood risks.

The mixed oak and coniferous forests of the east have potential to be managed as sources of timber, but are being logged illegally, severely reducing the country's natural resource base. Over most of the centre and north of the country, conditions for tree growth are more marginal, and existing tree cover is extremely sensitive to disturbances that may then lead to erosion and desertification. In these regions, open woodlands, with pistachio and almond, are valuable source of nuts for subsistence and export, but have been increasingly cut for fuel wood.

Overgrazing combined with an increasing population and corresponding demands for fuel wood over recent decades have resulted in extensive decline in woodlands. Forests and rangelands are particularly valuable in dry land regions such as Afghanistan. They provide fuel wood and timber, as well as other non-timber forest products such as nuts and medicinal plants. Forests are also prime habitat for many animal species, including some threatened with extinction. Extensive tree cover can also help to moderate local climate conditions and reduce potentially damaging runoff after sudden rainfall. In many situations, watercourses in forested land retain their dry-season flows better than those in un-forested land, making water available for human consumption and irrigation during critical periods.

The natural wildlife heritage of the country is also under threat. Flamingos have not bred successfully in Afghanistan for four years, and the last Siberian crane was seen in 1986. While the Wakhan Corridor contains healthy populations of endangered snow leopards and other mammals including Marco Polo sheep, active hunting is occurring in many regions of the country, either for sport, for meat, or in order to supply furs for sale to foreigners in Kabul. The legal status of all protected areas is

currently in question, and no management is taking place to protect and conserve their ecological integrity and wildlife. Furthermore, less than 1% of the land base is contained within protected areas – none of which cover the dwindling conifer forests of the east. One positive finding was that Band-e-Amir National Park, one of the most beautiful landscapes in all of Afghanistan, is in good hydrological condition despite the recent drought. This natural treasure has all of the characteristics of a World Heritage Site, and could become an important destination for nature tourism with proper management and community support.

6.3.2 Causal Analysis: Water

Two decades of war and conflict, neglect, floods and continued drought have had severe consequences on the available water supply to the people of Afghanistan. Available information shows that in 2002, the area under irrigation was only 33 % compared to 1993. Functional systems are also running at about 25 % efficiency against their potential of 40-60%.

Lack of hydrological data poses another challenge in water resources development. hydrological monitoring in Afghanistan ceased since 1978 and available data from recent years has no scientific relevance to the current situation. Institutional mechanisms to govern and manage water resources are out of date, both at public and private sector. The rich community-based water institutions like Mirab and Karez management systems have been badly damaged, or are dominated by local power structures.

Changing climatic condition worldwide is severely affecting the snow cover in the country, particularly below 2000m altitudes, which in turn affects the country's water availability level. The changing snow cover ultimately affects the pattern of river flow and therefore impacts water availability to the farmers. For instance, the reduction in river flow around the country, in recent years (1992-2002), has been mostly attributed to reduced snow coverage. Rapid expansion of groundwater withdrawal has seriously affected the water availability to the karezes and springs affecting small-scale irrigation systems throughout the country. This has mostly affected the poor and marginalized groups of farmers depriving them of the benefit of irrigated agriculture and widening the gap between the rich and the poor.

Spatial and temporal variation in rainfall further adds to the challenges in the water resources management. The country receives most of its rainfall in the four months of winter, with almost no effective rainfall in rest of the year. The rainfall pattern also varies with a minimum of about 80 mm in south-western areas to maximum of 1100mm in the northeast, and an average of 300 mm in northern borders.

Regional variation in water availability scenario poses another challenge. The country is divided into five major River Basins namely: The Amu Darya Basin, Northern River Basin, Harirud-Murghab Basin, Helmand River Basin and the Kabul-Eastern Basins. They have highly varying water availability and consumption situation.

The Amu Darya Basin with about 14% of area coverage holds about 60% of water flow, whereas Helmand with around 40% of area coverage holds only 11% of water flow.

Afghanistan is highly susceptible to desertification. It is believed that the process of desertification is advancing in several areas of Afghanistan's arid northern, western and southern regions. Rangelands are at particular risk of desertification, where widespread grazing has reduced vegetation cover and exposed soils to erosion. Many communities have had to reduce or dispose of livestock because of reduced quality of rangelands.

Other factors influencing the spread of desertification are deforestation and uncontrolled extraction of water resources in addition to the severe drought Afghanistan experienced for six years. The near total lack of data indicating trends in land conditions makes it extremely difficult, however, to accurately assess the locations and degrees of threat represented by this phenomenon.

Given the water availability scenario, irrigation water management in the country will never be the same as before. Irrigation sub-sector development, in this context, has to address these issues, seeking modern approaches in both the development processes and management practices that can help to achieve sustainability, and to be able to effectively contribute to the national economic development. The first step to effectively respond to these challenges, will be giving the irrigation sub-sector greater importance and emphasis in the national development plans and programs, and putting in place a clearly defined integrated and coherent national irrigation policy.

Water is key to the health and wellbeing of Afghan people and essential to maintain agricultural productivity. However, both surface and groundwater resources have been severely affected by the drought, as well as by uncoordinated and unmanaged extraction. Water resources across the country are additionally threatened by contamination from waste dumps, chemicals and open sewers. Many of the country's wetlands have dried up and no longer support wildlife populations or provide agricultural inputs. Furthermore, wind-blown sediments were filling irrigation canals and reservoirs, covering roads, fields and villages, with an overall effect of increasing local vulnerability to drought. Improved water resource management will, in many regions, be an essential first step in rebuilding rural communities and improving human health.

Maintaining water quality and quantity should be the overriding goal of all land-use planning activities and integrated water basin planning should be implemented across the country. With rainfall low and erratic in much of Afghanistan, and large areas qualifying as desert or semi-desert, rivers, streams and other wetlands are crucial for human needs such as drinking water and agriculture, and for maintaining populations of wild plants and animals, many of which provide the potential for economic opportunities. Although broad calculations suggest that, in average conditions, Afghanistan as a whole uses less than one-third of its potential 75,000 billion m³ (surface water 55,000 billion m³ and ground water 20,000 m³) water resources, regional differences in supply, inefficient use, and wastage mean that a major part of the country experiences water scarcity. The recent years of conflict and

poor water management have seriously degraded many of the wetlands and made it difficult or impossible to make improvements to infrastructure or to integrate uncoordinated local schemes into a coherent national strategy for water.

6.3.3 Causal Analysis: Protected Areas

Protected areas were first introduced in the West primarily as a means to protect landscapes, wildlife and habitats of particular value, often by exclusion of people and regulation of access and use. Modern approaches to protected areas stress the need for community participation in protected area planning, and for multiple uses aimed to benefit residents as well as maintain natural processes. Evidence from around the world shows that with suitable design and management, these goals can be achieved.

Afghanistan has never had the benefit of an effective protected areas system. Though some progress was made in implementing a protected areas network designed during the 1970s, the escalation of disorder through that decade, the Soviet occupation in 1979, and the subsequent civil strife, prevented its development and modernization.

A 1992 government review listed the existing protected areas as one national park (Band-e-Amir), three water fowl sanctuaries (Ab-I-Estada, Dasht-e-Nawar and Kole Hashmat Khan) and two wildlife reserves (Ajar valley and Pamir-I-Buzurg). Between 1977 and 1992, ten more sites were proposed for protected area status, including three important areas in the western half of the country: Registan Desert Wildlife Management Reserve, Hamun-I-Puzak Waterfowl Sanctuary, and Northwest Afghanistan Game Management Reserve.

There has never been an overall enabling legislation providing for the establishment and management of protected areas, and the precise current legal status of each protected area is uncertain. Most were never formally gazetted and institutional structures have since changed. Afghanistan is not yet party to the Ramsar Convention on wetlands, though several wetland sites in the country have previously been identified as of international importance for migratory and breeding water birds.

6.3.3 Causal Analysis: Land Management

Land management in Afghanistan suffers from a number of issues. These issues could be classified under two major categories: i) limitations regarding the optimal use of different classes of land given the current realities; and ii) ambiguous ownership.

6.3.3.1 Types of Ownership

Private land.

While there are numerous issues regarding land ownership proof and property rights claims, unclear ownership documentation, poor cadastral services, and state registration documentation destroyed during conflict, there is little doubt about the conceptual definition of private land.

Joint ownership by tribe or clan

Afghan land code includes this definition, which may be regarded as a primeval form of Community Ownership.

Community Land

Communities are increasingly using the concept of Community Land in a customary fashion, coupled with the recognition from the Central Government of its utility and viability.

Government Land

Government land is all land that is not private'. Beyond that the term remains unclear. It applies to a vast range of different situations, including, forest land, rangeland and pastureland, military installations, historical sites, national parks and protected areas, roads and airports, agricultural land exploited by state enterprises, mines, etc. As a result, it is not clear if 'Government land' refers to national property of which the government is the trustee, state property of which the Government is the administrator, or land owned by the Government and exploited by and for its staff.

6.3.3 Causal Analysis: Pastoralism and Natural Resource Management

Pastoralism is a social and economic system based on the raising and herding of livestock, in which they migrate to benefit to the maximum of seasonal pasture for the livestock. Three categories of pastoralists can be differentiated:

- Migratory, livestock dependent people (e.g. pastoralists)
- Recently settled, formerly migratory livestock dependent (e.g. former pastoralists)
- settled people, that still hold on to the cultural identity and refer to themselves as kuchi.
- Pastoralists have an important contribution to make to the national economy, as they did in the past (35% of all exports were from livestock products). They also fill an ecological niche, through using the marginal lands, which can not be made to sustainable economic use in another way.

Recent estimates indicate that there around 2.5 million kuchi, of which 1.5 million are still migratory (pastoralists) and 1 million are currently not-migratory (former pastoralists). There are large differences in migration patterns and livelihood strategies between the pastoralists of the different regions.

Income derived from livestock production is often supplemented by other income sources, like harvesting, casual labor but also through the purchase of agricultural land. In recent years, an increased diversification of household income and a move towards a more semimigratory lifestyle has taken place.

With increasing economic stress on the household, men find themselves forced to actively search for casual labor in the main markets. They constitute a group of migrant laborers, leaving the families behind in the 'kuchi areas'. Skill levels, other than livestock keeping, are low and unskilled labor is all they can obtain.

Few pastoralists have been included in vocational training programs in the IDP camps. None of these programs have moved onward from here, and have progressed towards establishing a new livelihood based on the new skills. No job referral, business skills training, monitoring of performance has taken place, which makes it difficult to assess the impact of these training programs at this point.

Changes in summer pastures and in winter pastures have taken place over the last centuries, and currently the access to the summer pastures in the Central Highlands is compromised. Customary mechanisms to determine pasture user's rights exist, and are functioning to a certain extent. However, particularly in areas where these grazing rights have been relatively recently established, and where these were partly politically manipulated, there is a high level of conflict over these user's rights.

FAO conducted a livestock census in 2003, but unfortunately very few kuchi herds were enumerated. With caution it can be said that estimates on livestock numbers in the north are reaching their pre-war levels, whereas the south and the east is lagging far behind. It has been estimated that kuchi own around 30 to 50% of the national herd.

Rangelands cover around 45% of the total land area in Afghanistan, according to the FAO land cover map. However, large areas that are considered 'barren land' or 'waste land' are also used for grazing, particularly in the winter season. The total graze-able area therefore is much larger, estimated at 70-85% of the total land area.

No comprehensive assessment of the current status of the range lands, and the (reversible or irreversible) effects of the drought on the range land has been carried out. Even though a number of documents claim that there is extensive over-grazing in Afghanistan, there is no evidence to corroborate this. Due to socio-political factors access to certain pasture areas has been reduced, which could theoretically even have led to under-grazing in these areas.

Increasingly, pastures have come under rain fed agricultural production, with devastating effects, most notably in Dasht-e-Laily and Shiwa. Destitute pastoralists, that have lost all their livestock tend to settle permanently in their traditional winter areas. There they are often at risk of being evicted from the land by local residents or commanders. This land insecurity places additional stress on already destitute people.

Within the field of Forestry and Rangeland, the initial focus of interventions is in forestry rehabilitation and management. Rangeland issues are viewed as being important to address, but practically there is little progress, with the exception of the Registan.

All on-going policy development and research in the field of range management that has been carried out points in the direction of 'Community Based Natural Resource Management' as the most appropriate way forward to addressing range land management and conflict resolution. A pasture based local negotiation process on mechanisms and conditions of use of the pasture-land is promoted, through a learning-by-doing approach. A legal framework will be required to arrive at the desired level of legitimacy of the Range Management Plans thus obtained.

Animal health problems are prevalent in the pastoralists' herds, but it is unclear how this compares with the sedentary herds. Anecdotal information suggests that the Kuchi do not make optimal use of the existing veterinary services, and this could be improved upon. According to the staff of the Veterinary Field Units, the pastoralists are more willing to pay for veterinary services (including vaccination) than the sedentary farmers.

Veterinary Field Units are currently being supported by various organizations, including DCA, AVA, MC, and Madera, but the overall consensus is that these VFUs shall move towards full privatization. The extent to which the pastoralists make optimum use of these clinics is currently being researched. A Kuchi study conducted in 1999 by FAO reported that 72% of the interviewed households do not visit the VFUs. The VFU staff themselves paint a different picture, with a much higher level of contact.

Some organizations have trained Basic Veterinary Workers in the past, but due to diminishing support and unclear ties to the Veterinary Field Unit, most of these are no longer working. The role of the government will move away from service delivery and towards the more public roles of disease control, and monitoring. Prevention and control of transmittable diseases is supported through a large regional program by FAO, which aims at establishing regional mechanisms for disease control. The pastoralists are considered an important factor in the spread of disease due to their migratory patterns. Herds from different regions meet in large grazing areas in the summer and at water sources and may transfer diseases back to their winter areas, which may lead to a wider spread of disease.

Vaccination of pastoralists' herds is therefore of great importance, even more so than for the sedentary livestock owners. Winter nutrition is the main bottle neck for livestock production. Supplementary feeding is practiced during the winter months, but not by all. There may be enormous scope for increased livestock production and improved livestock health through improving the quantity and quality of feed intake during the winter months.

Livestock production and animal husbandry are not receiving adequate attention, in particular for the more extensive livestock production systems. The focus of on-going programs currently is predominantly on poultry production and dairy processing. Extension on animal nutrition, hygiene and breeding, and increasing livestock fodder production for small ruminants could improve the robustness of the livestock sector considerably.

Very little information is available on the opportunities and constraints of the national, regional and international market for livestock and livestock products. Feasibility studies are currently not being planned, other than a recently conducted livestock marketing study (yet unpublished).

6.3.3 Key Trends

Afghanistan continues to be highly vulnerable to environmental damage that threatens the nation as well as the planet, given that up to 80 percent of Afghans remain dependent on natural resources for income and sustenance. Agriculture

alone provides livelihoods for more than 60 percent of the population; the centrality of the agriculture sector is underscored because it is through this sector that diversified livelihoods policies that will be needed as a cornerstone of any successful counter-narcotics strategy can be addressed. Natural disasters are endured on a recurrent basis, including drought, earthquakes, disease epidemics, sandstorms and extremely harsh winters. All of which have a devastating effect, particularly on the poor. Since 1998 alone, more than 6.7 million Afghans have been affected by such natural disasters, while they also must overcome the manmade disasters caused by the mines and Unexploded Ordnance (UXO) that still cover hundreds of square kilometers of land.

With the depletion of forests and vegetation through illegal harvesting, widespread grazing and dry land cultivation, soil and riverbank erosion is exacerbated, which leads to further decrease in productivity of the land base and to an increase in flood risks and thus rural migration. The availability of grazing land from 2002 to 2003 has decreased while there was an increased encroachment on pastures, as boundaries between arable and pastoral lands have broken down.

A historic failure to acknowledge common property as well as the destruction of the latter further contributes to decreased access to common property. Improving local livelihoods is strongly dependent on environmental protection and sustainable management of natural resources. The most serious issue however in Afghanistan is the long-term environmental degradation caused, in part, by a complete collapse of local and national forms of governance.

6.4 Alternative Strategies

To be sustainable, economic growth cannot be achieved at the cost of environmental and natural resource degradation. Indeed, such degradation is manifestation of weak public institutions, conflicting and unequal access to ownership, poverty, population pressures, urbanization and insufficient training in good environmental and natural resource management. Responsibility for sustainable natural resource management and environmental protection lies with the people of Afghanistan and their government. The newly established Ministry of Energy and Water must play a critical role in the water sector in planning and preparing new laws, standards and activities to address the environmental management, protection and rehabilitation needs of the country.

This should occur in full cooperation with the key sector ministries responsible for implementation, including Agriculture and Animal Husbandry, National Environmental Protection Agency, Public Health, Rural Development, Urban Development and Housing, and Mines and Industry. Mechanisms for planning, environmental education, public participation and enforcement must be developed between the various ministries and their partners at the central, regional and local levels. Through a national agriculture program, agricultural land, forestry and rangeland should be developed and sustained by utilizing integrated water resource management systems, thus contributing to national food security and sustained economic growth. The program should further bring about increased land tenure security; improved equity, with the adoption of procedures that protect the rights of all community groups as well as the establishment of an effective environmental

framework to mitigate environmental shocks. It is important also to recognize that long-term improvements in the environmental conditions of the country cannot be achieved without sustained technical and financial assistance from the international community.

6.4.1 Elements of Alternate Strategies

- Establishment of regimes of utilization of natural resources.
- Achieving balance between, on the one hand, maximization of production and productivity in all agricultural land uses and, on the other hand, effective maintenance and enhancement of the natural resource base.
- Formulation and application of enabling policy, legislation and regulatory framework on ownership, access and management of natural resources.
- Establishing strategic roles of people and institutions in governance and management of natural resources.
- Piloting community-based natural resource management in diverse geographic settings.
- Establishing strategic roles of people and institutions in community resource management.
- Improving water management at the basin level, particularly at the upstream.
- Integration of watershed development with irrigation improvement.
- Scientific assessment of the state of natural resources, including hydrological and biodiversity assessments.
- Improved coordination and integration with the other sectors of economy.
- Regular monitoring of ground water tables, especially in vulnerable areas.
- Integration of watershed development with irrigation improvement.
- Remedial measures for containing the impacts of desiccation of wetlands on human and natural environment.
- Clarity on the legal status and boundaries of Protected Areas (PAs).
- Enabling legislation on establishing and managing PAs.
- Assessment of impact of human settlements, war, drought, tourism and landmines on PAs.
- Regulation of hunting and other human activities in PAs.

6.5 Strategies for Natural Resource Management

6.5.1 Management Strategies

Management strategies cover three main areas: the types of land use in forestry, range and wildlife management, the system for people and/or institutions to manage the forest, range or wildlife resource, and the system for people and/or institutions to have rights to use the resources.

6.5.1.1 Land Uses

The sub-sector partners are defined as Central Government, Provincial Administrations, the Communities and the private sector. The sub-sector partners shall identify and exploit, to the maximum possible extent within the bounds of sustainability, all viable types of forestry, range and wildlife land uses - as productive

assets in their own right, and as means of enhancing the environment generally, and for irrigated and dry land farming in particular.

The sub-sector partners shall also devise and implement land uses in combinations and measures which achieve a balance between maximizing productivity in all agricultural land uses while enhancing the natural resource base. These strategies should be tailored to the specific physical conditions of the targeted area. It is also important to devise and organise upstream land uses which significantly benefit downstream irrigation farmers using a watershed approach.

6.5.1.2 Management Systems for Forest, Rangelands and Wildlife

The sub-sector partners shall adopt a community-based approach in forestry, rangeland and wildlife management. This approach shall involve the transfer of effective management responsibilities for forestry and rangeland resources to communities in a manner which:

- Creates value for community members (both in the form of productive resources – timber, firewood, better pasture, and as means of protecting natural resources from erosion).
- Develops within communities the capacities to organise, operate and sustain the improved measures with a minimum of support from outside.

6.5.1.3 Focus on Community Planning

In planning and implementation of community forestry, range management and wildlife, the objective shall be the development of community capacities to discuss and decide upon the improved land uses to be implemented. Assistance from outside the community shall be provided in a manner which facilitates the developments of these community capacities and roles.

6.5.1.4 Managing Resources for the Public Benefit

Government shall devise and implement specific policies, strategies, legislation and practices for allocating user rights over forest land, rangeland and wildlife terrain to communities. These policies shall be founded upon participatory action and processes, directly involving the target communities in discussions of options and decisions concerning rights over land and water resources. They shall include mechanisms for reconciling land disputes. Land user rights contracts shall be of sufficient duration to allow communities to manage and invest in the forest, range and wildlife resources for their benefit, and shall take account of environmental factors.

Land user rights contracts shall specify that communities will utilize them productively and not damage the resource. Government shall monitor compliance of communities with these contract specifications. Government, in conjunction with communities, shall issue land user rights contracts in a fair and transparent manner, and which, as far as possible, confirms traditionally agreed forms of access to land uses.

Communities shall develop elected committees for the management of land user rights in a manner which adds value to the forest and range resource user rights. Government shall put in place legislation and regulations which allow the elected community committees to generate and expend funds in their own names.

6.5.2 Strategies for Balance and Sustainability

Between the maximization of production and productivity in all agricultural land uses (dry land farming, irrigated farming, livestock husbandry, forest products, wildlife exploitation) and effective maintenance and enhancement of the natural and wildlife resource base.

6.5.2.1 Integrated Natural Resource Management

The sub-sector partners shall implement community forestry, range management and wildlife initiatives using an integrated resource management approach which takes full account of irrigated and dryland cropping land uses as well as forestry, range and wildlife land uses, and the relationships between all these land uses. The partners shall take full account of national strategies in the sub-sectors concerned with cropping, animal husbandry and the environment.

6.5.2.2 Assessment of Land Suitability

Government, with support from other partners, shall develop and deploy a standard land suitability classification covering irrigated cropping, dryland cropping, forestry and range land uses, together with appropriate subdivisions of these categories. The main parameters for the land suitability classification shall be climate, soils, topography and slope.

6.5.2.3 Relationships Across Community Boundaries

The sub-sector partners shall pursue improvements in community forestry, range management and wildlife both within individual community areas and in places where land use relationships exist across community boundaries. In the latter case, solutions shall, as far as possible, take into account informal contracts and agreements which existed previously. Regional community representatives and provincial administrators shall mediate and facilitate the resolution of any difficulties in reaching agreement between communities.

6.5.2.4 Allocation of Grazing Lands to Communities

The sub-sector partners shall work together to create and develop community grazing areas for individual communities. In areas of traditional shared grazing, community leaders shall be encouraged (with help from other partners) to agree to a fair division of the formerly shared rangeland into individual community grazing areas or divisions within those areas, taking account of previous usage, differences in range quality and access to water. Regional community representatives and Provincial administrators shall intervene and facilitate the resolution of any difficulties in reaching agreement between communities.

6.5.2.5 Improving Fodder Supplies for Domestic Animals

The sub-sector partners shall work together to implement improved management of food supply for domestic animals in which the emphasis shall initially be on shifting the balance of diet for sedentary herds from pasture to crop residues and fodder crops. This will relieve pressure on the rangelands, improve water flow to irrigation schemes and allowing the development of improved migratory livestock production on distant pastures.

6.5.2.6 Combating Drought and Desertification

The sub-sector partners shall take into full account the effects of drought in defining the future balance between productive and environment-enhancing uses of forestland and rangeland. This includes the deployment of water conserving mechanisms and the introduction of drought resistant plants. National government shall prepare and implement programs for relocating people from areas of extreme drought to areas with lesser drought hazards.

6.5.2.7 The Main Technical Fields

The technical emphasis in community forestry shall be in the following main areas.

Productive purposes

Forest main products (construction timber, fuelwood, fruit, nuts, medicinal plants), forest bi-products.

Environment-enhancing purposes

Protection of land from erosion, improvement of infiltration, hydrology and run-off characteristics for irrigation, enhancement of microclimates, protection and enhancement of range areas and wildlife habitats.

The technical emphasis in community range management shall be in the following main areas.

Productive purposes

Controlled rotational grazing for livestock, water spreading and harvesting, development of high value grazing areas.

Environment-enhancing purposes

Protection of land from erosion, improvement of infiltration, hydrology and run-off characteristics for irrigation, protection of wildlife habitats, reduction of drought and desertification (water conserving mechanisms and the introduction of drought resistant plants)

The technical emphasis in community wildlife management shall be in the following main areas.

Productive purposes

Tourism development, wildlife products.

Environment-enhancing purposes

Enhancement of natural landscapes/features, biodiversity and wildlife heritage (including controlled exploitation and protection of endangered species).

6.5.3 Strategy for Water Resource Management

The condition of water resources in Afghanistan has come to a stage where concentrated, intensive and inter-related actions are required to reverse the present trends of water consumption, pollution, and the growing threat of persistent drought and floods. These actions aiming to achieve sustainability of water use must be based, among others, on the following guiding principles:

- **Water Scarceness:** Fresh water is a limited and vulnerable resource, vital to sustain lives, development and the environment. Effective management of water resources demands a holistic approach linking societal and economic development with the protection of natural ecosystems. Effective water management links land and water use across the whole of a catchment area or groundwater aquifer.
- **Population Growth:** Population growth in Afghanistan is amongst the highest in the developing world. One of the national priorities recently claimed by the central government is the further development of agriculture sector to ensure sufficient food production. Agriculture consumes almost 90% of the country's available waters. Of the total water utilized for the agriculture sector, losses count for over 70% between the source water and the land. Effective management of water demands maximum use of available water resources, using alternative irrigation methods and can prevent huge loss and waste of water.
- **Water Use Competition:** Over the past two and half years, almost three million refugees returned home from neighboring countries. The growing national population requires a significant amount of water for construction purposes. Similarly, major infrastructure projects, such as roads and other infrastructure consume substantial amount of water. And as the country picks up momentum towards economic growth through other economic sectors, such as industrialization, competition will be further increased for different uses of water. While economic growth is essential to improve living standards in the country, national water policies must base the distribution of water on national priorities.
- **Orientation of Water Resources Development and Management:** Afghanistan's water resource development and management policies, so far, have concentrated on water use, rather than on water resources. The policies mainly emphasized the utilization of water as economically as possible, instead of using it as long as possible. Considering the scarcity of water during the dry season and droughts or during floods, future development and management policies must strike a balance between use orientation and resources orientation, as part of a sustainable development concept.
- **Participation:** Water resources development and management impacts all sector

development and requires a participatory approach, involving policy makers, planners and water users at every level. Awareness raising and public campaigns among both policy makers and users on the importance of water resources is an essential step in promoting participation. Water user associations are essential to the process. Water Users Associations (WUAs) are institutional structures that recognize and encourage the active participation of users of water in the management of irrigation water and in the operation and maintenance of the irrigation infrastructure. It facilitates individuals and groups that are water users within the jurisdiction of a WUA to become part of the management of the WUA. And it gives the water users a legal entity and the authority structures that control water use and provision

In many countries studies have shown that WUAs have helped achieve equitable distribution of water among water users, mitigate conflicts and improve operation and maintenance of the irrigation infrastructure.

Recognizing the importance of WUAs for Afghanistan, a RAMP project has started the establishment of WUAs in the country. The objective of the project is to initiate the development of an institutional and organizational model for Marja and Nad-i-Ali in Middle Helmand and Enjil Canal in Herat, a total of more than forty thousands hectares of irrigated land.* This model is to address the possibilities for development of water users and farmers into organizations that can operate, maintain, manage, rehabilitate, and finance the canal and drainage systems from farm gates to river intakes.

The key objective of the WUAs is to improve the sustainability and productivity of irrigation water through transfer of irrigation management responsibility and authority to water users.

6.6 A Concept for Sustainability:

The water users will be chartered and authorized by a new national legislation that has been recently included in the Water Law. The WUAs will have powers to allocate and control water delivery throughout each canal system. They will develop relationships with the market place such that they will be able to obtain financing both through banks and lending institutions and in agribusiness arrangements. They will also provide services to their own members through the potential for storing, transporting, and distributing inputs and outputs.

A charter will vest water users with the capacity and authority to assess fees at appropriate points in the production and marketing chains through a policy of user-pays. The charter will provide all the powers that management will need to: 1) enforce equitable, user-pays water deliveries, 2) maintain and rehabilitate facilities, 3) develop facilities, 4) secure financing for major undertakings, 5) support policing powers for the enforcement of provisions of their charters and the agreements that each water user would have to sign, and 6) implement regulations of the chartered associations.

- **Economic Value of Water:** Water must be recognised as an economic commodity,

* Marja: 20,011; Nad-i-Ali: 16,431; and Enjil: 5,152 hectares.

and its social and economic values must be understood. As such, policy makers must recognise the basic right of all human beings to access clean drinking water at affordable prices. Treating water as an economic commodity helps to achieve efficient water use and to encourage conservation and protection of water resources.

- **Water Development and Management and Gender:** In every day life, women consume more water than men, not only because of their feminine nature, but because women manage most daily activities. Their role, as providers and users of water, is vital in the development and management of water resources. The implementation of this principle necessitates positive and constructive policies that can address women's specific water needs and equip and empower women to participate at all levels of water resources development and management.

- **Water and Environment:** Water has direct impact on the environment. Water pollution, and flow of hazardous waste into the streams and rivers can have devastating effects on the nature, with serious economic consequences and can severely impact lives. Therefore, environmental assessment and strategic impact standards must be applied to all water resources development programs and policy makers must ensure an equitable balance of water distribution for both human and environment consumption.

- **Decentralisation of Water Management:** Water resources management is complex and involves many participants and stakeholders and requires multi-sectoral management. As most other economic sectors depend on water, crisis situations, such as drought, floods and similar situations require quick decision-making. Making all major decisions dependent on one central authority can have serious economic, social and natural consequences. Therefore, it is vital that both management and decisionmaking processes are decentralised to the lowest possible level, close to the actual users and beneficiaries, with sufficient degree of authority.

- **Private Sector Participation:** Water demand is rapidly growing in Afghanistan and requires massive investment in infrastructure of water resources. While the government may initially invest in most of the water resources infrastructure, the operation and management must be transferred to the private sector. However, private sector involvement in operation and management of resources and in service delivery must also be well regulated by the Government to ensure communities have equitable access to water at affordable prices. Private sector involvement in water resources management requires good understanding and mechanisms within the water institutions to promote and encourage private sector.

6.6.1 Land Management Strategy

To review the classification of land classes (1965, 2000) and adapt it to the current situation. The legislation should classify the lands in a flexible manner. For example, using a range of values to facilitate local administration (see sample table attached),

Defining and legalizing the term "Community Land," and surrendering ownership of this land from government to community – under conditions. This land would likely be pastureland, surrounding a village over a certain perimeter that would vary from

case to case, and that the community council would administer within a certain framework. The framework could include, obligation to establish and maintain a community forest, maintenance of a viable community pastureland, interdiction to sell land, possibility to partially privatize, etc.

Privatization of land by reviving settlement schemes.







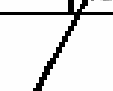
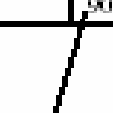
The Government may allocate selected plots of rangeland to nationals selected from amongst the poorest, and assist them with the initial requirements to enable them to succeed. Rather than leasing the land for a limited duration, the Government may consider giving the land away for good (which should encourage people to invest on the long term), but defining conditions that if not met would revoke the land ownership.

- The settler engages to develop forestry and protect the natural environment on a perimeter of no less than 25m around his plot of land. This peripheral land would remain governmental (or community) property but the work involved in its ecological protection or development is the settler's retribution to the government's generosity. If in 5 years there is no belt of trees around the plot of land, the settler loses his rights to the property and the plot is given to another needy person.
- Agreement never to grow poppy or other illegal crops.
- Any new road of access to be lined with 2 rows of trees.

Care may be taken to leave sufficient space between the newly privatized plots to guarantee access and passage to nomadic herders.

- Considering the advanced state of illegal establishment of agriculture land on rangeland.
- Establish a ban on such practices.
- Survey the existing plots in the light of the reviewed land classification.
- Remove settlers from plots that don't meet the criteria and return these lands to nature, grazing, or forestry, as the case may be.
- Allow the other settlers to keep the lands provided the conditions outlined for the privatization scheme are met. (e.g., 5 years to plant a viable belt of trees, any road of access to be lined with trees, no poppy).
- After 5 years and if conditions are met provide them official land title

Possible considerations for land classification

		Distance from village	Near				F a R			
		Water	Irrigated	Easy to irrigate	Difficult to irrigate	Rainfed only	Irrigated	Easy to irrigate	Difficult to irrigate	Rainfed only
Slope degrees		Soil								
from	to	quality								
0	10	Excellent	A	A	A	A	A	A	A	A
		Fair	A	A	F	P	A	F	P	P
		Poor	A	F	P	P	F	P	P	P
		Bad	F	P	P	P	F	P	P	P
10	20	Excellent	A	A	A	A	A	A	A	A
		Fair	A	A	F	P	A	F	P	P
		Poor	A	F	P	P	F	P	P	P
		Bad	F	P	P	P	F	P	P	P
20	30	Excellent	A	A	A	F	A	A	F	P
		Fair	A	A	F	P	A	F	P	P
		Poor	A	F	P	P	F	P	P	P
		Bad	F	P	P	P	F	P	P	P
30	40	Excellent	A	A	F	P	A	F	P	P
		Fair	A	F	P	P	F	P	P	P
		Poor	F	P	P	P	P	P	P	P
		Bad	P	P	P	P	P	P	P	P
40	50	Excellent	F	F	F	P	F	F	P	P
		Fair	F	P	P	P	F	P	P	P
		Poor	F	P	P	P	P	P	P	P
		Bad	P	P	P	P	P	P	P	P
50	60	Excellent	F	F	P	P	F	F	P	P
		Fair	F	P	P	P	F	P	P	P
		Poor	P	P	P	P	P	P	P	P
		Bad	P	P	P	P	P	P	P	P
60	70	Excellent	F	P	P	P	F	P	P	P
		Fair	P	P	P	P	P	P	P	P
		Poor	P	P	P	P	P	P	P	P
		Bad	P	P	P	P	P	P	P	P
70	80	Excellent	F				F			
		Fair								
		Poor								
		Bad								

6.6.1 Natural Resource Management Strategy for Pastoralists

Support for pastoralists falls into two separate categories; 1) to strengthen the pastoralist way of life, and 2) to support the establishment of a substitute livelihood with alternative income generation.

6.7 Mechanisms to Strengthen Pastoralism

6.7.1 Institutional Strengthening

- Develop the capacity of the Ministry of Frontiers and Tribal Affairs for mainstreaming pastoralist interests.
- Develop the capacity of the national and provincial Kuchi shuras.

6.7.2 Rangeland

- Technical assessment of the range lands, leading to recommendations on range land management and small-scale rehabilitation.
- Develop a Pasture Monitoring and Early Warning system, and build the capacity of the relevant institutions (notably Disaster Preparedness Unit and the MAAH) to develop an emergency action plan for response.
- Research the potential for range lands to support dry land farming of fodder crops
- Development of a legislative framework at national, provincial and district level which
- legitimizes and endorses community agreements on Joint Community based Natural
- Resource Management.
- Implement a pilot program for joint community based natural resource management and rehabilitation.
- Support on-going work in Registan.

6.7.3 Animal Health

- Improve linkages with the existing veterinary service delivery practice and extension, through training of Basic Veterinary Workers from the pastoralist communities.
- Promote the establishment of either fixed or mobile Veterinary Field Units in remote areas where the pastoralists stay (mostly in summer).
- Improve the inclusion of pastoralists in Disease Control and Prevention.

6.7.4 Animal Production and Husbandry

- Credit facilities/storage facilities for livestock fodder.
- Extend extension services to pastoralists, and conduct Participatory research into specific animal husbandry techniques practiced by the pastoralists, to determine if adaptations in the extension curriculum are required when targeting the pastoralists.

- Identify a source for a food supplement which is locally produced and readily available.
- Improve livestock feed availability through increased growing of fodder, increasing the processing of agricultural and industrial by-products, and slaughter by-products.
- Promote the fattening of male lambs as an entrepreneurial activity.

6.7.5 Macro-economic Regeneration

- Initiate Feasibility Studies and Market Assessments for (adding value to livestock products).
- Improve traditional technology for milk processing, wool spinning, and cashmere harvest to meet international quality standards and increase production.
- Improve livestock marketing systems and marketability of livestock (products).
- Encourage private sector investment in the livestock and livestock products industry.

6.7.6 Mechanisms to Support Substitute Livelihoods

- Inclusion of the pastoralists as a special focus group in the National Skills development program of the Ministry of Labor and social affairs.
- Employment Centers for (former) pastoralists.
- Financial services for (former) pastoralists.
- Advocate for increased land security for (former) pastoralists in the Land Commission.
- Promote the development of large-scale irrigation schemes to increase agricultural land.
- Conduct a pilot project on Joint Natural Resource Management to solve the land insecurity issues locally.
- Promote small-scale poultry and rabbit production.

6.8 Geographical Coverage and Community-Based Forestry, Range Management and Wildlife

6.8.1 National Coverage

The sub-sector partners shall devise and put into practice a national program for community forestry, range management and wildlife development. The major emphasis of the program shall be (i) the establishment of a land user rights contract system, (ii) land suitability assessment and planning at Provincial level, (iii) development among communities of organizational skills and capacities to interface with the private sector, and (iv) development among communities of technical skills in forestry, range management, wildlife management and other land management techniques.

Leading up to the program, the Department of Forestry and Range Management and other partners shall organize publicity campaigns to raise awareness about the

urgency of addressing the current problems in the sub-sector, and the need for a program with national coverage to address those problems.

6.8.2 Targeting Implementation

The program shall start with a limited number of projects in target areas which need urgent attention, and where the potential benefits of community forestry and range management are high. Program methodology will be further developed, based on experience gained in the initial stage. Thereafter, the Program shall proceed with priority in areas which are stable and secure, and where the regional and local leaders are in support of the approach.

6.8.3 Defining Relationships Between Stakeholders

MAHMF, other government agencies, donors, NGOs, traders, processors, input suppliers and agribusiness, including the farming community, including linkages and coordination to initiatives related to alternative livelihoods.

6.8.4 Communities

The communities will organize and implement forestry and range management on their own community lands in an essentially independent manner. Their main roles are:

- Creation of committees for the planning and organisation of implementation.
- Discussion and decision making concerning local strategies for community forestry, range management and other land uses (including cross-boundary strategies if applicable).
- Provision of organisation and labor for organisation, construction and maintenance of field activities, including nursery establishment and management, seed testing and stratification.
- Local monitoring and evaluation within community areas.
- Accessing market information.
- Accessing essential services.
- Organisation of market produce sales.

At present, the communities lack the technical knowledge, skills and resources to carry out the majority of these tasks. It is the role of other partners to help community members acquire and deploy the skills and resources.

6.8.5 Central Government

The strategic roles of Central Government are:

- Establishment of a legal system for transfer of user rights over forest and rangelands to communities, and associated land allocation procedures.
- Organization of national publicity.
- Preparation of National Programs and Projects, including definition of priority target areas.

- Coordination of National Program and Project implementation, including organisation of international donor assistance, national baseline surveys, monitoring and evaluation.
- Amendment to sub-sector strategy as necessary.

In addition Government shall establish and operate one Central Forest Research Facility, with test plots in four agro-ecological zones. The research emphasis shall be on the demands of community forestry, in particular testing growth characteristics and adaptability of various native and selected exotic varieties, with special emphasis on fast-growing species, disease resistance and drought resistance.

6.8.6 Provincial Administration

The strategic roles of Provincial Administration are:

- Maintenance of law and order, with special reference to maintenance of civil peace and security, transparency and social justice in land allocation, prevention of smuggling, prevention of illegal land uses, maintenance of free trade conditions.
- Implementation of allocation of land user rights over forest and range lands.
- Maintenance of government conditions in land allocation contracts.
- Provincial resource inventory and planning.
- Provision of assistance to communities in technical fields.
- Mediation and arbitration in special areas (with Regional Representatives).
- Organization of publicity within provinces existing forestry and range management. Department staff in the Provinces (initially supported by Specialist Consultant organizations and NGOs) shall play key roles in planning community activities and training communities in organizational skills, technical skills and interfacing with markets/the private sector.

Training will be given to staff in facilitating approaches to the planning and implementation of community forestry, range management and wildlife development.

7.1.7 Regional/Community Representatives

Regional leaders have roles in conjunction with provincial administration, as follows:

- Mediation and arbitration in special areas (with provincial administration).
- Organization of publicity within provinces.

7.1.8 International Agencies

- Provision of support and funds for progression of land user rights.
- Provision of support and funds for National and Provincial Government institutional strengthening and capacity building.
- Provision of support and funds for implementation of projects.
- Provision of supporting technical advisory and information services.

7.1.9 Consulting Organizations and NGOs

- Provision of technical support to Provincial Government and communities in planning
- community activities.
- Training of communities in organizational and technical skills.
- The above organizations shall assist the Provincial Forestry and Range Management Department staff, who shall receive in-service training in community forest and range management from the consultant organizations/NGOs.

7.1.10 The Private Sector:

- Provision of inputs.
- Provision of technical services.
- Provision of market links and market information.

7.1.11 Importance of Strategy

This strategy will enable Afghanistan to establish and manage forest, wildlife, rangeland, and water resources, in a manner that balances maximum productivity with effective maintenance and enhancement of these resources.

Investment	Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Unit Price	Total Cost in US\$
Technical Assistance								
A. Director of Perennial Crop Unit		1	1	1	1	1	1.2	72,000
B. Bilingual Secretary		1	1	1	1	1	.9	54,000
C. Commodity Experts		34	34	34	34	34	.6	1,224,000
Subtotal								1,350,000
International Staff								
A. Long Term Policy Specialist		1	1	1	1	1	18	1,080,000
B. Short Term Expert		6	6	6	6	6	.6	216,000
Subtotal								5,656,000
Total Technical Assistance Cost								6,952,000
Publications and Seminars								
A. Lump Sum		1	1	1	1	1	5	5,000
B. Seminars		4	4	4	4	4	20	4,848,000

Equipment and Vehicles								
1. Office Equipment								46,768,000
A. Computer and Printer	60							150,000
B. Telephone	60							60,000
C. Office Furniture	25							
D. Fax	7							
E. Photocopy	14							
2. Vehicles								
A. 4 wd Pickup Trucks	80							
B. Motorcycles	150							
Subtotal Equipment and Vehicles								1,658.000
Civil Works								
A. Central Office Building	1							3,000,000
B. Provincial Office Buildings		10	10		10	4		3,400,000
Subtotal								6,400,000
Investment Total								21,113,000
Recurrent Costs								
A. Vehicles		1,488,000	1,488,000	1,488,000	1,488,000	1,488,000		7,440,000
B. Driver Salaries	80							960,000
Office Operations								7,770,000
Travel Expenses								2,835,000
Subtotal								19,005,000
Grand Total								40,118,000

Chapter 7

RESEARCH and TECHNOLOGY TRANSFER

7.1 Situation Analysis

Subsistence farming dominates in most of Afghanistan. The agriculture sector accounts for about 60% of the country's Gross Domestic Product (GDP), with about 75% of the population engaged in agriculture.

Wheat is the main cereal and staple crop accounting for about 70% of the total cultivated area of field crops. Other important field crops include rice, barley, maize and food legumes (chickpea, lentil and mung bean). In 2003, wheat cultivation was estimated to cover 2,124,000 ha (814,000 ha in rain-fed areas and 1,310,000 ha in irrigated areas). With an average yield of 2 tons per hectare, the productivity of irrigated wheat is generally considered to be between two to three times that of rain-fed wheat. Wheat is cultivated mainly as an autumn crop but some spring wheat may be sown in high elevation areas depending on the pattern of rainfall.

There are summer crops after wheat such as maize, rice, pulses (mung beans), melons and cotton. Although double cropping is possible and generally practiced in the high potential irrigated lands, only one crop is generally possible in the rain-fed lands.

The research program activities for cereals, vegetables, fruits and industrial crops begins at research stations. Many wheat varieties considered suitable for different climates in Afghanistan have been imported for testing at the research stations. Moreover, a wide range of vegetables varieties like tomatoes, onions, spinach, watermelon, green pepper and straw berries and fruits like apples, citrus, grapes, cherries, and peaches are also being tested for adaptability to Afghanistan's climate and soils. In order to disseminate the improved crops and practices to the farm community for adoption, the National Extension Department networks exist throughout the country and complement the research program activities. As part of capacity building, young scientists are under training in different programs in the country and abroad for learning different subject matter areas.

The Agricultural Research Institute of Afghanistan (ARIA) is an agricultural research organization with linked to Academic Sciences of Afghanistan. ARIA was established in 1983 and is conducting agricultural research in different parts of the country.

7.1.2 Research Organizational Structure

The key components of the organizational structure include the Agricultural Research Institute of Afghanistan, the Board of Research and Extension and regional research stations.

7.1.2.1 Agricultural Research Institute of Afghanistan

In consultation with MAAHF, the Independent Reform Administration prepared and approved the structure of ARIA, which is headed by President and the Deputy and includes the following Departments:

- Water, Soil and Climates.
- Animal Husbandry, Forestry and Forages.
- Crops Improvement, Agronomy and Plant Protection.
- Fruits and Vegetables.
- Economics and Statistics.

7.1.2.2 Central Research and Extension Board

The Board of Directors will formulate policies, guidelines, provide direction and closely monitor the progress being made through the research stations and how the information is being transmitted to the farming community through extension networks. The Board is chaired by H.E. the Minister of Agriculture and members include the president of ARIA, Technical Deputy of ARIA, President of Extension, President of Planning, Dean of the Faculty of Agriculture (Kabul University), Dean of the Faculty of Veterinary (Kabul University), Representatives from the Academy of Science in Afghanistan, ICARDA, CIMMYT, FAO, RAMP, French Cooperation, JICA, Indian Cooperation and other research partners deemed necessary by the Minister of the MAAHF.

7.1.2.3 Regional Research and Extension Board

Due to the limitations of funding and technical capacity, one research station is kept in each of the seven main agro-climatic zones. The regional research director and the specialist team that determines research subject matter for the priority commodities in each zone will be housed in the research station. The board will oversee the research activities and the dissemination of information and improved agricultural technologies that are the result of research findings. The board meets on a monthly basis and the president of ARIA serves as the chairman of the board. It's members include the director of the research station, director of extension, provincial president of the agriculture, director of irrigation and representatives of ICARDA and CIMMYT working in the respective zones.

7.1.2.4 Research Stations

At present, ARIA has 10 Agricultural Research Stations in 8 provinces of the country representing different agro-climatic zones. ARIA conducts research in the following Research Stations:

Table 1. Essential Agricultural Research Stations

Number	Province	Research Station	Area (Ha)	Current Situation
1	Kabul	Darul Amman	30	Active

		Badam Bagh	80	Active
2	Balkh	Deh Dadi Farm	10	Active
3.	Herat	Urdu Khan	215	Active
4	Kunduz	Central Farm	154	Active
5	Paktia	Rohani Baba	-	-
6	Baghlan	Position Shan	102	Active
7	Badakhshan	Lal	22	Not Active
8	Helmand	Bolan	103	Active
9	Jalalabad	Shisham Bagh	12	Active
10	Bamyan	Mula Ghulam	25	-
11	Badakhshan	Lal	-	-
12	Kandahar	-	-	-

7.1.3 Policy Framework

The policy of the government of Afghanistan is to achieve food security and improve livelihoods through enhancing crop productivity and supporting production of high value horticultural crops.

As per the policy of the Government, the research and extension programs are carried out through the public sector. However, the international organizations such as ICARDA, CIMMYT, JICA, FAO, and other partners of research and extension cooperate with these national programs coordinated through the MAAHF. While there are still opportunities to directly bring in techniques and skills from abroad, there is increasing need for adapting and calibrating this knowledge to meet the particular conditions of Afghanistan. It is thereby necessary to have an adaptive research, for testing purposes. Following are some of the most relevant policies:

- Ensure that sufficient equipment and facilities are provided for adaptive and applied research that develops technologies and best practices.
- Ensure that suitably trained and experienced extension staff are available for transferring technologies and practices to the farmers.
- Ensure that the farmers have access to the improved technologies and practices for improving their family's livelihoods,
- Ensure that the farmers have access to soil and water testing, pest and disease identification, and other technical facilities as necessary.
- Ensure that sufficient communication facilities and equipment for transferring technologies and practices are available.
- Ensure efficient working relationships and coordination with implementing agencies on agricultural research and technology transfer for the benefit of farmers.

- Ensure that sufficient training is provided to research and extension staff and farmers to improve their capabilities.
- Ensure that advice given to farmers is appropriate in terms of food security, availability of market outlets for produce, improved sustainable livelihoods, recognition of the interests of women, preservation of the environment and other considerations.

7.1.4. Farming Systems in Different Geographic Areas

7.1.4.1 Predominant Production/Farming Systems

Agriculture is generally characterized by small-scale farm production and mixed farming systems with traditional patterns of agricultural practices. The majority of farmers hold a small piece of land from 0.6 to 0.9 hectares with few animals. Women play a significant role in agriculture, particularly in livestock, but their role has been generally ignored. Due to the low level of knowledge and skills coupled with poor access to production inputs, it is difficult for farmers to increase agricultural productivity and achieve sustainable livelihoods.

7.1.4.2 Geographical Differences

The country is characterized by diverse agro-ecological conditions that support a wide range of crops across seven agro-climatic zones. Each zone covers a number of provinces. An agricultural research station has been established in Kabul, Nangarhar, Kandahar, Herat, Balkh, Baghlan and Kunduz. These represent the seven agro-climatic zones. However, extension centers exist in nearly every district of the country.

The resources available for agriculture and the means to employ them in an effective way vary considerably from one region to another, as do the priorities for work. However, the common requirement through out the country is the need for improved seed, planting materials and fertilizers, improvement in horticulture and forestry, improvement in agronomic practices, protection from plant pests and diseases and associated rehabilitation of irrigation and livestock system.

7.1.5 Strengths, Opportunities, Weaknesses and Threats

This master plan is prepared to revitalize the pre-war formal and informal frameworks for crop improvement along with maintaining current crop varieties in the wide range of agro-ecologies under which they are cultivated. In this context, help can be obtained from institutions such as ICARDA, CIMMYT, IRRI, ICRISAT, and CIP as well as selected domestic research programs. The success of agricultural rehabilitation and development in Afghanistan depends on the availability of and access to improved technologies and practices. Afghanistan possesses the potential to discover cultivars that are suitable for rainfed and cold high-altitude environments, irrigated agriculture along with the improvement of livestock productivity, horticulture and forestry, all of which constitute the primary farming systems in the country.

With emphasis on an integrated approach using a combination of research types in different climatic zones, it is possible to provide farmers with research results through extension networks on cost effective basis. This will provide farmers with choices and solutions to their farm problems in the achievement of sustainable agricultural development in the country. It is an essential investment for the country

with its growing population rate, food and natural resource problems. Research is an economical investment that raises the productivity per unit of input (land, livestock, labor and capital) along with ensuring quality improvement of the products.

This situation demands a shift in public agricultural policy to place more emphasis on small farmers for the achievement of household food security, income and employment with a focus on gender balance. There is an urgent need to accelerate the rehabilitation of agricultural production since it offers the only sustainable solution to current food shortages and the lack of any food security. If the trend toward the breakdown of traditional farming/pastoral systems is not first checked and then reversed, it may lead to an increase in poverty in the rural population and further encourage the production of and trafficking in illicit drugs, particularly by the cultivation of opium poppy, the manufacture of heroin and production of hashish.

7.1.6 Constraints

Following are the main constraints to be dealt with through program planning and implementation:

- Limited number of technical qualified research and extension personnel.
- Lack of incentives for research and extension personnel.
- Limited availability of improved technologies (varieties, fertilizers, pesticides, water, machineries) and cultural practices.
- Lack of appropriate farm machineries and facilities in research stations and extension centers for conducting research and extension activities.
- Poor marketing infrastructure (roads and storages facilities).
- Limited access of the farmers to improved technologies and practices.
- Limited extension promotional materials deemed essential in raising the level of farmers' awareness leading to the adoption of improved technologies and practices.
- The slow replacement rate of traditional technologies with improved ones.
- Limited access to credit for farmers.
- Lack of information systems and agricultural knowledge.

7.2 Causal Analysis

As a result of the war and conflict in the country, the agricultural infrastructure has been greatly damaged and thereby agricultural productivity has been reduced to the level far below the international standard and the food security has been put at serious risk. This declined has been caused by a number of complex and inter-related factors including the collapse of the country institutional framework, the neglect and destruction of the irrigation systems and the abandonment of agricultural land due to the flight of the rural population as refugees and displaced persons.

7.3 Objectives

7.3.1 Agricultural Research

The objective is to generate improved technologies and practices with a priority on higher yields and production quality.

7.3.2 Agricultural Extension

The objective is to transfer agricultural technologies and practices to farm community for adoption purposes.

7.4 Strategies for Taking Advantage of Strengths and Opportunities

A Research program to draw on the participatory process that includes the Extension Department and other national and international research organizations in the country with a focus on a farmer-centered approach and the achievement of sustainable agricultural development. This strategy is in line with the field conditions and it intends to achieve increased farm productivity and income through providing farmers with improved technologies and practices in crops and livestock with emphasis on field level capacity building.

- To generate and introduce improved technologies and practices; create awareness among the farmers; enhance knowledge and skills of the farmers. This is to be realized through program planning, implementation and evaluation with farmer participation and through providing technical advice to farmers in adopting improved agricultural technologies and practices that are most essential in increasing agricultural productivity and farm income.
- Research and extension that targets social and economic development. This becomes an imperative part of the planned programs. As such farmers are to be provided with opportunities to develop themselves through self-help approach with an enhanced ability to realize their problems and needs and how to meet their needs on cost effective basis.
- To bridge the gap between research and extension and continuously equip extension with technical know-how. Their roles of generating and transferring improved technologies and practices to farm community are complementing each other. Therefore, research programs are to be conducted on participatory basis between farmers and extension personnel.
- Increase agricultural productivity through varieties development. The effect of agricultural inputs is manifested through crop varieties. The present range of plant varieties available for cultivation in Afghanistan may not maintain their genetic and physical purity for a long period of time.

7.4.2 Strategies to Minimize Constraints

- Assess the need for research station to facilitate developing technologies and practices. The MAAHF shall prioritise the redevelopment of such stations in line with the needs of the farmers as identified by participatory planning methods
- Rehabilitation and reconstruction of the research stations, labs and extension centers.

- Identify multiple uses for such stations to increase the effectiveness of the investment in those stations
- Ensure that redeveloped research stations and extension centers have qualified staff for the research and extension programs. Any redevelopment of stations and extension centers goes hand in hand with the training of staff to be employed
- Ensure the availability of the facilities in the department of extension for the preparation of brochures, leaflets and posters, and preparation of radio and television programming.
- Along with the main research activities in the research stations, create sites of climatic and pocket research programs, which are useful in discovering adaptable crop varieties with a minimum logistical cost in seed production and multiplication.
- Improve working relationships with partners obtain their support in program planning and implementation.
- Develop an annual action plan on the basis long-term master plan.
- Adequately utilize technical advice from the research stations in conducting all extension program activities.
- Develop human resources through institutional and field level capacity building.
- Create linkages between research and extension through the board of research and extension, technical consultation, field visits by research personnel, on-farm research programs and monthly meetings, all of which are essential for creating research and extension programs that are based on farmer's needs.
- Carry out irrigation and water management research programs along with crop improvement programs in such a way as to reduce the amount water required for different crops and increase water use efficiency.
- Develop and implement supplementary irrigation technologies, particularly on crops with low water requirements like wheat, chick pea, barley, melon, watermelon, grapes, and almonds in order to save sufficient water for other purposes.
- Develop drought resistant varieties of cereal, legumes and industrial crops in different parts of the country.

7.5 Research and Extension Program Implementation

7.5.1 Implementation Arrangements

- The research program will introduce/identify/test improved varieties and agronomic practices of different crops (cereals, legumes, vegetables, industrial), which are high yielding, pest and disease tolerant and stress tolerant.

- Selections will be made from semi-finished advanced materials received from plant
- breeding programs of international and national agricultural research centers. Local varieties will be included in the evaluation, conservation and utilization program.
- Include research on fruits and forestry, livestock breeding improvements, feed and forage production, all based on a demand driven process through the research stations in different parts of the country.
- The applied and adaptive research program will be carried out in collaboration with ICARDA, CIMMYT and FAO with an emphasis on farmer participatory evaluations.
- In collaboration with the extension departments, demonstration activities, field days, publications (pamphlets, posters, etc), radio and T.V messages will be created to raise farmer awareness and adoption of the appropriate technologies and best practices.
- Selected varieties will be included in the small-scale seed multiplication program and then made available for large scale multiplication through improved seed companies and private, village-based seed enterprises in the provinces.

• **7.5.2 Specific Activities**

- Rehabilitation and reconstruction of research stations, extension centers, laboratories and the provision of machineries and equipment along with carrying out systematic training program for research and extension staff and selected farmers as part of capacity building include the pre-requisites for research and extension program implementation.
- Collection, evaluation and utilization of germplasm of cereals, legumes, pulses, horticultural, industrial and medicinal crops in close cooperation with ICARDA, CIMMYT, JICA, FAO and other research partners.
- Introduction, evaluation and identification of appropriate improved varieties suitable to Afghanistan conditions.
- Production of improved, pest resistant, and stress tolerant varieties in cooperation with ICARDA, CIMMYT, FAO, JICA and other research partners.
- Conduct research on horticulture and forestry.
- Conduct research on agronomic practices.
- Conduct animal breeding, animal husbandry and animal nutrition research.
- Carry out field demonstrations, field days, meetings, exhibitions and mass media programs for diffusion and adoption purposes.
- Enable farmers to share improved technologies and practices with other farmers through field demonstrations and other methods to maximize the dissemination of information to as many farmers as possible.

7.6 The Impact of Research and Extension

Improved technologies and practices are essential for raising productivity and increasing food security. Existing technology is not sufficient. New, market oriented technologies are accomplished through research. Adaptive agricultural research is a rapid response investment for development in Afghanistan.

Research will improve farmer income and food security by introducing the improved agricultural technologies and practices that raise agricultural productivity and improve the quality of the production. The extension program will introduce knowledge, skills and attitudes of farmers and assist in the adoption of improved agricultural technologies and practices.

7.6.1 Specific Impacts

- Released and adopted improved, well adapted high yielding, stress tolerant varieties of cereals, legumes, vegetables and industrial crops.
- Increased quantity and quality of horticultural production through improved varieties and cultural practices.
- Improved forestry seedlings for public use.
- Increased livestock productivity through improved animal's breeds, nutrition and management practices.
- Trained research and extension staff and farmers in the production and use of improved technologies and practices.
- Research recommendations on improved technologies and practices through extension methods.
- Integrated pest and disease management practices contributing to environmental protection.
- Quicker and higher rate of adoption for improved technologies and modern crop management practices by farmers.
- Higher profitability to farmers.
- Higher contribution to food security.

7.7 Participatory Research System

Together with research activities, it is essential to focus on extension and training to build farmer capacity and achieve sustainable agricultural development, principles also emphasized in the ARIA by-laws. The research results need to be articulated to farmers through extension and training programs. The roles of generating improved technologies through research and transferring that information to farmers is complementary. Each informs the other. Farmer participation will inform research.

This participatory approach to research is the formal system for planning and implementation that enables all components in realizing what they need to achieve. Farmer participation ensures a system that is responsive to their needs, their access to resources and creating ownership and sustainability. This methodology is sufficiently flexible to respond effectively to changing situations.

Along with participatory research and extension, the systematic collection and analysis of data on the main issues that includes farmers is vital.

To achieve maximum development impact, a community-based program review with direct participation of the stockholders through needs assessment, planning, implementation, monitoring and evaluation is the most effective.

Comprehensive understanding by all partners is to be achieved through a step-by-step implementation process that will build experience and understanding. Over time, large scale implementation and stronger linkages between farmers and institutions will result in improved technologies and practices.

This participatory system provides the common ground for institutionalizing participation and integration of new technologies and information. The circular integration of experience, research and information sharing will lead to greater progress in a shorter period of time.

7.8 Technology Transfer

7.8.1 Research

Regular crop research is to be planned and implemented at major research stations for their access to farmer land and their location in the varying agro-climatic zones of Afghanistan. Animal husbandry and nutrition experiments will also be included in those activities.

Results from different locations and climates can be compared. The purpose is to compare the results in different locations and climates. A number of experiments on research stations, on-farm research and in different microclimates will be identified covering different crops, fruits and forestry.

7.8.2 Extension

Research results need to be transferred to the farm community. The extension communication methods to be used include the following:

- Individual contact: office visit, home visit and personnel letters.
- Group contact: field demonstrations, field days, village meetings and field visits.
- Mass Contact: publications, exhibitions and radio and T.V.

Individual and group contact methods are to be used for the purpose of adoption of improved technologies and practices and mass contacts methods for creating public awareness on the part of the farm community. The main purpose and procedure for conducting each of these methods include the following:

Farmers' Field Demonstrations (FFDs)

Field extension personnel voluntarily invite farmers for conducting FFDs. A group of farmers select the most active and successful farmer for demonstration, provided that the farmer is willing to cooperate with others in sharing the information and experience with other farmers in the village. Large numbers of farmers will be trained on the site of the demonstration.

Field Days

Field days are to be held in each district on crop and animal production achievements by selected farmers or on the improved technologies to be adopted by the farmers. Necessary preparation including media coverage is to be made with the successful farmer about specific achievement and with the field extension personnel regarding the improved technology for this purpose.

Field Visits/Meetings

Field visits and meetings are held to address immediate problems of farmers. Attempts will be made to use village meetings as an educational process for complementing other extension teaching methods and thereby reach a large number of farmers.

Publications

Extension publications include booklets, pamphlets, folders and posters. The number and type of publication is to be decided on the basis of farmers needs communicated by field extension personnel. The research and extension personnel jointly provide technical materials to be formatted for dissemination to farmers.

Radio and T.V Programs

Materials for radio broadcasting and T.V are to be prepared on seasonal basis by the extension personnel for the purpose of public awareness and providing information on the current farm problems.

Exhibitions

Exhibitions are mainly used for general public awareness. District level training centers are to be used for exhibition purposes once a year for displaying high yielding technologies and communicating their performance. Besides public awareness, they are also useful for encouraging competition among the farmers. The extension compound in each district is to be used for exhibiting improved animals breeds and management practices

7.8.3 Training

Integrated linkages between research, extension and training is key for MAAHG impact at the field level. Providing training to research and field level extension personnel improves field level capacity on a continuous basis that is needed for the effective implementation of research findings. Training topics to be communicated to farmers are prepared on the basis of research results and the needs expressed by farmers.

Farmer training on crops and livestock will be conducted as part of an integrated field school using a practical and participatory approach. It facilitates the horizontal and vertical communication process that is essential to the teaching-learning process and raising the level of knowledge and skills of the farmers.

This village-based integrated farmer' field school approach is not only useful in raising the level of knowledge and skills of the farmers, but to encourage positive competition among farmers, that is so essential for the achievement of economic progress and social cohesion. The farmers' training program is to be carried out either on the demonstration site or on the farm of the pioneer or progressive farmers in the village.

Mediating the appropriate skills and technologies cannot be effective unless there is a thorough understanding of the farmers, what they do, why they do it, and what they need, or think they need, in the way of improved skills and technologies. Any extension worker, or any researcher, must ground themselves in the needs and perceptions of the farmers.

It is anticipated that nearly all the research in the immediate future will be relatively simple and straightforward adaptive research. This is what is needed in the country. However, this will form a solid training ground for young researchers who will eventually take up more ambitious initiatives in original research. Even now, the first step in crossing wheat varieties have taken place, although the emphasis must remain on some quick results with the potential for immediate application.

The subject of agricultural research and technology transfer has been regarded as a key issue since the first natural resource management policy was being formulated. As a key area, the MAAHF has already developed an Agricultural Research and Technology Transfer Systems (ARATTS) policy and strategy, and formulated several programs for donor support.

7.9 Research and Extension Program Budget

7.9.1 National Wheat-Based Farming System

The full costs of a national project over two years would be in the order of the following:

International expert program management, inclusive support	\$500,000
Provincial programs, including short term technical assistance	\$2,500,000
Limited rehabilitation/re-equipping of 10 research farms @ 50,000 each	\$500,000
Re-equipping soil, water and plant analysis laboratory	\$200,000
International TA and support/program costs - soil and water laboratory (half-time post over 2 years)	\$250,000
Overseas and local training programs	\$50,000
Salary support for 50 senior staff and managers @ \$5,000 per annum (support staff provided out of provincial costs, per project)	\$ 500,000
Total program cost for two years	\$4,500,000
Ongoing costs per year	
International expert program management, inclusive support	\$250,000
Provincial programs, including short term technical assistance	\$1,500,000
Research equipment and consumables	\$250,000

Short term, international specialist for technical assistance	\$250,000
Overseas and local training programs	\$50,000
Salary support approximately 50 senior staff and managers @ \$5,000 annually (support staff provided out of provincial program costs, per project)	\$250,000
Annual program cost 3-5 years 3-5	\$2,400,000
Total program for 5 years	\$11,700,000

JICA has committed to funding the rehabilitation of laboratories and research stations, but is up to the MAAHF to give clear guidance on the actual programs that should be carried out.

The wheat crop in Afghanistan at the lowest level of production is at least 2,000,000 tons per year, with a value at least \$100 per ton (= \$200,000,000). While other factors apart from this project will affect the wheat productivity, it can be seen that increases in the wheat yield of less than two percent per year (as long as there is no extra input cost) would pay for this project.

7.9.2 Horticulture Research Budget

The costs listed below include some fieldwork each year. However, no large programs are planned to be funded from within this program, as they become diverse from the needs of the farmers or other stakeholders. Additional funding obtained for extra activities will be direct from donors or from with the horticultural development program, for example, tackling specific pest or disease problems. In such cases, research proposals would have to be made for the funding agency. It is important that there should be training of the pest and disease researchers in how to provide proposals for funding for such activities.

The full costs of a national project over the first two years would be in the order of the following:

International expert program management, inclusive support	\$500,000
Specialist short term TA (one full time equivalent over two years)	\$500,000
Various equipment, demonstration orchards, consumables	\$300,000
Overseas and local training programs	\$100,000
Salary support approximately 20 senior staff and managers @ \$5,000 per annum	\$200,000
Total program for two years	\$1,600,000
Ongoing costs per year	
International expert program management, inclusive support	\$250,000
Specialist short term TA	\$250,000
Various equipment and consumables	\$100,000
Vehicles and Motorcycles	\$100,000
Overseas and local training programs	\$50,000

Salary support approximately 20 senior staff and managers @ \$5,000 per annum	\$100,000
Annual program costs 3-5 years	\$850,000
Total program costs over five years	\$3,950,000

Note that the funding for these programs are largely committed by the EC for their Horticulture Development Project, subject to decisions by the project steering committee at the time.

7.9.3 Integrated Pest and Disease Management Systems for Food Security

The full costs of a national project over two years would be in the order of the following:

International expert program management, inclusive support	\$500,000
International TA plant diseases expert (half time post over two years)	\$250,000
International TA integrated pest management expert	\$500,000
Miscellaneous equipment, including microscopes, traps, etc.	\$200,000
Micro propagation laboratory equipment	\$200,000
International TA and support/program costs	
Micro propagation laboratory (half time post over two years)	\$250,000
Costs of field programs	\$100,000
Overseas and local training programs	\$100,000
Salary support 30 local staff @ \$5,000 per year (2 years)	\$300,000
Total program costs for two years	\$2,400,000
Ongoing costs, per year	
International expert program management, inclusive support	\$250,000
Specialist international TA, inclusive support (as needed)	\$375,000
Miscellaneous equipment and consumables	\$100,000
Costs of field programs	\$50,000
Overseas and local training programs	\$50,000
Salary support 30 local staff @ \$5,000 per year	\$150,000
Annual program costs 3-5 years	\$975,000
Total program costs over five years	\$5,325,000

7.9.4 Extension Costs

With 35 districts and one manager per province, 387 persons outside MAAHF headquarters are to be funded by the project during its lifetime. This amount of money would be provided from the beginning of the project, in order for contractors to be able to provide services. To maintain a government extension service, the government must eventually be prepared to find a recurrent budget for this number of people.

The approximate costs of a national project over the first two years would be:

International expert program management, inclusive support	\$500,000
MAAHF media and training program support, short term TA	\$250,000
Provincial programs, including regional TA (8 advisers)	\$4,000,000
Limited rehabilitation/re-equipping of 33 provincial extension units @ \$20,000 per unit	\$640,000
Support to training institutions	\$400,000
International and local training and support/program costs (including short term training adviser)	\$650,000
Salary support to 450 persons for 2 years @ \$300 per month	\$3,240,000
Provision of motorcycles and other equipment	\$450,000
Cars and other expenses	\$500,000
Total program cost for first two years	\$10,630,000
Annual Costs Years 3-5	
International expert program management, inclusive support	\$250,000
Provincial programs, including regional TA (8 advisers)	\$2,000,000
Support to training institutions	\$200,000
International and local training and support/program costs (including short term training adviser)	\$200,000
Salary support to 450 persons @ \$300 per month	\$1,620,000
Provision of motorcycles and other equipment	\$150,000
Cars and other expenses	\$100,000
Annual program costs 3-5 years	\$4,520,000
Total Program Costs	\$24,190,000

7.9.4 Development of Post-Harvest Technologies for Food Security and Income Generation

The full costs of a national project over two years would be in the order of the following:

International expert program management, inclusive support	\$500,000
Miscellaneous equipment	\$100,000
Microbiology laboratory equipment	\$200,000
International TA and support/program costs	
Microbiology laboratory (half time post over two years)	\$250,000
Cost of field programs	\$100,000
Overseas and local training programs	\$100,000
Salary support 10 specialist staff at \$5,000 per year for two years	\$100,000
Total program cost for two years	\$1,350,000
Ongoing costs, per year	
International expert program management, inclusive support	\$250,000
Miscellaneous equipment and consumables	\$100,000
International TA (half-time post)	\$125,000
Cost of field programs	\$50,000
Overseas and local training programs	\$50,000
Salary support 10 specialist staff at \$5,000 per year	\$50,000
Annual program cost years 3-5	\$625,000
Total cost of five year program	\$3,225,000

CLASSIFICATION OF PROPOSED EXPENDITURE BY EACH PROGRAM IN US DOLLARS OVER FIVE YEARS

	EXTENSION PROGRAM	HORTICULTURA L RESEARCH	FARMING SYSTEMS RESEARCH	INTEGRATED PEST and DISEASE MGT	POST HARVEST RESEARCH	TOTALS
TA COSTS	11,500,000	2,500,000	9,250,000	3,375,000	1,875,000	28,500,000
BUILDING ETC	640,000	0	500,000	0	0	1,140,000
EQUIPMENT and CONSUMABLES	0	600,000	500,000	700,000	600,000	2,400,000
LOCAL SALARY SUPPLEMENTS	8,100,000	500,000	1,250,000	750,000	250,000	10,850,000
TRAINING COSTS	1,250,000	250,000	200,000	250,000	250,000	2,200,000
SUPPORT TO TRAINING INSTITUTIONS	1,000,000	0	0	0	0	1,000,000
FIELD PROGRAMS	0	0	0	250,000	250,000	500,000
VEHICLES	1,700,000	0	0	0	0	1,700,000
TOTALS	24,190,000	3,850,000	11,700,000	5,325,000	3,225,000	48,290,000

NOTE: The expenditure headings are not totally comparable between programs, and associated costs are often included under main headings for convenience and to highlight the major costs

Chapter 8

RURAL FINANCIAL SYSTEM

The Master Plan strategy gives the highest priority for aggregate farm income growth to the high value commodity sectors – specifically perennial horticulture and intensive livestock production. Growth in these sectors places very large demands on the credit system. The demand will be disproportionately large, compared to other sectors, for intermediate term credit, while the demand for operating and short term credit will also be high.

Rapid income growth in these sectors will soon generate large savings and demand for convenient deposit mobilizing financial systems. As long as poppy production is important there will also be large savings that can be mobilized as deposits to finance rural credit needs.

The importance of irrigated land; the cropping system, and the ready acceptance of fertilizer by farmers have resulted in rapid growth in fertilizer use, largely without a credit system. However, that growth appears to be entering a phase when lack of credit will slow the growth of both inputs and even more of output.

Those with very small land holdings can also benefit from intensification of wheat production with improved seed and fertilizer. Indeed, because of their abundant labor the response to fertilizer and improved seed is greater than on larger farms. Those small farms could also greatly increase their incomes with intensive livestock production and transferring area to high value crops like annual and perennial horticulture. But, just as much as those with larger holdings, they need credit to move quickly into these opportunities.

While the demand for credit is large and essential to agricultural growth, the recapitalization of the rural areas limits the scope for self-financing and traditional sources of credit. That same recapitalizing of financial, and human assets has resulted in virtual disappearance of rural financial markets which in the 1970's were commented on favorably, for example in the World Bank agricultural sector analysis of 1975.

That is the environment in which the Master Plan has considered the rural financial system. The analysis for this chapter starts from the necessity and the highest priority to developing a competitive rural financial system that is economically viable and serves the full financial needs of all farmers.

8.1 Types of Farmers from a Rural Financial System Perspective

Farms of different sizes have somewhat different financial market needs, which have resulted in differences in the extent to which they are presently served.

8.1.1 Small farmers

Farmers with less than one hectare of land are expensive to service because of the small average size of loan and many of them are below the poverty line, meriting special attention. These farmers represent only three percent of irrigated land (FAO 2002-2003 winter survey) but over a third of all persons holding land. That is this is a large number of farmers producing a small proportion of output.

Perhaps surprisingly, a system to service their needs is the most developed element of the rural credit system. That is the micro credit system, which with ample donor financing has expanded rapidly. That system has generally serviced the rural non-farm sector much more than small farmers.

Given the commodity priorities of the Master Plan, however, the micro credit system needs to give priority to fertilizer loans to small farmers and to the full credit needs, including intermediate term credit for the smallholder intensive livestock system. That sector is particularly important to poor women, a usual target of micro credit systems. Small holders could also benefit immensely from moving into horticulture, including perennial horticulture, but the financing needs would be large.

For the micro credit system to serve these small farmer production needs will require some reorientation in strategy, priorities and training of staff. Concentration of lending in priority areas for the Master Plan, the same areas that would most raise incomes of small farmers, will require attention to risk management in the context of concentrated portfolios. Technically knowledgeable loan officer's best do that with close loan supervision.

Given the coverage of the rural poor by MISFA and the Agha-Khan micro finance institutions and their plans for expansion it is reasonable to see complete coverage of the country within 5 years. This is an important contribution, particularly for poverty reduction. It is a highly desirable complement to expansion of the more commercial smallholder farming which provides the demand for much of the rural non-farm sector. In view of this, analysis is needed to ensure that the full national coverage actually occurs.

The micro credit field has received several donor initiatives, which in turn reached a scale to result in forming MISFA as an umbrella agency for micro credit. It is notable the MISFA analysis calls for additional funding for MISFA of \$30 million (table 1.) Perhaps nothing could make the case more dramatically of the huge credit needs for agricultural growth than to see a figure of \$30 million for micro finance that probably covers no more than three percent of agricultural production. Nevertheless that number, a well-researched calculation by donors and MISFA is included in the investment plan for the Master Plan.

As the total rural financial system develops new issues will rise for micro finance. Administrative costs are high because of the small size of individual loans and despite the highly participatory organizational structure and good risk management. At present in Afghanistan those high costs are being covered by very high interest rates.

As other parts of the system develop, which lower costs and interest rates the question will arise as to why poor people should be paying such high rates. That in

turn will raise the issues of subsidies for micro finance – the norm in other countries, either hidden or open. In anticipation of subsidies it is probably best if Micro credit continue to serve those who fall below the poverty line.

Table 1. Short Term Initiatives in Micro Finance, Dealer Credit, and a Commercial Bank

Short – Term Expanded or New Activities	Coverage	Areas / Locations	Remarks	Required Short-term Funding
Additional investments in MISFA.	Up to 100,000 loans disbursed for micro-agricultural entrepreneurs	34 Provinces	Additional investments in MISFA would result in a 2.5 increase in returns. A \$30 million investment = \$85.2 million return.	\$ 30 million
Additional investments in IFDC	Access to credit for 2,000 more dealers, supplying 200,000 farmers	34 Provinces	Expected increases in cultivated areas, productivity and rural employment	\$ 10 million
Opening of AIB branches in Kandahar, Herat.	New loan capital required, to reach agribusinesses	Kandahar, Herat then to others		\$ 1.9 million
TOTAL				\$ 41.9 million

Source: Francis Toomey, Rural Finance Director for RAMP

8.1.2 Large Farmers

Large farmers, for this purpose, are best defined as those with more than 50 hectares of irrigated land. They represent one percent of farmers but 15 percent of irrigated land, so they are a consequential group in aggregate production. It is widely believed that these farmers can rely on the commercial banks for credit. That is questionable for the short and even intermediate run since the commercial banks have hardly expanded beyond Kabul and are not nearly serving the immense needs of the agricultural commodity exporters.

However, AIB has shown an interest in making agricultural loans. It has plans to expand to Kandahar and Herat. Probably it will lend mainly to agribusinesses, but it is conceivable it would expand to cover large farmers as well. Such large farmers may also have other sources of funding.

Donors have under consideration \$1.9 million of funding for AIB (table 1.) For other commercial banks the effort will be for the next several years to get large financing of agribusiness, especially the immense and rapidly growing needs of the dry fruit and

nuts exporters (see the Horticulture Chapter.) As pointed out below rural finance requires large numbers of conveniently located branches. It will be a long time before the commercial banks are prepared to do that. They should however be seen in the long run as an important element in bringing competition to rural financial markets and should be encouraged in that connection, including by legislation.

8.1.3 Middle Farmers

Middle farmers are defined, for this purpose, as those with between one hectare and 50 hectares of irrigated land. They represent 62 percent of all holders of irrigated land and 72 percent of the irrigated land area. This is the backbone of the agricultural growth effort and this is the group that is largely unserved by financial markets at the moment. The rest of this chapter is devoted to dealing with the financial market needs of these farmers.

8.2 Present Situation

The middle farmers, as above, are not served by the micro credit institutions nor at present or for many years in the future by commercial banks. Traditional moneylenders are available, but at very high interest rates that are not suitable for production loans. Traditional moneylender's interest rates come down substantially when competition from alternative lenders enters the scene (this and other general statements about rural credit systems are drawn from the IFPRI Report by Desai and Mellor which reviews a massive literature on rural financial systems, including a large literature from contemporary Asia.) Thus, major innovation is required to meet the financial market needs of Afghan middle farmers. Focus must be on what will work, not on what will not work – as tends to be the case in much of present discussion.

8.3 Fertilizer Dealer Credit

IFDC has encouraged lending to farmers by fertilizer dealers. In that context, it is providing training programs for dealers. Fertilizer is the dominant element of working capital for most farmers on irrigated land. It has grown very rapidly to current usage of about 400,000 tons – a quite spectacular growth. That growth has largely been without credit systems. But, IFDC field people believe that credit is about to become a constraint as those who can manage without credit are largely already using fertilizer at substantial rates.

A current program of providing fertilizer on vouchers is operated through fertilizer dealers. This is putting \$25 million dollars into rural areas for fertilizer and seed purposes. It may serve to increase the experience of fertilizer dealers with some type of credit, but runs the risk of developing a culture of non repayment since the repayment plans are at best not in the normal confines of credit systems. It may also serve to increase fertilizer by lower income farmers, since they have been targeted in the program. However, that will further increase the demand for a viable credit system.

In view of this experience, donors have discussed a \$10 million short term financing of lending through fertilizer dealers (Table 1.).

It is notable that an annual growth rate of 15 percent, consistent with IFDC analysis of long run potential, represents more than \$15 million dollars per year of increments to spending on fertilizer. At a compound growth rate of 15 percent, in eight years time that would call for in excess of \$60 million. Since credit would not go exclusively to increments to consumption the credit needs to finance fertilizer growth over the next several years will certainly exceed \$100 million. Total expenditure on fertilizer should be close to \$200 million per year within five years.

Thus, fertilizer dealers represent an important and quick means of dealing with a major part of the operating capital needs of agriculture. It is not sufficient on two grounds. First, it is not a highly competitive system and we know that interest rates and margins are high in low competitive situations with consequent substantial reduction of farmer investment. Second, dealers will fail to reach a large proportion of farmers because of the exigencies of their own demands for risk reduction and intimate knowledge about their borrowers.

Thus, dealer credit is a potentially valuable addition to the array of competitive rural credit institutions, with the advantage that perhaps it can be implemented quickly and on a large scale. It is however only part of the solution and deals with only part of the financial market needs.

8.4 A Large Scale Rural Financial Institution

It is essential that work begun immediately to establish a rural financial system that will eventually cover the whole country and efficiently provide credit and deposit facilities to the middle farmers. To cover overheads the system should make loans to non-farmers as well as farmers, with emphasis on the agribusinesses that will make up the bulk of the industrial sector for some time to come. Thus, the system could be restricted to agriculture – farmers and agribusinesses – without unduly circumscribing its financial viability.

To be efficient and effective it will have to expand with deliberate speed and so should concentrate first on parts of the country and commodities that offer high rates of return to loans. Even in systems with large overdoes, repayment by farmers who have made highly profitable investments is high.

The rural financial market issue is sufficiently complex and so much has been learned over recent decades about how to make rural institutional finance systems work that a team to study this situation and make recommendations for immediate action should be mobilized immediately.

The team should be a technical team, comprised of persons who have worked extensively in rural finance in countries that have successfully undertaken sustained economic growth; perhaps including one member who is a broadly based development person. The team should have substantial membership from Asian countries that have established large, nationwide, competitive systems and experienced all the problems associated with rapid expansion of such systems as well with the influence of political systems and means to deal with them.

India has probably, through the various Reserve Bank rural finance commissions, analyzed these issues most intensively. Other countries, such as Philippines and South Korea would have much to contribute. The analysis of the Agricultural Development Bank (Afghanistan) by the World Bank in the 1970's and the recent analysis of financial and other aspects of the ADB by the USAID team of Bankers should form part of the analysis.

Obviously the team must start from the position that agriculture cannot play its dominant role in the growth of the Afghan economy, reduction in poverty, and substitution for poppies, without such a system. Given the many successes in the world, the objective is to come up with the right system for Afghanistan. It would also assume that Micro credit; dealer financing, and gradual expansion of commercial banks into rural areas would be part of the competitive system required.

8.5 Outline of a Rural Financial System for Afghanistan

Even though a major commission is needed, the broad outlines of what a rural financial system would be like in Afghanistan can be derived from experience elsewhere and widespread consultation about experience in Afghanistan.

As stated above, micro finance, dealer credit, and in the long run, commercial banks would be a significant part of the whole system, providing competition and serving somewhat different parts of the market.

The Rural Financial System to be established would be an autonomous or semi autonomous body, in essence private sector oriented, unsubsidized, and running on commercial grounds, quite possibly with a foreign partner to bring skills and discipline. It might be named the Afghanistan Bank for Farmers Associations and Agricultural Business (ABFAAB.)

It would have an apex body to receive capital, to connect the system with the national and global financial systems. The apex body would probably lend directly to large agribusiness entities, but its main business would be to wholesale to retailers of rural credit. Eventually the capital and management of the apex body should lie with farmers and the farmer's associations, but in the short and intermediate term outside capital and management would be necessary.

Given the huge potential for deposit mobilizing in rural areas it must mobilize deposits. That would serve to reduce the capital requirements and allow more rapid expansion of lending. Experience elsewhere is that in fact net transfer of finances out of rural areas would take place even as the full financial needs of the rural sector were being met. That is given adequate capital, the bulk of loans would be financed out of deposits in to the system – with of course different areas having different balances at different points in time.

The Apex body would presumably take over the physical assets of the old ADB. It would surely draw upon the experienced staff, particularly from Herat where the ADB has continued lending with a substantial capital infusion from the Governor of the Province. There may be other assets that could be taken on as well – see the USAID

Bankers Report on ADB. It would however represent a fresh start with a different operating mode, discipline and financing.

Farmers associations or cooperatives would be the retailers of credit, receiving funds from the apex body. There is generally good experience in Afghanistan with group credit guarantees, which could greatly reduce risks in the system. The farmers associations would become farmer owned and farmer managed although, as with the Farm Credit Administration in the United States, they might start out with an injection of government capital and government management, particularly to ensure high accounting standards.

Large-scale technical assistance would be needed if the system is to get up and operating quickly. That TA would take two forms.

Assistance is needed for the setting up and initial management of the apex body. If a foreign bank could be induced to become a partner that Bank might be the source of the TA. The TA would cover developing an overall business plan and the growth program for both components and training personnel for all aspects of managing such an apex bank. To cover all aspects of the TA including equipment would require \$10 million.

Massive organization of farm credit associations would be needed and perhaps grafting on to the water users associations and high value commodity marketing associations a credit component. MAAHF has a cooperative department and will expand that to cover cooperatives and farmer' associations. It would need large scale TA comprised of technical people who would perform these tasks in conjunction with counterpart staff, leading to the counter part staff taking over the functions. It is quite possible that existing NGO's that are doing such organizational work could be enlisted in this effort – but they would have to work through the MAAHF department to ensure capacity building. MAAHF might also contract out some of this work, but again in the context of building MAAHF capacity to provide complete national coverage.

Given the necessity of a rural financial institution, the Master Plan, arbitrarily, budgets \$50 million for initial capital of such an institution. That is somewhat larger than more careful analysis has turned up for Micro Finance. A more calculated number would come out of the working team recommended above.

The TA requirement to cover all aspects of TA would come to roughly \$20 million for five years.

The following section provides key lessons that can be drawn form the vast experience with rural financial institutions that should guide the team.

8.6 Lessons from Experience in Rural Financial Markets with Applications to Afghanistan

The huge experience of similar organizations needs to be tapped. The team recommended above would tap into these and other sources of information.

8.6.1 Interest Rates

Interest rates are a complex and important issue. The basic rule is that credit institutions must have sound business plans so that they can grow and expand the credit base. Interest rates must cover costs.

In contrast to high-income countries, in low-income countries the elasticity of farmer demand for loans is much more elastic than for the supply of savings. That is high interest rates in rural developing countries greatly inhibit borrowing and hence production and have little impact on savings. Thus, there is a special interest in developing countries to keeping interest rates as low as possible and still have a sound banking system.

In this context it is desirable to keep the “pure” (central bank determined) interest rate low. Risk must also be reduced by careful supervision of loans and preventing intrusion of political influence into loan repayment. Most important, administrative costs need to be kept low. The latter has two critical aspects.

For all businesses, start-up administrative costs are high while volume is built. Consideration should be given to subsidizing administrative costs when branches are being expanded rapidly. Such a subsidy has its own exit strategy related to time or the building of volume.

The most important means of reducing administrative costs per unit of loans is through multiple functions. Most important, lending institutions should receive deposits as an important source of spreading overhead. Other functions should be considered as well.

8.6.2 Expansion Rate

It is essential to agricultural growth, to say nothing of political exigencies, that the credit system expands rapidly. Most Asian systems have expanded rapidly and the result has been reduced management oversight and loan discipline with consequent large overdues. Keeping overdues down (which are not synonymous with bad debt) requires good management, which is difficult to maintain in rapid expansion.

Thus, there is a difficult problem of balancing speed of expansion, required for agricultural growth, and maintenance of discipline. From an overall “returns to the economy” point of view, the balance should be on the side of rapid expansion.

The best way to manage the expansion rate problem is to commence operations in areas and with commodities that have particularly high rates of return. In Afghanistan, that would mean opening branches (organize farmer’s associations) rapidly in areas with high potential for perennial horticulture and concentrating initially on horticulture loans. Fertilizer loans, in competition with fertilizer dealers would be another high return area.

A reasonable target would be to start with an effort to reach 10 percent of the geographic area with the first effort in perennial horticulture and expand the geographic coverage by ten percentage points each year to reach full national

coverage in 10 years. Whether such a deliberate pace would be politically practical is an important question.

It should be noted that the horticulture section of the Master Plan includes matching grants to farmers planting orchards and vineyards. That is justified partly by farmers, in general, requiring higher discount rates than the social discount rate for long-term investment in such orchards. It is also a partial compensation for the lack of credit institutions.

8.7 Convenience of Branches

All studies of rural financial systems show that the most important concern of farmers is convenience of location of the lending and deposit receiving facility. This presses for a very large number of branches or farmer's association. It presents a conflict between convenience and spreading overheads. Small associations that are conveniently located have low volume and hence high overheads as a percent of loan volume. This problem is exacerbated by the importance of competition to keep down interest rates and increase service. A careful balance must be struck in this connection.

8.8 Sound Legal and Regulatory Framework

As part of the total picture for establishing a rural financial institution, the full legal and regulatory framework must be examined, and improvements developed.

8.9 Conclusion

There is great urgency in developing an efficient, self-financing, competitive national system for rural finance. Meeting the targets for fast growth of horticulture and horticulture exports demands such a system. But, continued progress on food security and direct reduction of poverty also depend on it.

At present the poor and by extension for small farmers with less than one hectare of irrigated land are best served by the micro finance system. Large farmers could conceivably soon be served by commercial banks. There is a complete lack of financial system coverage for the middle farmer who must be the backbone of agricultural growth and rural prosperity.

To meet this gap a large scale, geographically pervasive rural credit institution must be developed. It is best built on a network of farmers associations building up into an apex body that connects farmers with national and even in international financial markets. To build this institution requires an immediate commission to develop the details of that system and provide the analytical basis and credibility for provision of large capital and technical assistance to get it off the ground.

Chapter 9

POLICY, MONITORING AND EVALUATION, AND PLANNING IN MAHHF

9.1 Introduction

Agriculture remains the backbone of the Afghan economy, constituting 53% of the GDP and providing employment for about 67% of the labor force. With proper policy and appropriate investment strategy, agriculture has the potential to play a leading role in reducing poverty, eliminating poppy cultivation and the overall economic growth prosperity of the country. Although production in the recent three years, especially with respect to the country's staple crop of wheat is encouraging, agriculture has yet to reach its performance level of the late 1970's.

Rural physical infrastructures such as irrigation networks, rural roads, research farms, and diagnostic clinical livestock and plant laboratories were either destroyed or remain dysfunctional. About 30% of farming communities have been either displaced internally or have migrated outside the country, and the majority of farming communities have lost their capital assets and long-term investments such as livestock, fruit orchards, and working implements. Due to these factors, lawlessness, poppy production and its illicit trade gradually expanded and now occupies about 104,000 hectares of irrigated land in 2004, forming 50% of the GDP.

In spite of these destructive forces, the resilient nature of the Afghan people and the generous assistance from donors coupled with increased rain fall in the last three years have allowed for significant agricultural growth. Crop production increased from 2.5 million tons in 2000 to 4.266 million tons in 2004, and livestock herds are on the increase.

So far, in donor assisted programs, cost effectiveness and sustainability of the interventions were not a major objective. Partly due to special circumstances that prevailed in the country, the project and programs were designed to respond to distressed situations without much concern for long-term growth and sustainability. It is time for paying more attention to creating indigenous ownership and fostering local capacity in both the public and private sector to ensure long-term and sustainable growth in the national economy, particularly in the rural economy. Creating appropriate capacity to formulation of proper policy and formulate realistic planning targets, and establish and conduct regular monitoring and reporting system would be a first step in this direction.

9.2 Background

9.2.1 An Assessment of the Present Situation

The gains made so far are fragile and challenging work remains to solidify the gains. Government and donors succeeded in rescuing the people from imminent starvation, repairing and expanding infrastructure such as rural roads, and providing some marketing facilities to assist agriculture to move forward. However, aside from

variation in rain fall, the fragility of the last three years gains in the sector stems from the absence of a coordinated operation plan among the different stakeholders. Also, the weakness of local institutions, heavy reliance on short-term local and foreign experts, absence of a viable long-term plan in the delivery of improved inputs, and inadequate skill to formulate policy proposal on solid analytical facts and data add to this fragility.

The selfless efforts that some NGOs made during the conflict era and their contributions in turning around the agriculture performance are commendable, however, there is little change in their mode of operation from the conflict era. With few exceptions, many NGO programs were designed to have a short time horizon, deal with distress and emergency situations, work in isolation, and bypass government institutions. Additionally, most NGO programs have yet to establish a transparent reporting and accounting system and a dissemination mechanism to transmit their achievements to the general public and win their support and cooperation.

Due to numerous factors, the public institutions, especially at the field level, still remain very weak. At present, three core ministries, Agriculture, Animal Husbandry and Food (MAAHF), Power and Water Power (MPW), and Rural Rehabilitation and Development (MRRD), are engaged in agriculture and rural communities. Although the broad division of labor was drawn under the new administration recently, the details of the responsibilities between them have yet to be determined. Strengthening communications and effective coordination between these ministries and other institutions working in the sector will be crucial in delivering public investments and support services in rural areas and in promoting private sector participation in rural investment program.

The civil servants in general and the professional field staff in particular, suffer from low salary levels, nonexistent or inadequate operational budgets, and a long interruption in education programs. A significant number of professionals migrated out of the country or became casualties of war. Most of the small cadre of professionals that remained in the country have either reached retirement age or have been hired by NGOs that pay better salaries and offer better incentives. Future agriculture prospects depend to a large extent on how speedy and effectively public and private institutions can respond to challenges and provide an appropriate environment that can stimulate market-driven agricultural growth.

9.2.2 Restructuring of the Ministry of Agriculture, Animal Husbandry and Food

The Ministry of Agriculture, Animal Husbandry and Food is committed to restructure itself to comply with the needs of farmers and rural communities and to be instrumental in encouraging the private sector to participate in rural investment and services. As a first step toward attainment of this mission, the Ministry fully endorsed the Civil Service Commission guidelines of restructuring the Ministry with the objective of creating a lean and efficient technical institution.

Joint agreement was reached with the Civil Service Administration stating that the Ministry would only keep six general departments in the headquarters and transform its field offices on to efficient institutions serving the demand of farmers and agro-

business clients in providing technical advice and controlling the quality of agricultural inputs and outputs. Based on the new approved organogram, the Ministry in the headquarters is consists of six general departments:

1. Extension Economic and Applied Research (EEAR)
2. Policy Economic Analysis and Planning (PEAP)
3. Natural Resource Management (NRM)
4. Food, Agro-Industry and Market Development (FAIMD)
5. Quality Control (QC)
6. Finance and Administration (FA)

Of the six departments, the general departments of Food, Agro-Industry and Market, and the Quality Control are new additions to the Ministry where FAIMD was part of the dissolved Ministry of Light Industries and the joint Ministry of Agriculture. QC is a newly created Department. It is also anticipated that an Irrigation Department would be established under the General Department of Natural Resource Management, the size and scope of this Department depends on what would be the responsibility of the Ministry of Energy and Water in the irrigation activities.

The restructuring work is proceeding successfully in the Ministry of Agriculture. About 714 mid-level and junior staff already passed the interview process, and 16 higher level staff and department heads, completed the interview processes and were assigned to there posts on the job. In addition, all 34 governorate general director posts were advertised and their recruitments are in progress.

9.3 The Proposed Project

9.3.3 The Rationale for Capacity Building in Policy and Planning

9.3.3.4 Overview

Capacity building in the Policy and Planning Department is the key to Afghanistan having and implementing an integrated strategy with priorities for achieving rapid growth in agriculture and consequently prosperous farmers, enhanced government revenues, poverty reduction, and substitution for illicit crops. The Department will play the central role in ensuring that donor programs fit into the broad strategy and priorities of the MAHHF and reinforce each other and the government's efforts to achieve results. A small cohesive staff has been defined consistent with personnel availabilities. To achieve the desired results a large, phasing out, technical assistance is required that will help conduct the necessary tasks while training their counterparts in the Ministry. Concurrently a substantial training program is required including several persons sent out for Masters Degree. Furthermore, a substantial budget is required for vehicles and equipment.

The Ministry is fully endorsing the open market economy policy and is cognitive of the crucial role that the Economic and Planning Department could serve as a "think tank" to the Ministry in formulating policy, designing projects and programs, monitoring and assessing accomplishments, coordinating different stakeholders work, and drafting appropriate law and regulations. At the same time, the Economic and Planning Department could be instrumental in enhancing inter-departmental

cooperation inside the Ministry and between the Ministry and other outside institutions serving the agricultural sector.

While a Planning Department existed in the Ministry since its creation, the Department did not work on the basis of a clear term of reference and was weak due to numerous factors. Under the new organization, the General Department of Policy Economic Analysis and Planning (PEAP) would have a pivotal role in designing appropriate strategies, and identifying priorities; formulating policy advice based on proper analysis and accurate data; conducting prospective studies in crop production, trade, price and marketing; monitoring and evaluating the projects and programs; and establishing liaison and strong bond with donors, sister ministries serving the agriculture sector, and inter Ministry departments.

Under the new organization, PEAP consists of six departments:

1. Policy and Analysis
2. Planning, Program and Project Development
3. Monitoring and Evaluation
4. Statistic and Agricultural Market Information
5. Foreign Affairs
6. Legislation Review and Analysis

The Ministry has a keen interest in strengthening PEAP immediately so that this Department could be instrumental in upgrading the rest of its departments and enhancing its resource efficiency.

9.3.4 The Project Objectives:

The main objective of strengthening PEAP would be to increase farm income and marketing efficiency through appropriate strategy and policy measures, improve efficiency of the budgetary resources of the Ministry, avoid duplication of efforts, and enhance stakeholder participation in the design and implementation of the projects and programs, encourage private investment in agriculture, alleviate poverty, promote efficient utilization of natural resources, and improve coordination and communication inside the ministry departments as well as other institutions and donors involved in the agricultural sector. Its specific objectives are:

- (i) Create an enabling capacity to formulate appropriate strategy, policy and position papers in the Ministry to achieve national policy goals in agriculture.
- (ii) Identify and design in collaboration with technical department staff viable investment proposals for financing.
- (iii) Establish an monitoring, evaluation and progress reporting system for the projects and programs to enable the senior staff of the Ministry to gauge the impact of different interventions in the sector and provide appropriate directives for streamlining implementation.
- (iv) Provide a data bank for the agricultural sector though close collaboration with Central Statistic, and with any sample survey activities, collecting price and marketing information for selective agricultural crops.

- (v) Coordinate with the donor community and the Ministry's provincial field departments, and other stakeholders in agriculture.
- (vi) Formulate appropriate legislative and regulation proposals for orderly functioning of farmers groups, preservation of natural resources, and safeguarding quality of agricultural inputs and outputs.

9.3.5 The Project Scope

Creating a functioning system in MAAHF to conduct proper policy formulation, design viable projects and programs, conduct appropriate monitoring and evaluation is a complex undertaking and requires concentrated effort and sufficient time. It is anticipated that five years of outside assistance are needed to establish a viable institution to conduct the aforesaid responsibilities. To be effective, the Department must establish strong linkages with the technical departments of the Ministry in the headquarters as well as the regional, governorate, and district staff of the Ministry. The technical department of the Ministry should view the department as a reliable partner and a major source of assistance and information to facilitate their operations. Due to the limited supply of professional staff, it would take some time to decentralize planning and budgeting activities. There is ample opportunity to reap the benefits of NGOs serving the community and through them establish contact and reflect in the Ministry programs' rural communities demand.

9.3.6 Institutional Base for Establishing PEAP

The old Planning, Foreign Relation, and Extension Evaluation department's staff and resources would be restructured and used, as much as possible, in establishing PEAP. Table 1 shows the inventory of the staff of the three parent departments which would be dissolved and would constitute, the proposed General, Economics, Analysis and Planning Department.

Table 1. Inventory of the Present Staff of the Three Departments

	Planning Department	Foreign Relation Department	Evaluation Department	Total
MS	2			2
BS/MS	18	3	14	35
High School Grad.	10	5	3	18
Computer Specialist	2	1	1	4
Support Staff	5	4		9
Total	37	13	18	68

As the above table shows, the Planning Department operates with 37 technical and support staff: 19 bachelor degree holders, 2 masters, and the remaining are high school diploma holders. About seven staff members have some degree of competency in English and almost all went through some computer training programs. The Foreign Relation Department includes 13 staff members and

Evaluation Department includes 15 staff members. In addition, each of the 34 governorates have a planning department with two to three staff serving under the governorate general directors of agriculture, and each technical department in the headquarters has a planning unit. These structures followed the Soviet style system and lacked any clear job description and term of reference.

At present, also, an FAO/EC funded semi-autonomous project is engaged in collection and analysis of statistical data and DFID and RAMP/USAID each provides one expatriate advisor and some training funds for the planning Department. Also, some other donors such as Asian Development Bank (ADB), EC, and World Bank conduct ad hoc policy studies in privatization, veterinary services, food security and strategic reserve.

9.3.7 The Proposed New Structure for Policy and Planning Capacity in MAHHF

Under the new structure, all these dispersed and isolated activities will be functioning within the structure of PEAP. To make the transition in staffing smooth and palatable, priority would be given to the existing qualified staff of old planning entities. However, the PEAP needs to recruit qualified staff and young professional from the outside to fill the skill gap. The mismatched staff should be allocated to the other departments and field offices in the Ministry, provided the staff's qualifications and experiences match the skill needs.

An important part of the capacity building is training. For this purpose, different programs would be considered including on-the job training, learning by doing, and local and outside training programs. In addition, the Ministry would take measures to ensure that all expatriate professionals train their local colleagues in the Ministry.

9.3.7.1 The General Directorate of Policy Economic Analysis and Planning

This Department would be headed by a Director General (DG), super-grade level, and a highly skilled professional staff. The DG should function directly under the Minister and vice ministers. Also, the proposed Department should take initiatives to establish regular meetings and liaison with the other two sister sectoral ministries, ministries of Rural Rehabilitation and Development, and Energy and Water as well as line ministries of Economy, and Finance. Similarly, the department would establish close liaison and working relations with other stakeholders serving in the agricultural sector.

While the DG would have the main responsibility for the overall performance of the sub-departments functioning under his authority, he represents PEAP in interfacing with the Ministry, attending senior departments meetings; promoting communication with other ministries (especially MRRD and MPW), selecting a team of professionals to conduct spot check and impact studies and formulating training plans for PEAP staff. The DG also works jointly with the Personnel Department in developing overall training plans for MAHHF. In addition, he closely liaises with the Ministry's Private Sector Department in encouraging private sector involvement in agri-business and other agricultural activities. In addition, the DG would also control usage of a shared resource pool such as administration personnel, vehicles, and office technology.

The support staff for GEPD would consist of:

- (i) Director of Administration
- (ii) A bilingual Secretary
- (iii) 3 Computer Technicians
- (iv) 6 Messenger and Cleaners
- (v) 2 Guards

An important responsibility of DGEP is to take necessary steps to upgrade staff skills through proper training programs. It is essential that all of the staff of the Department should learn computer skills, and key staff would have English literacy. In addition, each staff should develop expertise in his field. Under RAMP/USAID, local staff member are receiving training in computers and English. Outside training in the region for eight staff at the level of master's degree, and for another 30 staff short-term, three month training should be undertaken.

A senior highly qualified expatriate policy advisor will be needed to serve the PEAP for a period of three. The PEAP would be further assisted by short-term consultancy service for four months each year. The consultants would serve as an advisor to the DG on all technical issues and would work with all the department staff to promote on the job training.

For all technical staff, proper office technology such as computers, printers, photocopy machines, and telephones would be provided. For traveling in the field and operation in Kabul, eight double cabin vehicles need to be appropriated, and field staff working in the provinces needs to be equipped with motorcycles.

9.3.7.2 Policy Analysis Department (PAD)

This Department would be headed by a seasoned, experienced professional with adequate exposure to the policy issues in agriculture. Due to the crucial role of this department in shaping up the vision of the ministry and in formulating strategies for attaining the sector objectives, the head of this department would also serve as a deputy to the General Director. Although it would be a small department, PAD would be staffed with highly qualified professional, and work jointly with the other professional in the Ministry for developing appropriate policy advice. The Department would consist of:

- (i) Director (Grade 1)
- (ii) Two Senior Policy Specialists (Grade 2)
- (iii) Two Policy Analyst (Grade 3)

In addition, for this department, a long-term one expatriate staff for the first three years and after that four months short-term expert would be needed from year four to year five. The expert also serves as an advisor to the DG and the Minister.

The Department would review, analyze, and evaluate existing agricultural policies, work jointly with the technical departments professional staff to formulate policy on cooperatives, input delivery mechanism, rural credit, strategic reserve, promotion of private investment in agriculture, analyze trends for agricultural development in

various agro-ecological zones and jointly work with Planning, Programming and Project Development in identifying viable investment projects for the private and public sectors consideration.

9.3.7.3 Planning Project and Program Department (PPPD)

The Ministry attaches high priority to viable projects and programs in the sector to attract donor participation and accelerate growth and employment in agriculture and rural sector. Unfortunately, the scope of the investment programs in this sector is lagging behind and is relatively limited.

One of the main reasons for shortcomings in this area has been lack of technical staff and contact with stakeholders and farmers. The chances of a project's success would be greater if, in the design of a project, stakeholders are involved in a participatory process, the situation properly analyzed, and a logical project strategy developed. Agreement should be reached in the cross cutting issues of poverty, gender and participation with long-term capacity building and sustainability part of the design.

The shortage of viable project proposals for investment consideration is partly due to lack of capacity of technical professionals in project formulation in design in the Ministry. The Ministry is keenly interested in having a cadre of professional staff to identify and design technically and financially sound projects and programs. Toward this objective, there is already a competent and qualified Director posted through PRR process to head this department, and DIFED supported the Department through one full and one part time expatriate expert for a year.

The Department's ultimate goal would be to design projects and programs which are technically feasible, economically and financially viable, environmentally friendly, would encourage stakeholder ownership of the activities, and be sustainable. The starting point for any project is to identify the general situation that will be improved, the likely beneficiaries and stakeholders, the geographic scope of the project, the range of issues that will be addressed, and the likely length of time required and expenditure of the project. Depending on the nature and type of a project and a program, the Department should mobilize multidisciplinary teams to prepare a project. This team could be mobilized from inside or outside the Ministry and would be either seconded or hired on a short-term basis to complete the work. However, the technical staff of the Department must develop competency to lead the team.

The Department must develop an inventory of projects presently under execution. The information concerning them should be detailed enough to show the project scope, objectives, components, and location of activity. The project inventory should include those programs and projects serving in the agriculture sector which may be implemented by other institutions, including sister sectoral ministries and NGOs.

This Department would continue to conduct the responsibilities of the old Planning Department concerning the Ministry's development and regular budget processing. For this purpose, it needs to strengthen its traditional linkage with the ministries of Economy, and Finance. Since the Ministry of Finance allocates the yearly budget, it would be prudent to strengthen liaison and regular communication with this Ministry.

The departmental staff members need to be professional in their respected field and must be fluent in reading and writing in local languages as well as English. Due to an extreme shortage of professional staff, the department should start with a small cadre which would go under extensive on-the-job training. For those with appropriate performance records, outside training should be considered. The department would have the following professional staff:

- (i) Director (Grade 1)
- (ii) Three Senior level Professional Experts (Grade 2)
- (iii) Three Project Design Experts (Grade 3)
- (iv) Four Junior Level Experts (Grade 4)

The department would be supported by two long-term (three year duration) experts during the first three years, and subsequently by one short-term expatriate staff, for year four and five.

9.3.7.4 Statistic and Market Information Department (SMID)

At present, several entities are involved in collection of agricultural statistic data. Often the reliability of this data is questionable. More recently, the FAAHM, an FAO/EC project, made some advancement in collection of crop and marketing data. However, this effort needs to be reinforced through creating an internal capacity in the Ministry to collect appropriate data, analyze and safeguard the assembled data, and ensure continuity of data collection.

Under the new and improved organogram of the Ministry, a Department for Marketing, Economics and Statistics under the GEPAD was created. The Department would be headed by a Director. The main functions of the Director would be to coordinate agricultural data collection activity with Central Statistics Office (CSO); organize collection, analysis and dissemination of data on agriculture; provide guidance on marketing surveys; jointly work with other technical staff in PEAD staff in conducting studies in crop-specific supply and demand in domestic and outside markets.

SMID would have two units, the Economic and Statistic Unit and the Agriculture Marketing Unit. The Marketing Unit is expected to identify major agricultural trade flows and to pinpoint major marketing channels; estimate main agricultural input and output marketing cost and margins; collect, analysis and monthly market price data of main strategic surplus and deficit areas. The Economic and Statistic Unit is expected to conduct agricultural data collection, analysis and dissemination data to the general public and farmers; train survey groups and provincial statistic staff in sampling techniques. From these main markets, the data would be collected on weekly basis and transmitted to the headquarters for further analysis and dissemination.

In each province, the Department would gradually post enumerators to collect price, production data in a regular basis. In addition, enumerators would help in conducting sample surveys. Each enumerator would be equipped with a motorcycle and appropriate office technology. A gradual approach would be taken for filling the

provincial enumerator post: during the first year of nine provinces would be considered, and in the second year expanded to the 25 governorate, and the remaining provinces would be considered during the third year.

SMID is the largest of the six departments of the GEPAD, and would have staff representation in all 34 governorates. A seasoned expatriate statistician/ agricultural Economic would support the Department during its first two years of operation. The Department would have following staff:

- (i) Department Head (Grade 1)
- (ii) Marketing Unit
 - (a) General Director of Marketing (Grade 2)
 - (b) 2 Marketing Specialist (Grade 4)
- (iii) Economic and Statistic Unit
 - (a) General Director of Economic and Statistic (Grade 3)
 - (b) 5 Statistician (Grade 4)
- (iv) Provincial Level
 - (a) 34 Statisticians (Grade 5)

9.3.7.5 Monitoring and Evaluation Department (MED)

Establishing a functioning monitoring and evaluation system in MAAHF will enable the Ministry to gauge the performance of different actors in the agricultural sector, to formulate remedial measures for eliminating emerging bottlenecks; and to reflect on the design of new projects and programs and the experience gained from the sector's past interventions . With proper monitoring and a regular reporting system based on transparent result oriented financial and physical indicators, the Minister and his senior staff could take informed policy, institutional and administrative decisions to improve the performance of individual programs and projects. They would be in a position to assess whether the objectives laid down for the sector are realistically achievable or whether changes in due course are necessary.

While day-to-day monitoring and management of individual project and program would be the responsibility of different executing departments, the senior level of the Ministry would be interested in result oriented impact and over all achievement of different interventions. As such, monitoring is a continuous assessment both of the functioning of the project activities in the context of implementation schedules and of the use of project inputs by targeted populations in the context of design expectations.

9.3.7.6 The main responsibilities of the Department

- Assist in resolving any implementation bottleneck which needs direct intervention of senior policy makers and decision taken by outside entities.
- Make sure that individual projects and programs establish transparent performance indicators and reporting systems.
- Provide quarterly summary evaluation and monitoring reports reflecting outcome indicators and impact results (if any) for the review of senior management in the Ministry.

Individual project managements and departments would have their own monitoring system in place to assure flow of information for day-to-day activities of the operation under their command so that it would help the project management to continually self-evaluate through the data generated. Individual project and program managers should also report agreed outcome and impact indicator to the Monitoring and Evaluation Department, on a regular basis.

Monitoring and Evaluation must work closely with other PAEP departments to establish proper goals, outputs, and input monitoring indicators. While MAHHF identified the sector priorities to be food security, increase in production and productivity of perennial horticultural crops, and improvement in productivity of livestock, these priorities would be attained through different projects and programs, financed by several donors and private stakeholders. Each one has a design and approach of its own.

Monitoring and Evaluation needs to design a monitoring and reporting system to measure collective accomplishment of all participators, to facilitate cross flow of experience among different participators, and enable policy makers to gauge the success of different endeavors. This allows them to take remedial action to mitigate any hindrances. For example, the monitoring of data on the achievement of promoting horticultural crop production and productivity. Several donors such as EC, World Bank, Asian Development Bank, USAID, and some independent NGOs are helping the sector to reach this goal. In addition, all of the elements the marketing chain of a particular commodity should be working in harmony to succeed in attainment of this goal. Proper monitoring would catch any bottleneck that may emerge in different marketing chain and would inform the responsible authorities for taking corrective decision.

It is prudent to use a logframe approach for monitoring. The Monitoring and Evaluation Department would work with output and impact indicators and would collate and summarize them. It would also evaluate general performance of the marketing chain with the DG's guidance as it also organizes teams to crosscheck data and develop impact analyses.

Monitoring and Evaluation is a new operation in the Ministry and it needs to be launched cautiously and executed gradually. The Minister has already assigned one of his senior staff to act as Department Head for MED, and some donor-financed projects such as RAMP have established an elaborate monitoring system for their operation. It is recommended that this department closely work with experts in projects such as RAMP, to internalize their experience and continue with their field offices work program once these projects are completed.

9.3.7.7 Department Staffing

- (i) Department Head (Grade 1)
- (ii) 3 Senior Monitoring and Evaluation Specialist (Grade 3)
- (iii) 3 Monitoring and Evaluation Specialist (Grade 4)
- (iv) Provincial Level
 - a. 34 Enumerators

In each province, the Department would gradually post a person to assemble and monitor the data and transmit it to headquarters. However, it is prudent to move gradually and start in the first year with those provinces where agricultural regional centers are located and the provinces where RAMP already established monitoring programs. The provinces that would be considered by the Department for staff at the first year include, Kabul, Balkh, Herat, Kunduz, Badakhshan, Nangarhar, Helmand, Kandahar, and Ghazni. If the experience proves successful another 16 governorates would be included in the second and fourth year. Each of the staff which would be posted in the provinces and would be equipped with a motorcycle, office furniture and computer facilities.

The Department needs support from a seasoned expatriate monitoring evaluation expert for the first two years and in subsequent years only a short-term expert (two months), is required to assess the performance and lead the department into the right path.

9.3.7.8 Foreign Relations and Liaison Department (FRLD)

The department could play an effective role in coordinating donor activities and establishing a liaison with other ministries as well as private institutions serving in agricultural sector. The department should establish contact with all embassies and international donor agencies, participate in all their meetings with Minister and senior Ministry staff, and remain abreast of any development between the donors and the Ministry.

The Department should keep proper filing of all expatriate staff serving in the Ministry and should have an adequate track record of their activities. In addition, a log book of the major consultancy firms which are active in agricultural sector should be retained. Also, the Department should process and keep record of all Ministry staff that is studying abroad. The Department should closely work with the Minister's office.

The Department needs to keep a small cadre of staff members who can speak local and English languages:

- (i) Director (Grade 1)
- (ii) Deputy Director (Grade 2)
- (iii) 2 Senior Liaison Officer (Grade 3)
- (iv) 3 Liaison Officer (Grade 4)

In addition, the Department would be supported in its work during the first year by an expatriate staff member for a period of three months.

9.3.7.9 Legislation Review and Analysis Department (LRAD)

While the Ministry once had a Department responsible for legal issues and formulating bylaws and regulation, under recent past regimes, the Department was dissolved. At present, there are 15 bylaws and regulations that are in different stages of draft forms which need immediate attention for their passage. However, no expertise exists in the Ministry to properly deal with legal issues.

The terms of responsibility for this department would be to ensure that existing policies and laws are complied with by the Ministry of Agriculture. It would also help formulate decrees and laws in collaboration with the technical department of MAHHF and Ministry of Justice and provide legal support for participants in negotiations of multilateral agricultural trade agreements. In addition, the department would offer legal advice for any protocol signed by the Ministry of Agriculture and provide legal advice in all matters needing legal attention of MAAHF.

LARD would have a small group of highly qualified legal experts that would be consisted of the following staff:

- (i) Legislation Review and Analysis Department Director (Grade 1)
- (ii) Senior Legal Expert (Grade 2)
- (iii) 2 Legal Expert (Grade 3)

During the first year, a qualified consultant for a period of three months would be employed to work with the department staff in drafting bylaws, especially those related to formation of water user associations, producers and marketing associations.

STRENGTHENING POLICY, PLANNING CAPACITY in THE MAHHF										
Table 1. Estimated Investment Cost of General Directorate of Economic Analysis and Planning (DEAP)										
INVESTMENT COST									Unit Price	Total in
A. Technical Assistance	Unit	Quantity						US\$	000 US\$	
I. Department Staff		Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total			
a. General Director	Staff Year	1	1	1	1	1	5	3600	18	1
b. Bilangual Secretary	Staff Year	1	1	1	1	1	5	2365	11.825	
c. Computer Technicians	Staff Year	5	5	5	5	5	25	2400	60	
d. Messenger and Cleaners	Staff Year	6	6	6	6	6	30	1200	36	
e. Guards	Staff Year	2	2	2	2	2	10	1200	12	
f. Driver	Staff Year	8	8	8	8	8	40	1800	72	
Sub-Total Cost									209.825	
2. International Staff										
a. Long-term Policy Specialist	Man Year	1	1	1			3	180000	540	
b. Short-term Expert	Man Month	4	4	4	4	4	20	20000	400	
Sub-Total Intern. Consultant									940	
3. Training										
a. M.S	No.		2	6			8	30000	240	
b. Computer and Engl.	No. Staff	20	50	50			120	600	72	
c. Training Seminar (Out side)	No. Staff		10	10	10		30	15000	450	
d. Internal Workshops and Seminars	Lump Sum	1000	1000	1000	1000	1000	5000	5000	5	
Sub-Total Training									767	
Sub Total Technical Assistance									1916.825	
B. Vehicles and Equipment										
1. Vehicles										
4 W. Drive Pick-up	No	8					8	15000	120	
2. Office Equipment										
Computer and Printer	No	8					8	2000	16	
b. Photocopier	No	2					2	5000	10	
c. Telephone	No	5					5	200	1	
d. Office Furniture	Set	5					5	1000	5	
Sub Total									32	
C. Civil Works										
Renovation of Office Building	Lump Sum	50000					50000	50000	50	
Total Investment Cost									1998.825	
RECURRENT COST										
Vehicle Running Cost	Lump Sum	3000	3000	3000	3000	3000	15000	15000	15	
Office Running Cost	Lump Sum	1000	1500	2000	2000	2000	8500	8500	8.5	
Local Travel and Field allowances 1/	Lump Sum	2250	225	2250	2250	2250	11250	11250	11.3	
Total Recurrent Cost									34.8	
Total Cost									2033.625	
1/ Calculated on the basis of 150 days of travel out side of duty station and allowance of US\$15/per night										

Table 2. Estimated Investment Cost Policy Department										
INVESTMENT COST									Unit Price	Total in
A. Technical Assistance		Unit	Quantity						US\$	000'US\$
1. Department Staff		Staff Year	Yr. 1	Yr. 2	Yr. 3	Yr.4	Yr. 5	Total		
a. Director		Staff Year	1	1	1	1	1	5	2856	14.28
b. Senior Policy Specialistry		Staff Year	2	2	2	2	2	10	2352	23.52
c. Policy Specialist		Staff Year	2	2	2	2	2	10	2172	21.72
Sub-Total Cost										59.52
2. International Staff										
a. Long-term Policy Specialist		Man Year	1	1	1			3	180000	540
b. Short-term Expert		Man Month	4	4	4	4	4	20	20000	400
Sub-Total										940
3. Publication and Seminars										
Publication		Lumpsum	500	500	500	500	500	2500	2500	2.5
Seminar		No	2	2	2	2	2	10	1000	10
Sub Total										12.5
Sub Total Technical Assistance										1012.02
B. Office Equipment										
a Computer and Printer		No	6					6	2000	12
c. Telephone		No	4					4	200	0.8
d. Office Furniture		Set	4					4	1000	4
Sub Total										16.8
Total Investment Cost										1028.82
RECURRENT COST 1/										
Field and Travel Allowances 2/			9000	9000	9000	9000	9000	9000	45000	45
Total Rucurrent Cost										45
Total Cost										1073.82
1/ Office and vehicle costs are included in the general budget of the General Department.										
2/ Calculated on the basis of travel allowance of \$15 per day and 100 days of travel in the field.										

Table 3. Estimated Planning Project and Programing Department										
INVESTMENT COST									Unit Price	Total in
A. Technical Assistance		Unit	Quantity						US\$	000 US\$
I. Department Staff		Staff Year	Yr. 1	Yr. 2	Yr. 3	Yr.4	Yr. 5	Total		
a. Director		Staff Year	1	1	1	1	1	5	2856	14.28
b. Senior Project Design Expert		Staff Year	3	3	3	3	3	15	2352	35.28
c. Project Design Experts		Staff Year	4	4	4	4	4	20	2172	43.44
Sub-Total Cost										93
2. International Staff										
a. Long-term Policy Specialist		Man Year	2	2	2			6	180000	1080
b. Short-term Expert		Man Month	4	4	4	4	4	20	20000	400
Sub-Total										1480
3. Publication and Seminars										
Publication		Lumpsum	2000	2000	2000	2000	12000	12000	12000	12
Seminar		No	2	2	2	2	2	10	1000	10
Sub Total										22
Sub Total of Technical Assistance										1687
B. Office Equipment										
a Computer and Printer		Set	10					10	2000	20
c. Telephone		Set	10					10	200	2
d. Office Furniture		Set	10					10	1000	10
Sub-Total Cost										32
Total Investment Cost										1719
RECURRENT COST										
Local Travel and Field Allowances		Lump Sum	15000	15000	15000	15000	15000	75000	75000	75
Total Rucurrent Cost										75
Total Cost										1794

Table 4. Estimated Investment Cost of Monitoring and Evaluation										
INVESTMENT COST									Unit Price	Total in
A. Technical Assistance		Unit	Quantity						US\$	000 US\$
I. Department Staff		Staff Year	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total		
a. Director		Staff Year	1	1	1	1	1	5	2856	14.28
b. Senior M&E Specialist		Staff Year	3	3	3	3	3	15	2352	35.28
c. M&E Specialists		Staff Year	3	3	3	3	3	15	2182	32.73
d. Enumerators		Staff Year	9	25	34	34	34	136	1200	163.2
Sub-Total Cost										245.49
2. International Staff										
a. Long-term Policy Specialist		Man Year	1	1	1			3	180000	540
b. Short-term Expert		Man Month	4	4	4	4	4	20	20000	400
Sub-Total										940
3. Publication and Seminars										
Publication		Lumpsum	2000	2000	2000	2000	12000	12000	12000	12
Seminar		No	2	2	2	2	2	10	1000	10
										22
B. Office Equipment										
a. Computer and Printer			10					10	2000	20
c. Telephone			19	16	9			44	200	8.8
d. Office Furniture		Set	19	16	9			44	1000	44
Vehicles										
Motorcycles		No	9	16	9			34	3000	102
Sub Total										174.8
Total Investment Cost										1382.29
RECURRENT COST										
Vehicle Running Cost			5400	15000	20400	20400	20400	81600	81600	81.6
Office Running Cost			2700	7500	10200	10200	19200	49800	49800	49.8
Local Travel and Field Allowances		Lump Sum	24000	40950	40950	61500	61500	228900	228900	228.9
Total Recurrent Cost										360.3
Total Cost										1742.59
1/ Motorcycle operation cost is calculated on the basis of 10 percent of investment cost.										
2/ Calculated on the basis of travel allowance of \$15 per day and 100 days of travel in the field.										

Table 5. Estimated Investment Cost of Statistics and Marketing Department										
INVESTMENT COST									Unit Price	Total in
A. Technical Assistance		Unit	Quantity						US\$	000 US\$
I. Department Staff		Staff Year	Yr. 1	Yr. 2	Yr. 3	Yr.4	Yr. 5	Total		
a. Director		Staff Year	1	1	1	1	1	5	4200	21
Marketing Unit										
a. General director of Marketing		Staff Year	1	1	1	1	1	5	2352	11.76
b. Marketing Specialist		Staff Year	2	2	2	2	2	10	2182	21.82
Economic and Statistic Unit										
a. General Director of Statistics			1	1	1	1	1	5	2352	11.76
b. Statistician			2	2	2	2	2	10	2182	21.82
d. Enumerators		Staff Year	9	25	34	34	34	136	1200	163.2
Sub-Total Cost										251.36
2. International Staff										
a. Long-term Statistic and Marketing Spec		Man Year	1	1	1			3	180000	540
b. Short-term Expert		Man Month	4	4	4	4	4	20	20000	400
Sub-Total										940
3. Publication and Seminars										
Publication		Lumpsum	2000	2000	2000	2000	12000	12000	12000	12
Seminar		No	2	2	2	2	2	10	1000	10
Sample Survey		Lump Sum	15000	15000	15000	15000	15000	75000	24000	24
Sub Total										46
Sub Total Technical Assistance										1237.36
B. Office Equipment										
a Computer and Printer			17	16	9			42	2000	84
c. Telephone			19	16	9			44	200	8.8
d. Office Furniture		Set	19	16	9			44	1000	44
Vehicles										
Motorcycles		No	9	16	9			34	3000	102
Sub Total										238.8
Total Investment Cost										1476.16
RECURRENT COST										
Vehicle Runnign Cost		Lump Sum	5400	15000	20400	20400	20400	81600	81600	81.6
Office Running Cost		Lump Sum	2700	7500	10200	10200	19200	49800	49800	49.8
Local Travel and Field Allowances		Lump Sum	24000	48000	10000	61500	61500	205000	205000	205
Total Rucurrent Cost										336.4
Total Cost										1812.56

Table 6. Estimated Investment Cost Foreign Relation Department										
INVESTMENT COST									Unit Price	Total in
A. Technical Assistance		Unit	Quantity						US\$	000'US\$
I. Department Staff		Staff Year	Yr. 1	Yr. 2	Yr. 3	Yr.4	Yr. 5	Total		
a. Director		Staff Year	1	1	1	1	1	5	2856	14.28
b. Assistant Director		Staff Year	1	1	1	1	1	5	2352	11.76
c.Senior Liaison Officer		Staff Year	2	2	2	2	2	10	2172	21.72
d. Liaison Officer		Staff Year	3	3	3	3	3	15	1900	28.5
Sub-Total Cost										76.26
2. International Staff										
Short-term Expert		Man Month	3	0	0	0	0	3	20000	60
Sub-Total										60
3. Publication and Seminars										
Publication		Lumpsum	500	500	500	500	500	2500	2500	2.5
Seminar		No	1	1	1	1	1	10	1000	10
Sub Total										12.5
Sub Total Technical Assistance										148.76
B. Office Equipment										
a Computer and Printer		No	7					7	2000	14
c. Telephone		No	7					7	200	1.4
d. Office Furniture		Set	4					4	1000	4
Sub Total										19.4
Total Investment Cost										168.16
RECURRENT COST 1/										
Field and Travel Allowances 2/		Lump Sum	1000	1000	1000	1000	1000	5000	5000	5
Total Rucurrent Cost										5
Total Cost										173.16

Table . Estimated Investment Cost Legislation Review and Analysis Department										
INVESTMENT COST									Unit Price	Total in
A. Technical Assistance		Unit	Quantity						US\$	000'US\$
I. Department Staff		Staff Year	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Total		
a. Director		Staff Year	1	1	1	1	1	5	2856	14.28
b. Senior Legal Expert		Staff Year	1	1	1	1	1	5	2352	11.76
c. Legal Expert		Staff Year	2	2	2	2	2	10	2172	21.72
Sub-Total Cost										47.76
2. International Staff										
Short-term Expert		Man Month	3	0	0	0	0	3	20000	60
Sub-Total										60
3. Publication and Seminars										
Publication		Lumpsum	500	500	500	500	500	2500	2500	2.5
Seminar		No	1	1	1	1	1	10	1000	10
Sub Total										12.5
Sub Total Technical Assistance										120.26
B. Office Equipment										
a Computer and Printer		No	4					4	2000	8
c. Telephone		No	4					4	200	0.8
d. Office Furniture		Set	3					3	1000	3
Sub Total										11.8
Total Investment Cost										132.06
RECURRENT COST 1/										
Field and Travel Allowances 2/		Lump Sum	1000	1000	1000	1000	1000	5000	5000	5
Total Recurrent Cost										5
Total Cost										137.06
Grand Total										8766.815

Chapter 10

PRIVATIZATION AND PRIVATE SECTOR DEVELOPMENT

In the “Policy and Strategy Framework for the Rehabilitation and Development of Agriculture and Natural Resource Sector of Afghanistan” which was approved by the government of Afghanistan in mid 2004. It is stated that:

- The government will enable an environment for private sector production and marketing.
- The government will develop and introduce a certification and regulatory framework.

Under the role of the private sector, it is stated that the private sector will be:

- Actively engaged in the agricultural inputs and related services.
- Enabled to have access to and use state-owned assets and property, market information systems.
- Encouraged and promoted to involve in the production and marketing of agriculture and livestock products.

10.1 Privatization of State Owned Enterprises

An indicator of the government’s intention to create an enabling environment for the private sector is for the government to remove itself from competition with the private sector. It is difficult for the private sector to justify investment when the government is potentially able to undercut prices or in some other way affect their business. At the same time, the government owns many businesses that are poorly functioning after years of conflict. The government has neither the financial or management resources to revive these state owned enterprises. The best way to ensure that these businesses, and the assets in these businesses, become productive, is for the government to sell the businesses or assets in a carefully managed way.

The strategy for each business may vary, but in general, where the company is not functioning, the objective would be to get the highest price for the land, buildings and any machinery or equipment by public auction. In other cases, where the enterprise is sold as a going concern, there may be consideration given to the type of investor and the amount of new investment proposed.

For all the state owned enterprises that are to be divested, a program of support to the employees has been organized. The state owned enterprises, currently under the control of MAAHF, that have been identified for divestment are:

- Silos at Kabul, Kandahar and Herat (all three silos part of the Kabul Silo Enterprise), Pol-e Khumri, Balkh (Mazar-e Sharif).
- Herat Slaughterhouse.
- Kandahar Fruit (*non-operational, but with strategic landholding in Kandahar city*).
- Afghan Fertilizer and Agroservices Enterprise.

- Improved Seed Enterprise (*over the next five years*).
- Baghlan Sugar Enterprise (*the factory and some other assets have been injected into the New Baghlan Sugar Company, in a new joint venture company*).

Other agriculture and production of added value industries from agriculture that are designated for privatization, such as cotton gins, wool weaving and so on, are under the control of various other ministries.

There are also other activities, farms and facilities in MAAHF that are not being considered for privatization at the moment, but which, based on experience in other countries, should be Confederation in the private sector.

Seeds

The Improved Seed Enterprise has up to 11,000 hectares of land under its ownership. Its future is probably as six regional seed companies, each with its own farm. Each of the farms has to be run as a business, with a range of crops produced to come to an overall profitable operation. A strategy is gradually being developed with partners to ensure that the interests of the private sector are fully served by concerned Ministries and their strategies in this regard. All village seed enterprises and other seed production initiatives should be fully supported to develop long term seed enterprises. A five year project funded by EC is scheduled to start in 2006, to follow on from the current FAO implemented project. This new project will cover all aspects of the commercialization and privatization of the seed businesses. Full privatization should be completed as soon as practical.

Since there are many other private sector seed producers and seed enterprises, it is proposed that the Improved Seed Enterprise keeps back not more than around 3,000 ha of land as seed farms. The rest of the land under its ownership, approximately 8,000 ha, would then become available immediately to other types of agribusiness, where investment from the private sector would be sought.

Production farms, fruit tree nurseries, etc.

Besides the seed production farms the government also has ownership of other farms, including the olive groves in Nangarhar. The Italian Cooperation is planning assistance to develop the olive industry in the country. Eventually the olive farms and the factory can be included in the privatization schedule, with due consideration for building up a self sustaining private sector olive fruit and olive oil industry in the country.

A large, five year EC horticultural project working with MAAHF commenced earlier in 2005 with the arrival of an adviser to prepare detailed implementation programs. The actual design of the EC horticultural project will be adapted to minimize the direct involvement of the MAAHF in the production of fruit trees and in the development of mother nurseries, with the MAAHF emphasizing to the maintenance of reference collections, research and extension production methods and regulation of the industry, backed up by appropriate analytical laboratories and an inspection and quarantine system.

Silos

The government is rightly concerned with food security. That concern will enter into the decision making process about keeping grain silos in government hands. Food security is considered elsewhere in the Master Plan. Cooperation with the private sector on providing information to the government and cooperative working between the government and the private sector, as well as WFP etc., to ensure food security should be developed.

Livestock and Veterinary Services

The EC is supporting programs for privatization of vaccine production and of the veterinary services. Details are included in the relevant sections of the Master Plan

Laboratories

The MAAHF has several laboratories that provided various technical services, although most of them are not currently functional. These include:

- Soil laboratory - non active (should include fertilizer and water analysis for agriculture)
- Pesticide analysis – destroyed
- Seed testing laboratories – there are various laboratories around the country, some in ISE buildings. As part of the commercialization of the seed enterprises, some will move to the seed enterprises, but at least one should stay with the government to provide for OECD and ISTA registration
- Plant pest (entomology, rodents etc) laboratory is barely functional
- Plant disease laboratory – non-functional
- Micro propagation laboratory – proposed
- Microbiology laboratory – proposed

Each of these laboratories will have several functions, including research, use in quality control and certification procedures according to the relevant laws and regulations, setting standards, supervision and training for private sector laboratories, providing advice to the government and to the private sector. In order to function in these different roles, these laboratories need to have a substantial degree of autonomy, which includes a degree of financial autonomy based as appropriate on a fee for service system for when the services are used by the private sector.

Note that reference collections, germplasm collections, and other resource centers will have to operate in a similar way. They should be open to use by the private sector, but the private sector should pay for those services on a cost recovery basis. How that may be done will be the subject of investigation when the laboratories are up and running.

10.2 Regulation and Control

The Afghan Fertilizer Company is a regulator of the agri-inputs industry in Afghanistan, although it has negligible facilities for carrying out this function. Once the divestment of the Afghan Fertilizer Company has taken place, systems are needed to ensure that farmers have fertilizer and crop protection chemicals that are correctly labeled and suited to their purpose. Farmers also need adequate knowledge for the safe and effective use of fertilizer. Private sector traders need to be able to undertake their function as importers and traders in a legitimate and open way. Other enterprises do not have as clearly defined regulatory roles as the Afghan Fertilizer Company does. The Improved Seed Enterprise is working with FAO. They

have included seed testing facilities and seed certification systems in their program. Some of the laboratories will have to remain with the regulatory authorities after privatization of the Improved Seed Enterprise, while some facilities may remain with the seed companies.

The complete overview of regulatory systems is included in the Master Plan in the report of a separate group set up for this purpose. With the privatization of state owned enterprises, not only does the government retain a regulatory role, but strengthens the role with the development of rules and regulations, training of staff, setting up of analytical laboratories and monitoring systems, and licensing of producers, traders and resellers of various goods and products. The government undertakes the role of protector of the farmers, of consumers and of the environment.

Privatization of the production and trade in agricultural inputs and agricultural products goes hand in hand with regulation and control systems.

(See the report of the Quality Control and Certification group for full details of MAAHF plans for regulation and control)

10.3 Support to Private Sector

The development of policies and strategies for supporting the private sector is still at an early stage in MAAHF. However, some proposals and suggestions are made at this stage, for development into more complete proposals and programs in the future.

10.4 Land policy

More comprehensive land policies are considered elsewhere in the Master Plan process. Some specific ideas for short term impact are considered here.

Much of the land under MAAHF ownership belongs to the Improved Seed Enterprise. Less than one-third of that land needs to be reserved for that purpose. This leaves room for other policy objectives for development: fruits and nuts for export, development of livestock, production of industrial, oilseed and other crops. Relatively large parcels of land could be offered to investors as centers for agribusiness, for the use as model and demonstration farms, for the experimentation and development of new farming methods, for the propagation of proprietary materials and methods, and the building up of breeding herds of animals.

The state farms could be transferred to private sector enterprises that possess the greatest potential for being engines of agricultural development and thus serve as examples for farmers in their area and across the country. Work needs to be done to sketch out some outline business plans and see just what resources are available in the existing lands and what might be needed by potential investors.

The land could also be made available on a rental basis. Where there has already been some development on the side of the government, the government may make a better deal both financially and in terms of meeting its long term development objectives by participating in joint ventures with foreign investors. In this case, the government puts the land and the already developed resources such as deep wells or roads and buildings into the joint venture company as its contribution. The investors will put their money into new investment as their share of the joint venture.

The proposed EC/FAO seed project, expected to start in 2006, has a provision for government development of ISE farms with this type of joint venture in mind. These ideas can be further developed within the project itself, in terms of potential seed businesses, and other support will be sought to move forward with these sorts of concepts.

Note that the MAAHF, in partnership with other ministries, will look at long term development of new lands, with new irrigation schemes, to open up more land to farmers.

10.5 Private Sector Department

Within the Ministry of Agriculture, Animal Husbandry and Food (MAAHF), there is a department called the Private Sector Department (PSD) that was formed about 14 years ago. This department sees to the registration of private sector business investments in the agriculture sector and prepares dossiers before passing applicants on to the Ministry of Commerce for registration there. It does not charge a fee for this service.

The registration documents include a basic questionnaire to be filled in by the applicant(s). The information requested includes a very basic investment plan, with cash flow and profit statements. The department also looks at the land registration documents for land to be used as part of the business. There seems to be little reason to continue the private sector department purely for the registration of a very small number of agricultural businesses each year, so an initial assessment was made of what role the department could play in the future.

10.6 The Need for a Private Sector Support Department

The primary regulatory responsibility for the private sector seems to be with the Ministry of Finance and the Land Department of the MAAHF. In fact, this role is probably better considered as a coordination role. Specific regulatory roles are taken up by the MAAHF in seeds, agrochemicals, fertilizers, veterinary products, phytosanitary and plant quarantine and in other areas. A role is not envisaged for the Private Sector Department in these activities.

As the various roles, regulatory or supportive, of the Private Sector Department are defined, it will be important to consider the following questions:

- Who needs support from a private sector department?
- What kind of support do they need?

10.7 Existing Private Sector Support Projects

RAMP has been providing support to private sector development in agribusiness. RAMP has developed initiatives across the board in the above five areas of the Agriculture Master Plan, with the exception of quality control and certification. The approach has been confined to assistance in understanding and meeting quality standards, and not to the support of regulatory functions. Similarly, RAMP has developed extension type services across the board but has done little in linking extension with research, mainly because it has had essentially short term goals.

RAMP began outside the general structure of the MAAHF, and initially played little part in strengthening the permanent institutional structure of the Ministry. This has

since altered and RAMP has contributed to the provision of advisers for the Agriculture Master Plan process and to the general capacity building in MAAHF. This greater involvement of RAMP in the main activities of MAAHF should be given much greater prominence in the project that follows on from RAMP.

RAMP funds a range of sub-projects, which are implemented by various partners. These include support to private sector agricultural inputs importers and traders, various marketing projects, a privatized veterinary services and training project. RAMP has also taken various initiatives in facilitating investments in cold stores by private investors, and in facilitating the development of financial institutions for various levels of credit activity

Other projects funded by donors include one funded by USDA and implemented by CNFA. This project gives direct financial support to investors in agricultural and agriculture related value added businesses. This project is outside the MAAHF, and it appears there is little knowledge of it in the Ministry.

EC has funded private sector seed enterprises within an FAO implemented project, although it utilized a top down approach. This seed project has also taken some steps to encourage the NGOs involved in seed production to move towards commercial operations on a sustainable private sector basis. Several large scale private sector enterprises have been set up in the last year or two, in milling, in vegetable dehydration, and in milk processing, among others. But apart from the privatization of the cotton gins in the north, and the sugar factory in Baghlan, the government has, as yet, done little to encourage private sector investment in agriculture. Certainly, the private sector department has not played any more than a watching role in any agricultural investment activities.

10.8 Development Role for the Private Sector Department and Linkage with New Projects

The first task for the Private Sector Department is the mediation of all the grants and financial aid that is given by donors directly to the private sector. In practice, this means that in future, a project such as the CNFA managed USDA grants project should be based at MAAHF, with a co-management function given to the Private Sector department. This would necessitate specific training for the department staff to assist in carrying out this role.

The second task to be given to the Private Sector Department is the responsibility for setting up a clearing house for all inquiries about starting up agricultural and horticultural businesses. The staff there should have a general grounding in the activities of the Ministry and be able to provide guidance and literature. This guidance should be in the area of laws and regulations, sources of technical information, sources of financing. For information on areas such as pest control, fertilizer use and other technical information, the private sector department should do no more than indicate to which department the client should go. However, the Private Sector Department should be collecting together studies and information on which areas are suitable for investment, who is looking for investment partners, and information on government agricultural development projects and similar information.

The private sector Department could also assist investors in preparing business plans and investment proposals. This would not be directly provided by the department itself, as this would involve training the department staff in a whole range

of skills that go well beyond those expected within an MAAHF department. Instead, the staff should be able to guide the investors to an office where they can get suitable support. This might be in a project that is set up for this purpose, possibly, but not necessarily, within the MAAHF. In the longer term, it could be envisaged that private consultants could set up to assist investors to prepare business plans and investment proposals. Support to investors could then consist of funding a percentage of business and development proposals that are provided by properly accredited local consultancy companies.

Assisting investors will make it easier for them to access various credit facilities that are gradually being developed, as well as to avail themselves of the opportunities that will become available for investment grants. Credit and investment grants are not normally given unless the investor has clear business plans and investment proposals.

10.8 Technical Support to Agribusiness Investors

The current role of the Private Sector Department is limited. Additional exploration of ways in which the Department can assist investors is necessary. The generic business support and the development of skills in planning and proposal preparation that are proposed above as new services need to be linked to specific technical support in the areas in which people need to invest. More study into areas in need of investment is necessary. Even so, research to date has shown that there are almost unlimited possibilities for investment in export horticulture. Investment in horticulture means not just the planting of grapevines and fruit trees, but investment in all the associated industries such as packing, drying and processing of raisins, cold storage, drip irrigation, plant nurseries, poles and wires for trellising, transport, and market promotion. There will be a whole range of related investment needs in the horticulture "cluster."

Additional areas in which some initiatives have already been taken by private investors include wheat flour milling and dairy development. Poultry and eggs are another area with large development needs. Dairy development and poultry production both need parallel development in high quality animal feedstuffs production, which is often closely linked to the flour milling industry.

Agriculture represents the most significant contributor to the Afghan economy. In an effort to strengthen the agribusiness sector and increase its competitiveness, various initiatives could be developed: a small farm support project which assists farmers and farm-level organizations and unions and agribusiness support in food processing and sales. Support to the sector could include development of basic laboratory based services for food quality and adaptation of technologies with validation by field testing and field demonstrations. Food and agricultural product quality has to be supported by investment in acquiring and transferring appropriate technologies, from the varieties of plants to breeds of livestock, right through the production chain to post harvest activities. In this way, the market chain from farm to consumer is supported by complementary projects.

A small farm support project would need to be implemented through a large number of partners to provide direct production and linkage support to agriculturalists in selected areas. Obvious areas of activity might be dairy/meat and poultry/eggs, with associated development of animal feed from pastures and grain, development of the

milling industry both for animal feed and human consumption, vines and tree fruit for fresh and dried fruit exports, vegetable and oilseed production and processing. The small farm support program would seek to increase the production of quality agricultural products in order to meet the demands of processors. The program would support sustainable farm production and introduces new technologies to increase the quality and quantity of agricultural commodities through training programs for local farmers.

By concentrating on processing and sales in specific product clusters, the agribusiness support project would help Afghan agribusinesses develop new and improved products to increase their ability to compete with regional producers, in terms of both exports and substituting Afghan products for current imports. These product clusters in the agribusiness sector can be identified from specific experience in RAMP, which could be supplemented by a survey to look at important possibilities for the near future.

10.10 Development Strategy

Providing business services to private companies is a valid concept and a good approach, but it is not strategy. A development strategy requires a broader scope. There are often structural problems that require remedial action. The Agricultural Master Plan process will hopefully have identified many of these structural problems, and made proposals for tackling these problems. The Master Plan itself will be used to inform donors about areas in which there should be program development. The Master Plan process will clearly define the areas in which there should be specific private sector support. This has particular relevance for those writing the proposals for the project that will surely follow on from RAMP in the latter half of 2006.

10.11 Suggestions for the RAMP Follow Up Project

It is suggested that any large new project that follows RAMP concentrate on key clusters. While the actual funding of the next project might only be for three years, a time horizon of at least five years needs to be used in developing action plans to address all of the constraints to competitiveness. These constraints may include: production and processing technologies, private sector technology transfer mechanisms, business management services, marketing and market development, credit and finance, transport and storage, grades and standards, testing and inspection, input supply, policy analysis and advocacy. The findings from other USAID projects indicate that it is more advantageous to focus on one sub-sector and do it comprehensively. Depending on the size of the funding available, the clusters that could be identified and focussed on might be:

- The grain-milling-feed-dairy-beef-leather-eggs-broiler cluster (sub-sector).
- Export oriented, high value horticulture, to include vines, fruit trees, other fruit, for fresh, dried and eventually processed fruit and nuts products.

Within this new follow up project, there could be support for the development of a sustainable Private Sector Department to undertake the functions indicated above. The developed Private Sector Department could then act as an implementing partner for the new project.

10.11.1 Private Sector Support to Agriculture Project

A new project is being proposed entitled the “Private Sector Support to Agriculture Project.” This project would address the issues of the role of the Private Sector Department as the arm of the MAAHF in supporting the development of the private sector. This project would be separate and distinct from the RAMP follow up project mentioned above, although it could be funded as part of such a project for its benefit in making the RAMP phase two intervention more effective.

The Private Sector Support to Agriculture Project will complement, strengthen and further develop specific donor programs that are supporting the development of private sector agriculture in Afghanistan. The project itself does not include any privatization initiatives, as privatization of the government owned enterprises is being handled by the USAID funded “Land Titling and Economic Reform Project (LTERA).” The diverse, private sector approach of the various proposed projects in MAAHF will stimulate the introduction of new and improved varieties of crops, greater production of livestock and livestock products, supporting the overall approach to increased agricultural production and improved rural livelihoods through the growing of a widening range of legitimate food and industrial crops.

Stakeholders

The Private Sector Department has a self-defined set of stakeholders, those persons or groups of persons who wish to invest in agriculture and wish to register their businesses. This narrow concept of the set of stakeholders will be widened to include all the departments of the MAAHF that provide research, advisory, policy or regulatory services to the private sector, and will be extended to include not just those who are investing in agriculture, but all those who might invest in the future. Other Ministries, donors and project implementing agencies all have a stake in the private sector development. For representation of the private sector stakeholders, the project will be looking to the involvement of producer and trader associations and other representative bodies, and will support their development as part of the objectives of the project

Beneficiaries

The final beneficiaries of this project will be farmers and their families throughout Afghanistan of all ethnic groups. Intermediate beneficiaries of this project will be:

- Staff of the MAAHF throughout Afghanistan.
- Academic staff of various training institutions.
- Owners, management and staff of commercial agricultural and agro-business companies in Afghanistan.

10.11.2 Project Partners

The MAAHF will be project partner to the donor agencies. The project will develop the Private Sector Department in the Ministry, which will form specific private sector linkages across other departments. The project will recruit qualified and trained staff from within the MAAHF and secondly from outside the MAAHF, based on properly conducted testing.

The project partner will support the active participation of the major stakeholders in the private sector industry in a Project Steering Committee.

The project partner will also encourage close relationships with staff of the relevant training institutions, actual and emerging commercial agribusiness companies, business associations (such as input dealers) and commercial farmer groups.

The capacity and resources (human and financial) to manage the project effectively would be very limited in the short term, and much of the emphasis of the project will be on developing this capacity and providing these resources. During the project, the on-going functions of the government need to be decided upon, and the mechanisms for continued service delivery put in place.

Gender issues and inequalities

It is essential that the project includes initiatives that consider the specific interests, problems and potentials of women among the stakeholders groups in the implementation of the project.

Project budget

The project is estimated to last three years, during which time it would be reviewed for effectiveness and further investment proposed if thought worthwhile. The budget for three years of the project is estimated at US\$2,987,000 at constant 2006 prices (US\$3,077,000 at 3% annual inflation).

The major cost components are:

Technical experts (96 man months)	\$1,920,000
Vehicles, travel, salaries, allowances and office expenses	\$422,000
MAAHF staff training, workshops, study tours	\$195,000
Support to business and trade associations, contributions to business plans, outreach programs, workshops, travel grants	\$450,000
Total	\$2,987,000

10.12 Summary

The government has begun a program of privatization and the dissolution of state owned enterprises. As it does so, the MAAHF will take steps to protect the farmer and the consumer from substandard products. At the same time the MAAHF will design policies and regulations to protect the environment. The various means that the MAAHF will use include the development of laws and regulations, regulatory bodies to enforce the regulations, training of staff and building of laboratories.

10.12.1 Seeds

The MAAHF now has an agreed seed policy to direct the further development of the seed industry. A draft seed law has been prepared in line with the policy, and is ready for submission to the legislature. The setting up of a seed certification agency is planned and a five year project for the development of the agency, the setting up of laboratories, training of staff, and all other aspects of a seed regulatory system that meets international standards is foreseen to be developed over the next five years.

10.12.2 Vegetatively Propagated Planting Material

Regulation of the trade in vegetatively propagated planting materials is foreseen under the draft seed law. The forthcoming EC funded seed project will address the issue of the regulation of trade in vegetatively propagated planting materials

10.12.3 Fertilizers and Agrochemicals (Agro-inputs)

A draft policy and strategy for the proper development of a private sector agro-input supply industry has been prepared by the MAAHF. In the draft policy, the MAAHF recognizes the critical role of appropriate, effective and safe fertilizers and agrochemicals in increasing agricultural productivity and contributing to the achievement of national food security. Regulation of the industry shall be taken up by technically equipped regulatory bodies within the MAAHF. Protection of the environment will be an important consideration.

The MAAHF does not have the resources for the implementation of the strategy. For the purpose of implementation of the strategy, the MAAHF has prepared a project proposal for donor funding over a period of four years.

10.12.4 Foodstuffs

A comprehensive report on the problems of the food standards has been prepared. Two short term objectives have been identified. These include the development of food legislation and standardization, together with capacity building of the staff of the relevant departments on the modern approaches to food quality management. A project within the MAAHF to look at some of the problems of food safety has been prepared.

10.12.5 Livestock and Veterinary

The MAAHF has prepared a comprehensive policy document for the livestock and veterinary subsector. The policy includes the statement that the MAAHF will review and renew the livestock sub-sector legislation in order to create an enabling environment for enforcement of government policies and to secure and promote private sector initiatives and investments.

The laws and regulations which are necessary to sustain the policies and strategies presented above include:

An act on the life of animals which should include in particular:

- A Decree or a set of regulations on animal diseases and notifiable diseases.
- A Decree or a set of regulations on the exercise of veterinary medicine.
- A Decree or a set of regulations on the veterinary pharmacy and biological inputs.
- A Decree or a set of regulations on animals and the environment;
- A Decree or a set of regulations on the prevention of cruelty to animals.

An act on the human use of animals including:

- A Decree or a set of regulations on the property of live animals;
- A Decree or a set of regulations on animal movements and marketing;
- A Decree or a set of regulations on animal products processing, marketing, distribution and export;
- A Decree or a set of regulations on animal feed, supplements and additives.

Implementation has begun within MAAHF of an EC funded project to prepare the legislation and develop laboratories, train staff and all the other activities envisaged above.

10.13 Introduction

The government of Afghanistan is committed to the development of the private sector. The government has commenced a program of privatization and dissolution of state owned enterprises in line with this policy. As the MAAHF withdraws from the various production enterprises under its control, in line with government policy, it will take steps to protect the farmer and the consumer from substandard products and unscrupulous dealers. At the same time the MAAHF will design policies and regulations to protect the environment.

The various means that the MAAHF will use include:

- The development of regulatory policies and programs.
- The development of laws and regulations to complement those already in place.
- The strengthening and expansion of regulatory bodies for the wider range of tasks.
- The provision of technical laboratories and other facilities for inspection and testing.
- The training of regulatory managers, inspectors and technical staff.
- The provision of information to all stakeholders about the regulatory systems and what needs to be done to ensure compliance.

Developing markets for farm produce is addressed in the planning group for markets. The development of export markets for horticultural produce is more specifically addressed in the Master Plan under the subject of Horticulture.

Both these working groups realize that there is a need to develop standards for production of quality produce throughout the country, to allow for greater efficiencies in the market. In the case of the packing of fruit, much of the responsibility is taken out of the hands of the farmer by the market middleman, to ensure compliance with some kind of standard. The standards themselves are set by the traders based on their perception of market requirements, and there is no intention at the present time for the MAAHF to create or enforce standards within the domestic market.

When all the responsibility for sorting and packing is in the hands of the middleman, there is a reduction in the price paid to the farmer. It is intended that the MAAHF will encourage the formation of farmer marketing groups (whether cooperatives or other structure) to improve the standard of product being delivered to market. This area of policy and planning is dealt with by the marketing group in the Master Plan development and is not addressed here.

However, there will be more regulation of produce going to the export markets. This regulation includes phytosanitary inspection of plants or plant products, veterinary inspection of animals and/or other technical inspections regarding biological safety aspects. Standards need to be set for produce physical quality characteristics such as grading and packing materials. The Ministry of Commerce has the primary responsibility in the development of the export markets for produce, and increased

coordination with the Ministry of Commerce on standards for export will be included in the MAAHF planning.

The report is divided into three main sections. These cover the subjects of regulation of agricultural inputs, the regulation of the animal and veterinary sector, and the regulation of the food production sector.

10.14 Privatization

The government is committed to divestment of the Afghan Fertilizer and Agroservices Company, which will proceed as quickly as possible within the framework of the overall privatization process. Supply of fertilizers and agrochemicals thereafter shall be on a commercial, private sector basis within an institutional framework that ensures sustainability.

The government's first responsibility is to ensure that adequate stocks of high-quality seed of improved varieties are provided to farmers. In the absence of well established seed production and marketing organizations, government organizations will produce the amounts and kinds of such seed to ensure that farmer needs are met.

Over time, the public sector shall produce only those seed categories which are required but not supplied by the private sector. The public sector shall withdraw from the commercial production of seed. As the private sector develops the capability to produce and supply seed of such additional crops as are required and is actively supplying such seed, involved government agencies will gradually reduce their supply of such seed, in order to prevent government-subsidized competition and to conserve government funds. This process is planned to be complete within a period of five years (by end 1388/2010).

The official policy on seeds is also extended to the regulation of all kinds of vegetatively propagated planting materials, which should be supplied by the private sector, as the MAAHF has little activity or capacity in this regard. The MAAHF role will be confined to the collection, testing and dissemination of germplasm and improved varieties to the private sector. There will be no extension of the public sector role in the import, production or distribution of planting materials or other agricultural inputs, except in so far as the government will exercise a regulatory role for the protection of the farmer, the consumer and the environment.

The development of an improved and extended regulatory system at government level goes hand in hand with the divestment and privatization of the government owned commercial enterprises, and handing over the responsibility for production and supply of agricultural inputs to the private sector.

10.15 Seed

10.15.1 Seed Policy

The government policy on seed is a comprehensive document that addresses a range of issues for the future development of the seed industry. Reference is made to the full document, but a summary is supplied here.

The seed policy was developed to meet the need for a mechanism for regulating a national seed industry that is aimed at contributing to improvement in crop production, food security and farm income. This would encompass all activities and

issues related to variety improvement, germplasm exchange, seed multiplication, quality assurance, and seed trade. The policy extends to a whole range of vegetatively propagated materials where it is recognized that development of varieties and multiplication systems has fallen behind that of the seed crops.

10.15.2 Strategy

The government, through its various ministries and departments under the coordination of the National Seed Committee, will play the lead support role. In this capacity it will develop pilot operations, maintain public-service infrastructure and service support required to maintain efficient seed supply, enhance farmer demand for improved seeds, and create an operating and economic environment favorable to investment in seed supply.

The public sector shall withdraw from the commercial production of seed as the private sector capacity increases. Cooperative and supportive participation of both government and private sector are required to ensure efficient use of funds and national resources, while providing the most effective service to agriculture. The overall strategy should lead to activities/components of a public-service nature which normally requires some form of subsidization. This shall be conducted by government and its subsidiary organizations.

10.15.3 Administration

10.15.3.1 National Seed Committee

Under the authority of the Minister of Agriculture and reporting to him, a National Seed Committee (NSC), established under the Seed Law of Afghanistan, shall be formed and shall be charged with the overall responsibility for advising the government on matters relating to the Seed Law, seed industry planning and implementation of the seed policy. The NSC shall be composed of representatives drawn from all relevant stakeholders.

10.15.3.2 Variety Release and Variety Registration

For variety evaluation, release and withdrawal, a Variety Release Committee (VRC) shall be constituted under the authority of the NSC. All varieties, both domestic and imported, that are used for the purpose of seed multiplication shall be registered under the Seed Law. The NSC will maintain the National Variety List containing details of varieties that are registered and eligible for certification and will regularly publish this list in the required manner.

10.15.3.3 Control of Varieties and Variety Ownership

Although considerable expense is involved in developing an improved variety, immense benefits from varietal research are returned to farmers and the national food supply. To encourage variety development research and permit recovery of development costs, appropriate laws and/or regulations shall be developed to permit the breeder/developer to control seed production/supply of his varieties so as to benefit financially from his development investment, while serving the needs of farmers and the nation's agriculture.

10.15.3.4 Farmer Rights

Farmers will maintain their right to use, exchange, share or sell their farm-saved seed between themselves without any restriction and will have the right to continue using any varieties of their choice without being hampered by the system of compulsory registration provided they do not commercialize production emanating from proprietary varieties.

10.15.4 Seed Production

10.15.4.1 Generation System of Seed Multiplication

Afghanistan shall follow a four-generation system of seed multiplication, which recognizes four seed classes namely, breeder, foundation, registered and certified seed.

Breeder seed is the progeny of nucleus seed. Breeder seed will be under direct control of the breeder or breeding station and will be used for the production of foundation seed.

Foundation seed is the progeny of breeder seed. Registered seed may be produced from foundation seed, under supervision, and with approval of the national certification agency, which will ensure maintenance of genetic purity and identity.

Certified seed will be produced from Foundation or Registered seed and the production will be largely carried out by contract seed growers.

10.15.4.2 Early Generation Seed Maintenance and Supply

Maintenance and supply of early generation (breeder and foundation) seed of improved varieties and hybrids are the responsibility of the agency which develops the variety/hybrid. The government shall ensure that government breeding programs have the capabilities in terms of staff/facilities/budgets to ensure timely supply of the required amounts and kinds of breeder and foundation seed.

10.15.5 Seed Quality Assurance

10.15.5.1 Quality Standards

The planting value of seed depends on its quality, as measured by internationally-established quality-control procedures. Therefore, in order to ensure maximum benefits to farmers, any seed offered for sale shall comply with all applicable quality requirements, and all seed operations and activities shall make every effort to provide seed of maximum quality.

Under the aegis of the NSC, and through expert consultation of all relevant national and international experts, minimum quality standards for seed germination, physical and varietal purity, seed health, etc., will be developed as one of the first acts of the NSC following its formation. The required seed standards as well as field standards for different categories of seed production fields shall to the extent possible be in compliance with international norms.

Initially seed quality standards are expected to be modest and in accordance with regulations issued under the Seed Law. However, as the seed industry and its technology develop, standards shall be expected to rise in order to provide improved service to farmers. In emergency situations, certain aspects of seed quality standards which do not unduly affect genetic quality may be relaxed temporarily in order to allow adequate quantities of seed to be sourced locally.

10.15.6 Seed Quality Control Mechanisms

10.15.6.1 External Seed Quality Control

The MAAHF shall appropriately maintain and conduct those external quality control systems (e.g., Seed Law, Certification, service testing laboratories, etc) required to protect both seed users and seed suppliers. An adequately equipped, staffed and funded quality control agency shall be maintained, and all seed in the formal sector offered for sale shall be subject to requirements of the Seed Law. Considering the current small size of the national seed program, such quality control activities shall be entrusted to the proposed Seed Industry Development Project (SIDP), until such time as permanent arrangements are made under the Seed Law

As a means of helping develop a quality-oriented seed industry and achieving high seed quality, the government shall pursue the development of an operationally-independent seed certification, and all seed agencies encouraged to participate to the fullest extent. Certification, in terms of standards, procedures, concept and methodology, shall comply with internationally-recognized norms.

While certification of seeds of the major field crops such as wheat, barley, maize and rice produced and marketed by the formal sector is recommended, it shall not be compulsory. Seed which complies with Seed Law requirements may be freely sold without certification. Further, as may be specified in plant variety protection laws, disclosure of parentage of proprietary varieties/hybrids shall not be required in order to enter them into certification.

When the seed certification program becomes substantial and widespread, a separate agency to be named Seed Control and Certification Agency shall be established and all seed quality control functions of the Seed Industry Development Project including certification shall be transferred to it.

10.15.6.2 Internal Seed Quality Control

The government is aware that adequate control of seed quality requires constant supervision, checking, inspection and testing. To ensure effective quality control, every seed program shall be encouraged to maintain its own internal quality control system.

10.15.6.3 Plant Protection and Quarantine

Government will seek to strengthen regulations and provide, with the assistance of development partners, the required resources to the Plant Protection and Quarantine Department (PPQD) so that adequate safeguards are developed at the country's borders to prevent introduction of new plant pests and diseases which would affect crop production. These include facilities to fumigate consignments of fresh produce entering and leaving the country (which would need to be built and operated by the

private sector). As far as possible, plant quarantine relations will be harmonized with those of neighbouring countries to enhance movement of seeds and plants across the borders.

10.15.6.4 Seed Testing

In view of the essential role of rapid, reliable and accurate tests of seed quality in the conduct of the seed industry, the government shall establish and maintain a network of adequately equipped and staffed official seed testing laboratories in locations that permit quick delivery of samples and rapid receipt of test results. All operations shall be conducted in full compliance with recommendations of the International Seed Testing Association (ISTA).

10.15.7 Seed Law

The seed policy notes that a realistic Seed Law which reflects current requirements, constraints and capabilities is essential to ensure reliable standards of seed quality, protect seed users and suppliers, and develop a quality-oriented seed industry.

A draft of a Seed Law has been prepared within the MAAHF with the technical input of FAO and cooperation of other donors. This draft has been reviewed within the MAAHF and by a wide range of stakeholders and is now ready to the Ministry of Justice for technical legal review before submission to parliament. The government is committed to establishing and maintaining a Seed Law which reflects the agreed policy. Under this draft law, provisions are made for defining day-to-day operating details through the development of regulations under the law. These regulations will be issued by the Minister, MAAHF, in accordance with provisions for issuing Ministerial Decrees.

10.15.8 Seed Regulations

The seed industry in Afghanistan is currently working under a voluntary Code of Conduct according to the Quality Declared Standards system of FAO, and the current FAO seed project is managing the observance of these standards under the current EC funded and FAO run seed project.

It is anticipated that a new EC/FAO project will be agreed shortly, to be implemented over the period 2006-2010 (1385-1389). This project has provision for technical assistance specifically for the purpose of drafting the technical regulations for the supervision of the seeds and planting materials production and sale, and these regulations will be put in place as the inspectors are trained and other facilities put in place to enforce and monitor the regulations. A full set of regulations is planned to be put in place by the end of 2010 (1389) to bring Afghanistan fully in to line with international standards.

10.15.9 Plant Variety Protection

The current seeds policy indicates that the government will consider various aspects of plant variety protection in due course. These include provisions for Plant Breeders' Rights and Plant Patents. Plant variety protection is not considered an issue with an immediate consequence for the country, and there are no plans to look into this issue within the coming year. However, over the five year period of the Seed Industry Development Project, these issues will be looked at again if raised with the National Seed Committee by interested parties, and decisions made on what action is required.

10.15.10 Genetically Modified Crops

The seeds policy includes a brief section on genetically modified crops, which states that the government will follow the progress of GMC research and development and will as far as possible investigate the applicability and benefit of relevant aspects. At the appropriate time, when this has been done to the satisfaction of all stakeholders, Government will determine the extent and mode of incorporation of relevant aspects of genetically modified crops into the agriculture of Afghanistan.

10.15.11 Policy Implementation – Seed Industry Development Project

In December 2004, the MAAHF received a proposal for a five year seed industry development project to be funded by the EC and implemented by FAO. It would commence early in 2006 (beginning 1385). The process of approval from the EC is still ongoing, and no contract is yet signed. However, it is expected that the donor approval process will be received in time to allow seamless transition from the current EC/FAO seed project in March 2006 (1385). The consultation process means that there have been, and will be, revisions in the project details, but the main outlines are given below.

The Project Purpose is stated as follows:

“Creation of a self-sustainable private sector seed and planting materials industry in Afghanistan producing and marketing seeds and planting materials that meet farmers’ needs for materials that enhance agricultural productivity and ensure food security.”

The project is broader than a quality control and regulatory project. It covers seed and complements the EC Horticultural Development Program by providing the regulatory basis for the provision of disease free fruit tree (horticultural) materials. The project addresses most aspects of the seed industry, including regulation and commercialization of the seed industry, although the original proposal omitted the research aspect of new variety development. Later, some funds have been earmarked for variety development in wheat, but this must be seen as only a stop gap measure, and more fundamental programs for the development of the research and variety development capabilities in Afghanistan are needed.

10.15.12 Certification and Phytosanitary Systems

- Seed and planting materials marketing regulations to guarantee quality of cereal and vegetable seed, potatoes and fruit tree, vine and ornamental planting materials to the farmer/horticulturalist.
- Phytosanitary and plant health systems to ensure that Afghanistan is able to monitor and control the movement of seeds and plant materials.
- Appropriate variety testing procedures to test for agronomic performance that are agreed and are being implemented.
- A seed certification scheme that is being implemented so that certified seed can be produced and marketed locally.

10.15.13 Seed Industry Development and Food Security

A National Seed Board acting on behalf of the government will oversee issues of seed security, seed law and regulation development, seed industry development of behalf of the farmer and the industry investor.

10.15.14 A Private Sector Seed Industry

A seed industry that is fully private sector and commercially oriented, with only very limited and transparent government subsidies and support, that meets the needs of the farmer for seed and planting materials that improve agricultural productivity and enhance food security.

10.15.15 Expected Results and Main Activities

Regulations

The contractor staff members will draft regulations relating to seed, fruit, vines, vegetables and ornamentals under the seed law and will recommend and develop further laws and regulations over the project period and will facilitate discussions with MAAHF and Ministry of Justice staff on these laws and regulations. The finalized documents will be translated into Dari and Pashto and passed to the Ministry of Justice for scrutiny before they are submitted to the Minister MAAH for legislative action.

10.15.16 Training Topics

Training will be delivered in the following subject areas:

- Protocols, procedures and guidelines for implementing regulations relating to seed, fruit, vines, vegetables and ornamentals.
- Seed laboratory management and seed testing procedures.
- Management and maintenance of seed cleaning equipment.
- VCU and control plots layout for cereals, cotton, potatoes and other important food and industrial crops as determined by the National Seed Committee.
- Business planning, sales, marketing and production.
- Financial management, credit and banking.
- Corporate governance.
- Other areas as needed to complete the project objectives.

10.15.17 Training Delivery

All training will be supported with PowerPoint presentations in Dari, Pashto and English. These materials and color photographic materials will be bound and distributed. Dari, Pashto and English language sets of all the training materials in hard copy and electronic format will be lodged with MAAHF and the training institutions identified as partners in the training sessions.

10.15.18 Institutional Development

This will consist of:

- Development of the role of the regulatory and related institutions in MAAHF.
- Development of an HRD plan for seeds regulatory staff in MAAHF and its relevant constituent departments.
- Development of participatory adult teaching skills in relevant staff groups.
- Development of seed trade associations (national organisation and provincial branches).
- Development of commercial private sector seed businesses.
- Development of commercialized public sector seed production company or companies, followed by privatization of these companies.
- Development of self-accounting systems for the government regulatory bodies

Salary support

The project will implement the regulatory part of the seed industry development project through MAAH departments and will pay salary supplements to staff nominated to these certification tasks. In the future, the government will have to re-adjust its salary scales to pay these staff at a living wage level through its normal salary system.

However, for the Improved Seed Enterprise and for the private sector seed companies, proper salaries should be paid out of the proceeds of seed sales. The project will seek to develop proper accounting systems, and the government will have to agree to adjust the rules for paying salaries so that the ISEs can pay salary supplements out of the seed revenues.

The project costs are calculated as follows:

2006	2007	2008	2009	2010
2.5 million	2.1 million	2.2 million	1.6 million	1.6 million

Total project cost 10.0 million US dollars approximately (calculated at €1=US\$1.20)

It is suggested that the EC will allocate additional funds for variety development in the absence of other research funding, but this should be included in research funding.

Of the total funding amount, approximately \$1.6 million is allocated to the Improved Seed Enterprise for re-equipping and restructuring ahead of privatization, and \$0.45 million is allocated to grants for the private sector companies and trade associations.

10.16 Vegetatively Propagated Planting Materials

10.16.1 Introduction

Vegetatively propagated planting materials are those planting materials not normally multiplied from seed, except where seed is planted from crossings as part of a variety development program. The vegetatively propagated planting materials

include seed potatoes, vines, fruit trees and a range of ornamental plants. The provision of high quality vines and fruit trees is of particular importance to the farmer, as any poor quality or diseased planting material can have a deleterious effect on the profitability of the vineyard or orchard for many years, as the trees and vines continually under-perform.

There is no specific recent policy document relating to vegetatively propagated materials developed. They are however recognised within the seed policy and the draft seed law. The Plant Protection and Quarantine Department, which operates under the Plant Protection and Quarantine Law, operates to control planting materials and any other plants entering into Afghanistan from overseas. It can also inspect and certify plants and plant parts as they leave the country. It does not regulate the trees and seed potatoes produced within Afghanistan for sale to farmers in the country.

In early 2004, the preparation document for the EC horticultural project which commenced in mid 2005 stated that farmers and fruit growers suffer from lack of access to quality planting material (lack of: nurseries, mother stocks/ rootstocks, resistant varieties, certification system). Some of the private nurseries are producing very cheap trees from seed, rather than from cuttings and grafts of named varieties. The EC horticultural project is designed, among other objectives, to assist the private sector in the production of suitable planting materials.

10.16.2 Regulations for Planting Materials

The regulation of planting materials production uses three approaches. First, the Plant Protection and Quarantine Department will inspect the imported material under the provisions of the current legislation. Second, the seed certification agency to be set up under the proposed Seed Law will gradually develop an inspection service for vegetatively propagated planting materials under regulations still to be developed within the Seed Industry Development Project. Third, the Horticulture Project, within its goal of support to the fruit tree nurseries in the country, will ensure that all the nursery growers are aware of best practice and will assist them to meet the requisite standards for providing the highest quality of fruit tree.

10.16.3 Policy Implementation

The Seed Industry Development Project will be the main project developing and implementing a regulatory system for the vegetatively propagated materials. The project covers seed and complements the EC Horticultural Development Program by providing the regulatory basis for the provision of disease free fruit tree (horticultural) materials, as well as regulating all other vegetatively propagated planting materials.

10.16.4 Certification and Phytosanitary Systems

- Planting materials marketing regulations to guarantee quality of potatoes and fruit tree, vine and ornamental planting materials to the farmer/horticulturalist.
- Phytosanitary and plant health systems to ensure that Afghanistan is able to monitor and control the movement of plant materials.

10.16.4 Expected Results and Main Activities

Regulations

The contractor staff will draft regulations relating to fruit, vines, vegetables and ornamentals under the seed law and will recommend and develop further laws and regulations over the project period and will facilitate discussions with MAAHF and Ministry of Justice staff on these laws and regulations.

10.16.5 Training Topics

Training will be delivered in the following subject areas:

- Protocols, procedures and guidelines for implementing regulations relating to fruit, vines, vegetables and ornamentals.
- Other areas as needed to complete the project objectives.

10.16.6 Project Costs

About 25% of the technical input into the Seed Industry Development Project is concerned with generating regulations, developing services and training inspection staff on vegetatively propagated planting materials. The project itself comes to a total cost of \$10 million, which includes approximately \$1.65 million of grants to Improved Seed Enterprise and the private seed sector. There will be a project expenditure of over \$2 million over five years 2006-2010 (1385-1389) on the regulation of the planting materials industry. However, since the management of the project is totally integrated with development of seeds regulation, it is better to say the project costs are already calculated in the Seed Industry Development Project, to avoid the risk of double counting.

10.17. Fertilizers and Agrochemicals (Agro-Inputs)

10.17.1 Policy

Within the MAAHF, a small technical group worked together to develop a policy and strategy document. This was presented a stakeholder workshop for approval, in a meeting introduced by the Minister MAAHF in July 2005. This policy and strategy officially remains as a draft document, but in essence there were no objections from any of the stakeholders and a summary is presented here to guide the Master Plan process.

The policy is designed to create the necessary conditions for the proper development of a private sector agro-inputs supply industry, and shall guide the development of all regulations and development of institutions with the MAAHF relating to agro-inputs.

In the draft policy, the Government recognizes the critical role of appropriate, effective and safe fertilizers and agrochemicals in increasing agricultural productivity and contributing to the achievement of national food security. These fertilizers and agrochemicals should be appropriate for the local conditions, effective in use and according to the quality standards as per the label on the packaging.

10.17.2 Protection of the Farmer

The farmers individually are not able to assess the quality and suitability of the fertilizers and chemicals that are made available to them. It is the role of the government to ensure, as far as possible, that the fertilizers and crop protection chemicals offered to the farmer for use on his farm and on his crops are fit for the purpose stated and that adequate guidance is given to the farmer in their safe and effective use. This government role shall be taken up by technically equipped regulatory bodies within the MAAHF.

10.17.3 Protection of the Environment

The Government shall monitor the environmental impact of fertilizers and agrochemicals and shall make such directions as are necessary to minimize their environmental impact, consistent with the goal of increased farm productivity.

10.18 Strategy

The MAAHF will set up a National Agro-Inputs Committee, reporting to the Minister, to coordinate the roles of the various ministries, departments of MAAHF, and other agencies and stakeholders in the development and implementation of policies and strategies that will serve the needs of the farmer for appropriate, effective and safe fertilizers and crop protection chemicals.

- The National Agro-Inputs Committee shall gather such information about the import and usage of fertilizers and agrochemicals as may be necessary to inform the committee for the performance of its duties
- The National Agro-Inputs Committee shall oversee the implementation of a program to develop new legislation and regulations for the monitoring and control of imports and commercial trade in fertilizers and agrochemicals.
- The National Agro-Inputs Committee shall oversee programs for the building and equipping of central diagnostic fertilizer/ soil fertility and crop protection chemicals laboratories.
- The National Agro-Inputs Committee shall ensure that the laboratories are staffed with trained staff and have all the other facilities for their operations.
- The National Agro-Inputs Committee shall ensure that a program is put in place to ensure that all other government ministries and agencies involved in the application of the laws and regulations are in agreement with these laws and regulations and are aware of their role in ensuring compliance with these laws and regulations.
- The National Agro-Inputs Committee shall ensure that all importers, traders and distributors are aware of their responsibilities under these laws and regulations and shall take such other steps as are necessary to ensure compliance with these laws and regulations.

10.18.1 Agro-Inputs Legislation

In the current law, the Afghan Fertilizer and Agro-services Company fills the role of regulating the import and trade in fertilizers in the country. For the control of agrochemicals, the Plant Protection and Quarantine Department has the responsibility for inspection. Since the same traders generally trade in both fertilizer

and agrochemicals, the two organisations cooperate with each other in the inspection and regulatory role.

The Plant Protection and Quarantine department works according to the Plant Protection and Quarantine law. There is also a list of approved and non-approved chemicals, which was prepared more than 15 years ago. There is no mechanism in place for updating this list, allowing in new chemicals, or taking off the list those chemicals which are now considered hazardous or non-effective. There are also regulations concerning which fertilizers are allowed to be sold in the country. However, these again are not subject to updating, and do not take account of needs for liquid fertilizers for drip irrigation use, biologically active agents for composting and other developments in modern crop fertilization.

The MAAHF will therefore include the development of a new agro-inputs law and new regulations under the Law to reflect the objectives of the policy outlined above. In the meanwhile, and especially during the life of the proposed Afghanistan Agro-Inputs Development Project, the MAAHF will seek voluntary agreements with responsible traders for the registration of agrochemicals, and for the submission of data concerning imports and sales of fertilizers and agrochemicals.

10.18.3 Agro-Inputs Testing

It is proposed that the import of fertilizer and agrochemicals will only be allowed from reputable suppliers. There will be no sampling or testing at borders, but sampling and testing may be carried out by authorised personnel at any further stage in the distribution chain until the fertilizer or chemical reaches the farmer. There will be only one national laboratory for fertilizer testing and one national laboratory for agrochemicals testing.

With the privatization of the Afghan Fertilizer and Agro-services Company, there will not be any regulatory organization to regulate the fertilizer industry. The present Plant Protection and Quarantine department is not designed as a regulatory service to monitor the fertilizer and agrochemicals industries. The current organisation does not have the necessary laboratories, equipment or trained staff members to undertake these duties. For the purpose of regulation, a whole new service has to be created, possibly with personnel from the existing Afghan Fertilizer and Agro-services Company and perhaps from the Plant Protection and Quarantine department. The creation of this new service organization has to be approached in the context of the overall MAAHF restructuring, which is currently ongoing.

10.18.4 Strategy Implementation

The MAAHF does not have the resources to implement the strategy. For the purpose of implementation, the MAAHF has prepared a project proposal for donor funding over a period of four years.

The proposed project is called the Afghanistan Agro-Inputs Development Project. It is intended that the National Agro-Inputs Committee would act as the Steering Committee for this project, thereby ensuring that the Agro-Inputs Policy and Strategy is overseen by the concerned stakeholders and that the aims and objectives of the MAAHF are met.

In this proposed project, the Project Purpose is stated as follows:

“Creation of a well regulated, self-sustainable private sector distribution system in Afghanistan supplying and distributing fertilizers and agrochemicals that meet farmers’ needs for materials that enhance agricultural productivity and ensure food security.”

The project complements the EC Horticultural Development Program and the EC Seed Industry Development Project, as well as building on various aspects of the RAMP which developed assistance to private sector distribution of agro-inputs. The project underpins other livelihoods projects that provide for increasing agricultural productivity by providing the regulatory basis that will ensure fertilizers and crop protection chemicals provided to the farmer are appropriate, effective and safe.

The various elements that make up a successful agro-inputs industry have been put together in this project, and by the end of the project, there will be in place:

10.18.5 Certification and Regulatory Systems

- Fertilizer and agrochemicals marketing regulations to guarantee quality of agricultural inputs to the farmer/horticulturalist/crop producer.
- Regulatory systems to ensure that Afghanistan is able to monitor and control the movement of imported and home produced fertilizers and agrochemicals.
- Appropriate agrochemical testing procedures to test for performance in agronomic and environmental conditions are agreed and are being implemented.
- An agrochemical certification scheme that is being implemented so that only appropriate, effective and safe chemicals can be marketed in Afghanistan.

10.18.6 Agro Industry Development and Food Security

A National Agro-inputs Supply Board that can oversee and direct on behalf of the government, issues of agro-input safety, agro-input law and regulation development, for the benefit of the farmer and the agribusiness investor.

10.18.7 A private Sector Agro-Input Industry

An agro-inputs industry that is fully private sector and commercially oriented, with strict government control on safety and effectiveness of agrochemicals, that meets the needs of the farmer for plant protection and growth enhancement materials that improve agricultural productivity and enhance food security.

10.18.8 Expected Results and Main Activities

Work has commenced on the long process of privatizing the Agro-Inputs Company that operates as an enterprise of the MAAHF. Technical support in preparing the enterprise for privatization is provided under the Land Titling and Economic Restructuring project funded by USAID. The Agro-Inputs Development Project is designed to be implemented in parallel with the privatization process, although it is an essentially independent project. The advisory group in the MAAHF, which is comprised of senior advisers provided under various donor initiatives, together with relevant department heads in the MAAHF and other industry stakeholders, will work with the project sponsor to provide a solid basis for the start of the project.

However, it is intended that the new project will develop new initiatives and will have large elements of specialist technical input. This means much of the direction of the project has to be set up when the contracted experts begin work in country, and the inception phase will be an important part of the whole project. The Inception Report will adapt the project design in the light of progress made in the privatization program and the provision of various facilities that may have been provided by donors to that date, as well as the expressed needs and wishes of the stakeholders at the time.

10.18.9 Laws and Regulations

Contractor staff members will draft laws and regulations to govern the range of commercial trade in fertilizers and agrochemicals and will recommend and develop further laws and regulations over the project period and will facilitate discussions between MAAHF and Ministry of Justice staff on these laws and regulations. The finalized documents will be translated into Dari and Pashto and passed to the Ministry of Justice for scrutiny before they are submitted to the Minister MAAHF for legislative action.

10.18.10 Training topics

Training will be delivered in the following subject areas:

- Protocols, procedures and guidelines for implementing regulations relating to fertilizers, growth regulators, insecticides, fungicides, rodenticides, soil sterilizing agents and any other biologically active materials related to the production and storage of agricultural and horticultural produce (it is not the intention to cover areas of foodstuff additives, preservatives and similar products and consultation with responsible persons at MAAHF should readily clarify the limits of the project's responsibilities).
- Fertilizer and agrochemical testing laboratory management and testing procedures.
- Management and maintenance of laboratory testing equipment.
- Agrochemical testing in field situations: *note that prohibition of use of chemicals until tested in country would be too restrictive and damaging to the agricultural and horticultural production of the country, so the following training program has to be included:* Evaluation of agrochemical test data from other countries and development of licensing protocols.
- Chemical formulations and appropriate use of formulations.
- Preparation of agrochemical product labels and practical training in communicating instructions to farmers.
- Identification of pests and diseases to determine the appropriate chemicals for use.
- Appreciation of international norms and standards for biohazards, pesticide residues and other issues that would affect export of agricultural and horticultural produce.
- Business planning, sales, marketing and production.
- Financial management, credit and banking.

- Corporate governance.
- Other areas as needed to complete the project objectives.

10.18.11 Training Delivery

All trainings will be supported with PowerPoint presentations in Dari, Pashto and English. Presentations and color photographic materials will be bound and distributed. Dari, Pashto and English language sets of all the training materials in hard copy and electronic format will be lodged with MAAHF and the training institutions identified as partners in the training sessions.

10.18.12 Institutional Development

This will consist of:

- Development of the role of the regulatory and related institutions in MAAHF.
- Development of an HRD plan for agro-inputs regulatory staff in MAAH and its relevant constituent departments.
- Development of participatory adult teaching skills in relevant staff groups.
- Development of agro-input trade associations and appropriate technical committees (national organisation and provincial branches).
- Development of commercial private sector agro-input businesses.
- *(Facilitation of the privatization of the Agro-Inputs company will be achieved by providing the government with systems for the regulation of the agro-inputs sector, although it is not considered a direct output of this project).*
- Development of self accounting systems for the government regulatory bodies, with cost recovery system for services provided put into place.

Salary support

The project will implement the regulatory part of the agro-input industry development project through MAAHF departments and will pay salary supplements to staff nominated to these regulatory tasks. This will be until such time as the government has re-adjusted its salary scales to pay these staff at a living wage level through its normal salary system. The development of autonomous regulatory institutions that relay for their financing on fees received from traders who register for licenses would solve a lot of the financing and salary problems.

10.18.13 Project Costs

The project is estimated at \$8.6 million over five years. If a donor could be found to finance the project, the costs would be as follows (assuming a 2006/1385 start):

2006	2007	2008	2009
\$3.9 million	\$1.5 million	\$1.7 million	\$1.5 million

Table Summarizing Agro-inputs Regulatory Systems

	Policy	Laws	Regulations	Facilities	Trained staff	Funds	Comments
Seeds	yes	draft	no	part	part	likely	New EC/FAO

							seed project 2006-2010
Planting materials	yes	draft	no	none	no	likely	As above + EC horticulture project
Fertilizers	draft	Old, need new	Old; need updating	none	no	no	Project written – need to find interested donor
Agro-chemicals	draft	Old	Old; need updating	none	no	no	Project written – need to find interested donor
Agrochem Residues	no	no	no	no	no	no	Will become an issue in crop exports soon
Plant Variety Protection	Part-seed policy	no	no	No need	No	no	Will become an issue as seed industry develops
GMO	No	No	No	No	No	No	Policy postponed

Chapter 11

QUALITY CONTROL AND CERTIFICATION SYSTEMS

11.1 Executive Summary

The primary source of food in Afghanistan is local production and more than 90% of processed food is comprised of imports and food aid from outside the country. The existing system for quality control of all these food items is fragmented amongst various ministries in terms of legislative and standardization authority, inspection and implementation. The capacity of all agencies related to food quality control is very low and not sufficient to fulfill the national requirements.

The public health situation in Afghanistan is one of the poorest in the world. It is directly and indirectly related to access to safe and sufficient food. Fraudulent practices are prevalent throughout the country. Due to poor quality control and monitoring, there is a lack of data on the exact extent of these issues. There is also a lack of clear policy guidelines and an efficient inspection and prevention system.

This document has a plan to assist the Islamic Republic of Afghanistan to institutionalize the system of quality control system and improve its infrastructure for delivery of effective food control services.

This document suggests a detailed planning with collaboration of all relevant government departments for development of food laws, capacity building of all institutions on food quality control issue and strengthening the capacity of food inspection and analytical services.

11.2 Situation Analysis

11.2.1 Food Quality Control Measures

In Afghanistan, the main sources of food include locally produced agricultural products, foods imported from neighboring countries (Iran, Pakistan, Dubai and others) and food aid provided by the international community. Afghanistan requires important changes in food policy to foster a sustainable supply of safe food and food security.

In Afghanistan the existing fragmented legislature, weak surveillance, monitoring and enforcement system has led to lower quality and unsafe food production and importation into the country. Strategies to strengthen food control systems, protect public health, prevent fraud, avoid adulteration and facilitate trade are needed.

In overall terms, national food production is well below previous capacity and there is excessive dependency on imported foods. Processed foods are all imported and there is little or no national agro processing or food industry and an efficient working quality control system in the country.

The public health situation (directly and indirectly related to food availability and its quality) in Afghanistan is one of the poorest in the world. Life expectancy at birth is estimated to be only 45 for male and 47 for females. Infant and maternal mortality rates are extremely high. Much of the morbidity and mortality is from preventable communicable diseases and malnutrition. Chronic malnutrition and micronutrient deficiency contribute to weaker immunity against diseases thus making individuals

more vulnerable to diseases. This situation is augmented by poor access to health services, poor water and sanitation, lower caloric input and lower quality of food available.

There are strong concerns regarding the quality and safety of the foods consumed in Afghanistan. Fraudulent practices such as the addition of low grade oils to cooking oils creates mistrust of the quality and safety of imported foods. There are prevalent cases of diarrhoea, zoonotic diseases, and foods being sold past their “best before” dates throughout the country.

11.2.2. Public Sector and Private Sector Responsibilities

Food quality and safety is considered to be at the centre of the development of the agricultural sector in Afghanistan with important contribution to food security and economic development of the country. Issues such as the high volume of imported foods and the poor quality of foods available to the consumers are also considered priority areas to be tackled by the Ministry of Agriculture with its enhanced portfolio including food.

Responsibility of food control is shared between different ministries and duplication of regulatory activity and lack of coordination is common. In order to avoid fragmented surveillance and develop a strong coordination between different ministries and agencies it is government’s responsibility to outline framework and institutionalize quality control mechanisms, set standards and legislate to maintain quality and protect public health.

11.2.3 Public Sector

- i. Develop food laws and define legally safe and unsafe foods. A comprehensive quality control law for food clearly defines the minimum mandatory quality and safety requirement of all foods consumed whether produced domestically or imported.
- ii. Develop enforcement tools for removing unsafe food from market and punishing responsible parties after the fact.
- iii. Set and update food standards.
- iv. Provide inspection services; Qualified, trained, efficient and honest food inspection service is the key functionary that has day to day contact with the food industry, trade and public. Inspection services are responsible for:
 - Inspection premises and processes for compliance with standards.
 - Sampling during various stages of food production to establish compliance and contribute data to risk assessments and identification of offenders.
 - Identify food that is unfit for human consumption or is otherwise deceptively sold to the consumer.
 - Recognize, collect and transmit evidence in case of law breaches to assist prosecution.
 - Inspect, sample and certify food for import/export.
 - Lay down norms for food control laboratories and monitor their performance.

- Number and location of the laboratories should be determined and monitored by public sector.
 - v. Provision of balanced information to consumers, provision of information and education to key officials and workers in food sector, development of training programs and provision of reference literature to extension workers in agriculture and health sectors.
 - vi. Government's back up to public or private sector agencies to provide information or financial assistance.

11.2.4 Private Sector Responsibilities

Food production, processing and trading remains in the private sector domain, but to ensure a standard quality it is needed to develop a strong collaboration between private and public sectors. At present, food processing facilities are very limited in the private sector in the country and in future as the private sector develops, it will have to adopt and establish standardized facilities on different levels of food production, processing, storage and presentation to consumers in order to ensure standard quality and safety. Quality compliance should be encouraged through quality assurance procedures.

The private sector shall also improve compliance with quality standards by increasing their knowledge and know-how of the standards and mechanisms set by government through trainings and provision of employment opportunities to qualified and trained personal in private sector.

11.2.5 Quality in the Production Input Industry and Agricultural Trade

In order to ensure the quality of production inputs and to develop their own operations, the production inputs industry and the agricultural product and supply trade will formulate certifiable environmental management and quality systems that fulfill international standards.

The production inputs industry will coordinate quality agreements with the food industry in which they jointly lay down quality standards agreements for the food chain. These would include critical production-input quality factors which have an influence on safety of food. Such factors are, for example, salmonella and other bacteria which are harmful to humans, or heavy metals.

Farm quality systems will encompass quality requirements of acquisitions made for farms. The agricultural product and supply trade will ensure the quality of production inputs and raw materials in transportation and storage by developing measures for safeguarding quality as well as developing logistics solutions. Farmers will be responsible for making decisions on acquisitions for their farms.

11.2.5 Quality Work in Primary Production

The objective is to bring all farms which supply products for industry, commerce or directly to the market into the sphere of systematic quality work. This will also result in all reprocessing to be performed by farms to fall into the sphere of systematic quality work.

Contract production of agricultural products for the foodstuffs industry already covers most of production. Production contracts include quality requirements concerning raw materials. In addition to these, production agreements are increasingly

concerned with production issues that define quality. If a farm supplies raw material to the food industry, the industry and the farm will determine the procedures necessary to ensure quality. The farm's production activity can be linked to the quality system of the industry that processes the raw material produced by the farm, using the quality section of the production agreement.

A farm can, if necessary, build a quality control system suitable for certification. When products are delivered directly from the farm to the market, the development needs of the farm's quality system are determined as directly as possible from the customer's needs.

The central objective in developing farm quality systems is the steady, continual improvement of quality in product and operations. Farm quality control systems will need to provide documentation to enable the centralized, cost-effective management and monitoring that is required by partners and government officials.

The farm quality system also includes environmental management, production recommendations and special conditions to supplement to the quality work in the processing and input industries.

11.2.6 Strengths, Weaknesses, Problems and Threats

11.2.6.1 Strengths

Given the health situation in Afghanistan and the relationship to food safety and the need to provide food for consumers that meets high quality standards, a transparent, well-managed quality control system is essential. Sampling and analyzing the products marketed here is not enough. It is more appropriate and economical to introduce preventative measures at all stage of the food production and distribution chain. Among the measures needed are:

- The presence of quality control measures with the Ministry of Public Health (MoPH).
- The presence of a central (Kabul) analysis facility (laboratory) in MoPH, Kabul.
- Documents and materials developed by various aiding agencies (i.e. USAID/RAMP, etc.) on quality control at the commercial level.

Food processing facilities (silos) in the government sector have adopted a standard (from the former Soviet Union) that is in use by these facilities and updated since the 1950s.

11.2.6.2 Weaknesses

Weaknesses of the quality control system are as follows:

- The lack of a basic law for food quality control.
- The lack of an integrated system for quality control of locally produced and imported foods.
- No coordination exists between various ministries involved in quality control.
- Poor knowledge among producers and importers of food items on quality and importance of quality.

- Poor knowledge of producers about observing measures on different stages of food production, i.e. processing, storage, marketing, etc.
- The lack of expertise and collaboration between key stakeholders undermines the implementation of an integrated quality control system.

11.2.6.3 Threats

Establishing an effective food quality control system requires political stability to ensure inter-ministerial cooperation and to enable the private sector to comply with these regulations. Many areas of Afghanistan remain insecure, making it difficult for the central government to exercise authority. Should the political situation deteriorate, work on food quality control would be greatly undermined.

It will take hard work to develop a strong collaboration between Ministries on the issue (i.e., Ministry of Public Health, Ministry of Commerce and MAAHF). Currently, several programs related to food processing, agri-business development, and food quality are being implemented by various agencies in various ministries with little coordination and no clear institutional mechanism for ensuring synergy, consistency and coherence. This situation may lead to overlap and potential tension between ministries.

11.2.6.4 Problems

- Food items currently available in markets do not meet any discernible standards.
- Foods that are produced in the country are processed in an unsafe manner.
- There is no proper legislation and the present laws are not enforced properly.
- There are no fixed standards, definitions or grading. The few standards that are used are adopted from other countries.
- The Food Department does not have a system for setting standards and norms for quality control.
- The MAAHF now has the capacity (personnel and equipment) to set standards, however, Codex Alimentarius standards are not currently discussed with the Food Department and Quality Control Department of MoPH.
- A good quality control management system does not exist.
- There is a lack of coordination between key government agencies on quality control.
- Capacity of the existing agencies in various ministries on quality control is very low.
- Existing quality control set-up is mostly limited to the capital (Kabul).
- Present quality control systems at entry points to the country are inefficient, having no qualified staff or equipment and not properly supported by enforcement agencies.

11.2.6.5 Suggestions

- Form a committee to work on the unification of present (with MOPH, MAAHF, Ministry of Mining, Ministry of Finance, etc.) quality standards.
- Create strong coordination among all food control services.

- Develop a well-coordinated national food quality and safety strategy to enhance management and coordination of all involved agencies.
- Develop a strategy to build the capacity of appropriate staff members on quality control.
- Create joint committee on quality control that includes all stakeholders, including municipalities.
- Develop the government's capacity to conduct inspection services and analysis.
- Establish a centralized testing system.
- Conduct study tours to other developing countries on how their quality control systems work.
- Plan training programs to create professionals in the food services industry who facilitate hygienic conditions.
- Create a research center to strengthen the research capacity on food quality.
- Develop national food laws.

According to WHO and FAO guidelines, food legislation should include the following aspects:

- Provide high level of health protection.
- Include clear definitions to increase consistency and legal security.
- Be based on high quality, transparent and independent scientific advice following risk assessment, risk management and risk communication (Risk Information Management System RIMS).
- Include provision for the use of precaution and the adoption of provisional measures where an unacceptable level of risk to health has been identified and where full risk assessment could not be performed.
- Include provisions for the rights of consumers to have access to accurate and sufficient information.
- Provide for tracing of food products and for their recall in case of problems
- Include clear provisions indicating that primary responsibility for food safety and quality rest with producer and processors.
- Include obligation to ensure that only safe and fairly presented food is place on the market.
- It should also recognize the country's international obligations particularly in relation to trade.
- Ensure transparency in the development of food law and access to information.
- Islamic Republic of Afghanistan has signed this year (2005) Codex Alimentarius Commission (it is a joint commission established by FAO and WHO and passed by 16th World Health Assembly in 1963), in the light of this fact it is suggested that MAAHF and MOPH with collaboration of FAO and WHO shall adopt measures to utilizes the work of this commission in formulating standards for quality.
- International standards of Codex Alimentarius shall be shared with stakeholders for study and to enable them to make strategies for its adoption.

10.2.6.7 Key Areas to be Addressed

The working subgroup on food quality control has recognized four key areas as part of discussions conducted on situational analysis, problems, opportunities,

suggestions and strengths/weaknesses. These four key areas need to be covered through short, mid, and long term planning. The following two objectives are to be achieved through short and mid term planning.

- Food legislation and standardization in accordance with international systems such as the Codex Alimentarius.
- Build capacity of staff members in relevant departments on modern approaches to food quality control management.

In the long term, work is needed on the following points in order to strengthen the national food quality control system.

- Support developing the national laboratory capacity and expertise for conducting food analysis to support quality control programs.
- Support the long-term development of in-country expertise on food control through training institutions and universities.
- Provide education on food safety to the general public and to the food industry.

11.5 Strategies

11.5.1 Short and Mid Term Strategies

For achieving the first two key areas of legislation and capacity building, a committee shall be made of relevant staff of the following ministries.

- Ministry of Public Health
- MAAHF (through its Food department)
- Ministry of Finance
- Ministry of Commerce
- Ministry of Mining
- Ministry of Economics

Until now, each of these ministries performed their duties as a fragment of the system, covering a small portion of food quality control. The committee will work on these priorities in the order that follows. It will then be the committee's decision to work on how to cover the key areas for achieving a better, unified and economically viable quality control system.

11.5.2 Food Law and Standards

The development of enforceable food laws and regulations is very important for establishing a modern food control system. This food law must define safe and unsafe foods, establish enforcement tools, and allow food authorities to build preventive approaches into the system.

Food Laws can be accomplished in two phases. The first phase being the draft of a law in which the Government takes responsibility through its relevant ministries, i.e. MoPH, MAAHF, Ministry of Mining, Ministry of Finance and Ministry of Commerce. The World Health Organization, FAO and other international stakeholders will play a supporting role by provision of technical support to the process.

The committee or designated commission by the committee will:

- Collect Information.

- Preparing a draft Food Law.
- Establish an internationally recognized certification system.

11.5.3 Collection of Information

The following types of information shall be collected for study and evaluation.

- Status of food and agriculture sector.
- Data and information on primary food and agriculture production food processing industry (i.e. types and number establishments, processing capacity, value of production etc) food distribution and marketing.
- Information on formal and informal industry.
- Potential for industry development.
- Food chain and identification of key intermediaries who may influence quality and safety of foods.
- Market infrastructure including assets and deficiencies.
- Safety and quality management programs including level of HACCP implementation in the industry.
- Food consumption data information on consumers will include data on energy/protein intake, percentage of the population dependent upon subsistence economy, per capita income, etc.
- Cultural, anthropological, and sociological data is also important, including information on food habits and food preferences.

Food security, food imports and nutritional objectives:

- Nutritional requirements for food.
- Post harvest food loss.
- Type and quantities of food imports.
- Consumer concerns or demands.
- Food exports.

Epidemiological information:

- Information on prevalence and incidence of food borne disease.
- Procedures used for investigation and notifying food borne diseases/information on food incriminated.
- Suitability of collected data for risk assessment purposes.

Food contaminant data:

- Level of contaminated food.
- Monitoring programs for biologically and chemically contamination food.
- Suitability of collected data for risk assessment purposes.

Human resources and training requirements:

- Extension and advisory services.
- Public education and participation.
- Government organization of food control systems.

Information gathering and data analysis requirements:

- Current governmental policies on nutrition, food quality and regulatory mechanisms for quality control considered and collected from various ministries.
- A listing of government departments and authorities concerned with food safety and food control activities.
- Descriptions of the food control system and an overview of the resources, responsibilities, functions, and coordination between the entities.
- Methods of determining priorities for action.
- Options for gathering resources.

Food control infrastructure and resources:

- Information on organization of inspection, surveillance, and enforcement activities (national, provincial and local levels).
- Number and qualification of inspection personnel.
- Resources within inspection agency (number of laboratories, facilities and equipment, monitoring programs, etc.).
- Codes of hygienic practice.
- Licensing arrangements for food premises.

11.7 Drafting a Food Law

The committee/commission will also gather information on current food legislative arrangements, including regulations, standards, and codes of practice. As mentioned above, the food law should:

- Provide a high degree of health protection.
- Include clear definitions to increase consistency and legal security.
- Be based on quality, independent and scientific advice following risk assessment, risk management and risk communication (Risk Information Management System (RIMS)).
- Include provision for the use of precautions and the adoption of provisional measures where an unacceptable level of risk to health has been identified and where full risk assessment could not be performed.
- Include rights for consumers to have access to accurate and sufficient information.
- Provide for tracing of food products for their recall in case of problems.
- Include clear provisions indicating that primary responsibility for food safety and quality rest with producer and processors.
- Create an obligation to ensure that only safe and fairly presented food is placed on the market.
- It should also recognize the country's international obligations particularly in relation to trade.
- Ensure transparency in the development of food law and access to information.

To draft this paper, the recommendation of WHO and FAO (Assuring Food Safety and Quality [Joint FAO/WHO Publication]) shall be considered in order to satisfy national needs as well as demands of the trading community and international food market in the future.

The committee/commission also decides inputs needed for the job assigned to the committee/commission. The draft shall be reviewed by the higher officials of the relevant ministries and sent to cabinet and parliament for approval.

11.7.1 Building Staff Capacity

The inter-ministerial committee/commission will also have the responsibility to work on developing a training program for improvement for staff members that are part of the food quality control system.

A policy that is not well understood by the implementers will not be implemented effectively, so it is a matter of prime importance to train staff members on all issues related to the policy and its implementation strategies.

Capacity of the relevant staff should be built in the following areas:

- Management and organization of national food control programs
- Elaboration of a food control strategy.
- Planning and implementing effective inspection programs (including locally produced food imported food inspection)
- Organization and coordination of food analysis programs.
- Application of good hygienic practices and the Hazard Analysis Critical Control Point (HACCP) System in the food industry.
- Training for food industry on quality assurance and food safety.

Staff members of the food control inspection section must be trained in food science and technology to understand the processes. They must also be able to identify potential safety and quality problems, possess inspection skills, collect food samples and carry out overall evaluations. The inspection team also must have a good understanding of the food laws.

Besides the above mentioned areas, training for the capacity building of the inspection team will include following areas:

- Laws and regulations.
- Sampling.
- Communication skills.
- Evidence collection.
- Reporting.
- Sample preservation and transport to laboratory facilities.

Other key areas for discussion and study by the committee/commission include determining the nature of a quality control system for Afghanistan. Decisions are needed to determine whether it will be a multiple agency system, single agency system or an integrated system.

11.7.2 Developing a National Laboratory

Laboratories are an essential component of a food control system. The following areas are to be brought under consideration for establishing a laboratory system for food monitoring and epidemiological data collection. These decisions should be made in relation to the objectives of the system and volume of work.

- Funds allocation for establishment maintenance and operation costs.

- Number and location of labs.
- Review existing laboratory facilities in the country.
- Make an inventory of the existing laboratories (numbers, equipment, staff, volume of work performed, etc.)
- Review planned labs by other projects in MoPH, MAAHF, Universities and other related institutions.
- Identify gaps.
- Clarify the authority and coordination system for optimal use of laboratories.
- Number of reference laboratories.

In order to develop a well-functioning lab system following the recommendations of RAMP should be considered. They are as follows:

- Location should be near to the areas of food production, processing and import/export points.
- Each lab shall have a clear objective.
- A record keeping system shall be developed for each lab that is accessible for future use.
- A good communication system is necessary between labs, costumes and quarantine department of deferent ministries.
- A communication and registration system with internationally recognized laboratories is also needed to achieve information about new technologies and innovations.
- A system based on technical expertise shall be developed for recruitment in all laboratories of food testing and related to quality control.

11.7.3 Long Term Strategy

Long term planning is needed for improvement and development of the following sectors in Food Quality control system.

- Development of long term in-country expertise.
- Development a program for general public's awareness on food safety.

For addressing these key areas, the above mentioned committee/commission shall work on these areas in the following order:

Development of long-term, in-country expertise

Developing national capacity on food safety entails not only working with current government staff and professionals, but also training the country's future food technologists, laboratory technicians and quality control system managers.

National capacity-building on food quality should therefore be carried out in partnership with key academic institutions, such as the faculties of agriculture, medicine, and science. Activities that could be carried out include:

- Updating curricula in view of recent knowledge and methods.
- Training of professors (including through study tours, university exchanges, etc.).
- Updating university lab capacity for training needs.
- Development of student exchange programs so faculty and students can learn abroad (e.g. Master's courses).

These activities can be undertaken in partnership with foreign universities and research institutes.

Training and knowledge exchange with the food industry

Ensuring food quality control entails working closely with the food industry, as they are the main stakeholders who will be putting food quality control regulations into practice. A training program should therefore be developed for the Afghan private sector, including topics such as:

- Food standards - national legislation and enforcement measures.
- Management of quality in food processing and handling.
- Management of food safety in the catering and restaurant industry.

Conversely, private sector enterprises –in particular foreign companies- may already have knowledge and experience on ensuring product quality through their activities. They have expertise to share with government institutions. They can bring a strong contribution to the development of a quality control system in Afghanistan and of a training program for the Afghan private sector.

Developing public awareness about food safety

Protecting the public's health and ensuring that food quality laws are enforced requires active participation from the general public. Awareness raising campaigns for the general public should thus be organized, notably on the following issues:

- The concept of food quality, safety and food standards.
- Public awareness of the elements that ensure that the food they are consuming is safe (appearance, expiration dates, etc.).
- The public's rights as consumers and the means of recourse should they be presented with foods that are not up to standard.
- Food safety in the home (food hygiene, adequate preparation methods, etc.).

These campaigns should be run in close collaboration with MOPH and agencies implementing health and nutrition education campaigns.

11.8 Project Costs for Food Safety

The costs of implementing the MAAHF Master Plan recommendations on food quality control are presented by component, below. Please note these are general estimates that need to be refined on the basis of more detailed assessments.

Drafting of food law and standardization

Costs include: international technical experts on food standards and legislation, trainings, workshops, travel, communication materials, over a period of 1-2 years.

Approx: US\$1 million

Capacity-building of government on management of food quality control systems

Costs include: trainings, study tours, international experts on food quality control management, workshops, over 3 years. Depending on the institutional set-up that is chosen, this can entail establishment of a food quality control institution, which entails costs of building, staff, cars, logistics.

Approx: US\$2 - 4 million

Development of national laboratory capacity

Costs include: inventory work to identify gaps, establishment of new labs, maintenance costs, training of laboratory technicians, staff salaries. The cost will depend on what labs already exist, or are already funded through other projects, and what will be the mechanism for the use of this lab. Also, labs may be established by the private sector that can be used for food analyses.

Approx: US\$2 – 5 million

Development of long-term in-country expertise

Costs include: training of professors, student exchange programs, international experts.

Approx: US\$1 million over 3 years

Training for the food industry

Costs include: workshops, international technical assistance, travel, logistics.

Approx: US\$1 million over 5 years

Awareness raising campaign for general public on food safety

Costs include: communication materials, air time on radio and television, international technical assistance, trainings, conferences

Approx: US\$2 million over 5 years.

ESTIMATED TOTAL: Between US\$10 and 15million over the next 5 years.

11.9. Veterinary Hygiene

11.9.1. Regulatory Environment

The existing legal environment was set up in the early 1970's before the Russian invasion of Afghanistan. It is, in many instances, outdated and not adapted to the liberal approach now adopted by the Government nor fitted to the international context. Moreover, as far as the livestock sub-sector is concerned, new general laws were issued during the Taliban period in 2000 which specifically superseded the former regulations but were not translated into detailed decrees and regulations. There is thus an urgent need to define and set up a new and modern regulatory framework adapted to Afghanistan new challenges and to the international environment.

11.9.2 General Issues of the Livestock Subsector

The regulatory issues are looked at in the context of the general issues identified in relation to the development of the subsector, which are identified elsewhere in the Agriculture Master Plan as:

- The lack of a livestock policy and livestock development strategy.
- The lack of coordination between government, donors and NGO's activities.
- The lack of adequately trained personnel in almost all areas of veterinary and animal husbandry services provision either to undertake public or private functions.

- The lack of reliable information on the livestock situation.
- The weak organization of the public services and inadequate distribution and motivating treatment of human resources.

11.9.3 Animal Health

11.9.3.1 Animal Health Problems

Issues particularly related to animal health are the following:

- The lack of a disease surveillance network, of laboratory services to carry out disease diagnosis and investigation and of an Epidemiology Unit to manage livestock information in such a way that it can inform and feed the planning process.
- The increasing incidence of livestock diseases resulting in increased mortality and morbidity and insecurity for the population.
- The lack of quality vaccines produced in Afghanistan.
- The absence of animal movement control at the borders and within the country due to the lack of quarantine facilities and border control inspections for imported live animals and of facilities for inspection of trade animals in transit within the country.
- Inadequate separation of trade and slaughter animals at markets places allowing for possible contamination of farm animals by trade animals.
- Inadequate slaughter facilities and adequately trained meat inspectors to enforce needed sanitary measures for the protection of consumers.
- Inadequate assignment of meat and other animal products inspection responsibility, now under the Ministry of Public Health when it should be placed under the responsibility of veterinary services within the MAAHF to comply with international OIE and WTO Government commitments.
- The insufficient and outdated legal framework for the control of livestock diseases, the regulation of private animal health service providers, the importation of veterinary medicines, biological products and animal feed, standards and regulations governing meat inspection, the processing of livestock products including slaughter facilities and dairy processing plants.
- The slow progress towards meeting the conditions for the sustainability of the private delivery of animal health and production services and input supplies through the donor / NGO financially supported VFU system; and the lack of information and planning on professionals and paraprofessionals manpower needs in veterinary medicine.

11.9.3.2 Animal Disease Control

A good understanding of the roles of the public and private sector in **disease control** is essential to implement the policies.

- The official veterinary services will co-ordinate and promote the setting of the required strategies, organization of the disease detection systems and epidemiology services, the control of disease by focal vaccination, movement control, ensure supply of quality vaccine, implement sanitary measures

(quarantine of movement control or infected premises, village, epidemiological units) and ensure public and stakeholders awareness.

- The private sector (NGOs for the medium term and other stakeholders) will ensure delivery of veterinary services, drugs and private good vaccines, participate to epidemicsurveillance and disease intelligence networks through disease detection and reporting and contribute to control programs (including the use of contracting arrangements for the private sector to provide disease control services to the public sector, e.g., vaccinations).

11.10 Legislation and Regulations

Policies can hardly be implemented without an adequate regulatory environment which determines the conditions to sustain them and guarantee the stakeholders of their rights and duties.

The Ministry's policy is therefore to review and renew the livestock sub-sector legislation in order to create an enabling environment for enforcement of the Government policies and to secure and promote private sector initiatives and investments. This will however have to be done on the basis of well defined detailed policies and strategies and will therefore follow the path of the policy and strategy making process.

The laws and regulations which are necessary to sustain the policies and strategies presented above include, but are not necessarily limited to:

- An Act on the life of animals which should include in particular:
 - A Decree or a set of regulations on animal diseases including specific regulations governing notifiable diseases.
 - A Decree or a set of regulations on the exercise of veterinary medicine.
 - A Decree or a set of regulations on the veterinary pharmacy and biological inputs.
 - A Decree or a set of regulations on animals and the environment.
- An Act on the Human use of Animals including:
 - A Decree or a set of regulations on the property and management of live domestic animals.
 - A Decree or a set of regulations on animal movements and marketing.
 - A Decree or a set of regulations on animal products processing, marketing, distribution and export.
 - A Decree or a set of regulations on animal feed, supplements and additives.
 - A Decree or a set of regulations on the prevention of cruelty to animals.

11.11 Organization of Veterinary Public Hygiene

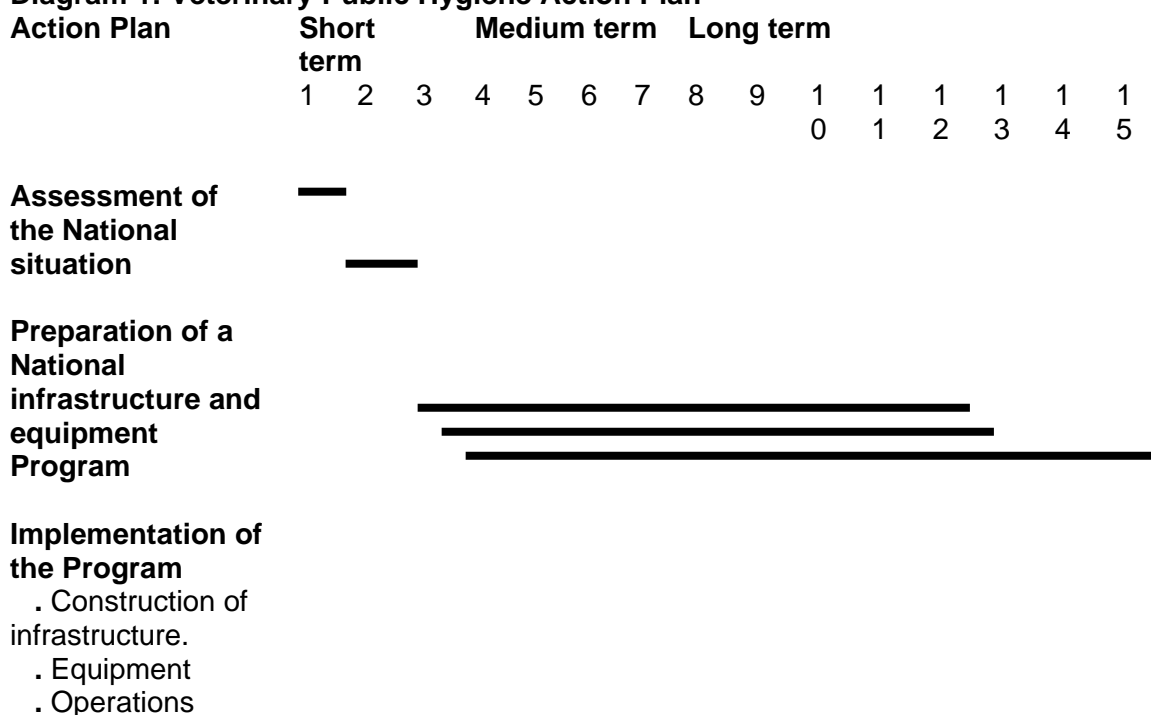
Improving and preserving the quality and safety of livestock products, both for the protection of Afghan consumers or for complying with international standards for the development of exports is an essential veterinary public good function. To organize, regulate and implement quality and safety control of products of animal origin in

order to protect Afghan consumers and promote exportation requires careful organization and investments implying:

- A detailed review of the conditions which presently prevail regarding marketing and slaughtering of animals and processing of animal products, in particular regarding meat and milk supply of urban centers.
- Consultation of traders and distributors of animal products on the problems they have to face and possible solutions.
- A detailed study to determine priorities and specify the infrastructure, equipment, training and organization needed.
- The design of an implementation program, including technical justifications, costing, and feasibility and possible time schedule to progressively expand efficient veterinary public hygiene activities.
- The clear leadership of the restructured Veterinary Department over all animal products control activities related to the sanitary and safety status of the products.
- Relevant legislation and regulations to create an appropriate regulatory environment coherent with international standards.

The practical activities to be developed in the short term include an initial comprehensive and nationwide assessment of the situation of livestock markets, slaughtering facilities and retailer's infrastructure and equipment. This will be followed by the preparation of a national program of infrastructures and equipment designed to reach reasonable hygienic standards in the marketing and slaughtering of animals for human consumption. Such program will include a detailed description and justification of all investments envisaged, plans of infrastructure, lists of equipment and costing for consideration by the donors. It is expected that implementation of the investment plan will be carried out in a period of ten years starting in the medium term. The chronogram of the Organization of public veterinary hygiene action plan is presented below.

Diagram 1: Veterinary Public Hygiene Action Plan



11.11.1 Veterinary Public Hygiene Program Costs

A proposal for a comprehensive long term veterinary public hygiene program has been prepared. The costs for the first five years are estimated below. A slaughterhouse building program is suggested to start from the fourth year. This accounts for the large jump in the program costs. Over five years, the program cost is estimated at a total of \$14.4 million.

2006	2007	2008	2009	2010
\$0.4 million	\$0.4 million	\$0.4 million	\$6.6 million	\$6.6million

Veterinary Public Hygiene Program costs(p1)

Subjects	Units	2006	Short term			Unit costs \$ '000	Costs Short T \$'000	2009	Medium term			Costs Mid. T \$ '000
			2007	2008					2010	2011	2012	
A. Technical Assistance												
1. Local expert and support staff												
Meat inspection expert	M/year	1	1	1	20	60.0						0.0
Bilingual Secretary	M/year	1	1	1	6	18.0	1	1	1	1		24.0
Sub-Total						78.0						24.0
2. International Staff												
Long-term Specialist	M/year	1	0.6	0	180	288.0	1	1	1	1		720.0
Construction specialist	M/year		0.6	1	180	288.0	1	0.5	0.5			360.0
Short-term Experts	M/Month	2	2	6	20	200.0	3	3	3	3		240.0
Sub-Total						776.0						1320.0
3. Publication and Seminars												
Publication	LS	1	1	1	5	15.0	1	1	1	1		20.0
Workshops	N°	0	1	1	2	4.0		1	0	1		4.0
Seminars	N°	0	0	0	5	0.0	1	0	0	1		10.0
Sub Total						19.0						34.0
4. Training												
English local	M/Month	15	15	15	0.5	22.5	5	5	5	5		10.0
Computer training	M/Month	15	15	15	0.5	22.5	5	5	5	5		10.0
Local technical training	M/Month	10	10	10	1	30.0	20	20	20	20		80.0
Training trainers	LS	1	1	1	20	60.0		1				20.0
MSc	M/year	2	5	5	25	300.0	3	3	3	3		300.0
Sub Total						435.0						420.0

Veterinary Public Hygiene Program costs (p2)

B. Equipment and Vehicles

1. Office Equipment

Computer and	N°	10		2	20.0				10	20.0
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Printer											
Office Furniture	LS	10			1	10.0					0.0
2. Vehicles											
4w.D Pick up	N°	6			25	150.0		8	2	2	300.0
Monotcycle	N°	30			3	90.0	0	30	0	0	90.0
3. Technical equipment											
Inspection equipment	LS	20	20	20	0.05	3.0	20	20	20	20	4.0
Slaughterhouses equipment					500	0.0	2	2	2		3000.0
Slaughter slabs equipment	LS	0			20	0.0	20	20	20	20	1600.0
Sub Total						273.0					5014.0
C. Civil Works											
Slaughterhouses	LS	0	0	0	2500	0.0	2	2	2		15000.0
Slaughter slabs	LS	0	0	0	50	0.0	20	20	20	20	4000.0
Sub Total						0.0					19000.0
Total Investment Cost						708.0					24434.0
RECURRENT COST											
Salaries	N°	20	20	20	2.4	144.0	40	40	50	50	432.0
Slaughterhouses maintenance	LS	0	0	0	75	0.0	0	0	2	4	450.0
Slaughter slabs maintenance	%				11	0.0			20	40	660.0
Vehicles	N°	6	6	6	6.25	112.5	6	8	10	10	212.5
Motorcycles	N°	30	30	30	0.75	67.5	30	30	30	30	90.0
Offices	LS	1	1	1	30	90.0	1	1	1	1	120.0
Travel and night allowances	N° days	500	500	500	0.015	22.5	500	500	500	500	30.0
Total Recurrent Cost						436.5					1994.5
TOTAL COST						1144.5					26428.5

11.12 References

The seed policy has been prepared under the lead of FAO over several months; similarly the draft seed law, with the input of specialist seed law adviser from FAO.

The seed project was prepared by a contractor to EC, with consultation of FAO, ISE and other stakeholders, during November/December 2004.

The draft agro-inputs policy was prepared by a working group led by G.J. Cullen, and the proposed agro-inputs project was prepared by G.J. Cullen, with consultation of stakeholders. Inputs from IFDC, ADB Policy TA and others were utilised.

The report on the foods regulation was prepared by the Master Plan food regulation sub-group as a result of group discussions. Guidelines of WHO and FAO (Assuring Food Safety and Quality) were used to develop food regulation proposals. The minutes of a meeting of FAO with Minister of MAAHF

The policy on Livestock and Veterinary was prepared by Philippe Blanc, with inputs from MAAHF departments and a range of other stakeholders, over a period of nine months work. The report on the regulatory aspects of the policy was prepared for the Master Plan by Philippe Blanc; his input was funded by EC.

SUMMARY PROJECT COSTS: ALL PROPOSED PROJECTS US\$millions

Project	2006	2007	2008	2009	2010
Seed	2.5	2.1	2.2	1.6	1.6
Agro-inputs	3.9	1.5	1.7	1.6	1.6
Food Safety	3.3	3.3	3.2	1.6	1.6
Veterinary Hygiene	0.4	0.4	0.4	6.6	6.6
TOTAL	10.1	7.3	7.5	11.4	11.4

Quality Control Budget:

Technical assistance	980	920	920	880	
Equipment and vehicles	1778	90	173	90	
Civil works and supplies	600				
Recurrent costs	428	428	428	428	
Total agro-inputs	3,786	1,438	1,521	1,398	0

FOOD

Technical assistance	1600	1600	1200		
Equipment and vehicles	2130	2130	1100	400	400
Civil works and supplies	500	500			
Recurrent costs	700	700	400	400	400
Total food	4,930	4,930	2,700	800	800

VETERINARY HYGIENE:

Technical assistance	283	283	283	336	336
Equipment and vehicles	371	178	178	110	424
Civil works and supplies				6,000	6,000
Recurrent costs	145	145	145	493	493
Total veterinary hygiene	799	606	606	6,939	7,253

TOTAL QUALITY CONTROL

Technical assistance	3,688	3,661	3,261	1,975	1,095
Equipment and vehicles	4,914	2,723	1,781	740	964
Civil works and supplies	1,350	750	250	6,000	6,000
Recurrent costs	1,548	1,548	1,248	1,596	1,168
Total quality control	11,500	8,682	6,540	10,311	9,227