**Republic of Rwanda**



**Ministry of Agriculture and Animal Resources (MINAGRI)**

**Rwanda,  
2nd Agriculture Sector Investment Plan  
(ASIP-2)**

Period:

01.07. 2013 - 30.06.2018  
(Fiscal years 2013/14 to 2017/18)

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**ACKNOWLEDGEMENTS**

**LIST OF ABBREVIATIONS**

|  |  |
| --- | --- |
| AfDB | African Development Bank |
| AgPER  ALUCD | Agricultural Public Expenditure Review  Agricultural Land Use Consolidation Decree |
| ASIP | Agricultural Sector Investment Plan |
| ASWG | Agricultural Sector Working Group |
| AU | African Union |
| BNR | National Bank of Rwanda |
| CAADP | Comprehensive Africa Agriculture Development Programme |
| CIC | Community Innovation Centre |
| CICA | Agricultural Information and Communication Centre |
| CIP | Crop Intensification Programme |
| COMESA | Common Market for Eastern and Southern Africa |
| DFID | Department for International Development (UK) |
| DHS | Demographic and Health Survey |
| e-Soko | Agriculture Market Information System in Rwanda |
| EDPRS | Economic Development and Poverty Reduction Strategy |
| EICV | Integrated Household Living Conditions Survey |
| EU | European Union |
| F&V | Fruit and Vegetables |
| FAO | Food and Agricultural Organisation of the United Nations |
| FDI | Foreign Direct Investment |
| FFS | Farmer Field School |
| FI | Financial (Services) Institutions |
| FY | Fiscal Year |
| GDP | Gross Domestic Product |
| GIRINKA | One Cow per Poor Family Program |
| Ha | Hectare |
| HRD | Human Resource Development |
| ICT | Information and Communication Technology |
| ict4ag IFAD | Information and Communication Technology for Agriculture  International Fund for Agricultural Development |
| IFMIS | Integrated Financial Management Systems |
| JICA | Japan International Cooperation Agency |
| LODA | Local Development Agency |
| LUC | Land Use Consolidated |
| LWH | Land Husbandry, Water Harvesting and Hillside Irrigation Project |
| M&E | Monitoring and Evaluation |
| MCC | Milk Collection Centre |
| MIGEPROF | Ministry of Gender and Family Promotion |

|  |  |
| --- | --- |
| MINAGRI | Ministry of Agriculture and Animal Resources |
| MINALOC | Ministry of Local Government |
| MINICOM | Ministry of Trade and Industry |
| MINIRENA | Ministry of Natural Resources |
| MIS | Management Information System |
| MINECOFIN | Ministry of Finance and Economic Planning |
| SMEs | Small and Medium-sized Enterprises |
| MT | Metric tonnes |
| MTEF | Medium-Term Expenditure Framework |
| NAEB | National Agricultural Export Development Board |
| NCBS | National Capacity Building Secretariat |
| NEPAD | New Partnership for Africa’s Development |
| NFNSP | National Food and Nutrition Strategic Plan |
| NGO | Non-Governmental Organisation |
| NISR | National Institute of Statistic Rwanda |
| P | Program |
| PFM | Public Financial Management |
| PfR | Program for Results |
| PPP | Public-Private Partnership |
| PSTA | Strategic Plan for the Transformation of Agriculture |
| RAB | Rwanda Agricultural Board |
| RCA | Rwanda Co-operative Agency |
| RDB | Rwanda Development Board |
| RF | Results Framework |
| RNRA | Rwanda Natural Resources Authority |
| RSSP | Rural Sector Support Program |
| RWF | Rwandan franc |
| SACCO | Savings and Credit Co-operative |
| SDC | Swiss Development Cooperation |
| SEA | Strategic Environmental Assessment |
| SP | Sub-Program |
| SPIU | Single Project Implementation Unit |
| SPPC | Strategic Planning and Program Coordination (MINAGRI Directorate) |
| SPS | Sanitary, Phytosanitary and Food Safety |
| TWIGIRE | Farmer-to-Farmer Extension Model |
| USAID | United States Agency for International Development |
| USD | United States dollar |
| USDA | US Department of Agriculture |
| WB | World Bank |
| WUA | Water User Association |

1. Strategic framework of Rwanda's 2nd Agriculture Sector Investment Plan (ASIP-2)

**Vision 2020** is the overall long-term strategic framework within which all other strategies operate. It is a long-term strategic document having originally been formulated in 2000, with targets set for 2010 and 2020. Agriculture is one of the six pillars of Vision 2020 with the goal of developing “productive high-value and market-orientated” agriculture by 2020. Vision 2020 expects diversification away from the agricultural sector to take place as services assume the role of the lead sector in the Rwandan economy. Agriculture is nevertheless viewed as important as it forms a base for strong forward linkages into manufacturing through the development of higher-value processing industries. The target GDP growth rate for agriculture was revised upward in 2010 to 8.5% per year.

The 2nd Economic Development and Poverty Reduction Strategy (**EDPRS-2, 2013-18**) targets annual GDP growth of 11.5% and an, an export growth of 28% per year and a reduction in poverty to less than 30% of the population. EDPRS-2 acknowledges that Rwanda's agriculture sectors has still as key role for the country's economy - it both provides the base for sustained economic growth and makes the greatest contribution to poverty reduction. The most important objectives for the sector under EDPRS-2 are to increase rural household incomes, to provide income from diversified sources, to increase food- and nutrition security and to enhance the generation of foreign exchange through the further development of agricultural exports. Public sector investments and incentive structures are expected to create an improved environment for agribusiness and agricultural private sector investment.

The Strategic Plan for the Transformation of Agriculture **(PSTA-3, 2013-18)** operationalises the contributions of Rwanda's agriculture to the above mentioned EDPRS-2 targets. **PSTA-3 goals** are:

* To transform Rwandan agriculture from a subsistence sector to a market-orientated, value-creating sector; and
* To grow as rapidly as possible in terms of both production and commercialisation in order to increase rural income and reduce poverty.

The **specific objectives of PSTA-3**, as revised and refined during the development of its results- and M&E Framework in 2014, read as follows:

* Specific Objective N°1: To support sustainable intensification and diversification of cropping and animal husbandry effectively.
* Specific Objective N° 2: To support for farmers and their organisations the accessibility, affordability and efficient use of quality inputs and agricultural support services).
* Specific Objective N° 3: To improve agricultural value addition and value chain development through an enabling environment for agricultural investment and the business of smallholder farming.
* Specific Objective N°4: To increase the institutional capacities at central- and local government to support the implementation of the sector strategy and ensure social and environmental sustainability.

1. Rwanda's agriculture sector after CAADP-1 implementation: Achievements and prospects

Under PSTA 2, both food production and food marketing were substantially increased, helping to drive poverty rates down. Agriculture was one of the main drivers of growth and poverty reduction in Rwanda, significantly lifting rural households out of poverty. Although the share of agriculture decreased over this period from 37.3 percent to 31.2 percent of GDP, the sector remained the backbone of the Rwandan economy in terms of employment and income-generation for the majority of households. If Rwanda can sustain increases in agricultural productivity over the medium term, poverty will continue to fall, especially if business activities related to trade, post-harvest storage, and processing increase along with the boom in agricultural production. Since virtually all of Rwanda’s poor depend on agriculture to generate income, scaling up agricultural intensification and marketing in areas not currently covered by these business activities will be the quickest way to get significant numbers of rural poor out of poverty.

The targets set out in the Cabinet Paper for Revised Vision 2020 Indicators and Targets call for an 11.5 percent annual rate of economic growth, required to achieve lower middle­income status by 2020. The annual growth rate for agriculture and livestock to achieve this target is set at 8.5 percent, assuming that this sector’s share of GDP will be 25 percent.

According to the national accounts, the value of food crop production in constant prices rose by 24 percent from 2008 to 2012. This substantially exceeded the target and was due largely to the success of the Crop Intensification Program (CIP) and the Land Use Consolidation Program (LUC). Between 2000 and 2010, agriculture GDP grew annually by 5.8%. The sector accounted for 33% of GDP in 2013 and generates 70% of export revenues.

Food crops account for 83-85% of agricultural GDP and even their modest growth will have much greater effect on agricultural and economic growth than rapid growth in the smaller subsectors of export crops and livestock, due to the size of the sub-sector and a strong multiplier effect on the rest of the economy. The growth contribution of food crops to the overall economic growth is not just because of its significant size in agriculture, but also because of strong multiplier effect through the consumption linkage effect where a 1 percent growth in food crops generates a 0.11 percent of growth in non-agriculture sector annually. Through linkage and multiplier effects, 1 USD of public investment in agricultural staples generates 3.63 USD agricultural 0.21 USD of non-agricultural GDP.

With 22% of annual growth rate in export crops as a subsector of agricultural GDP, additional annual growth rate in agricultural GDP and total GDP is 0.71 and 0.57 percentage points respectively. Considering its small share in GDP, growth impact of the export crop is impressive particularly for the overall economic growth. From its initial size of only 1.3 percent GDP and after tripling the growth rate of export agriculture, its size is still smaller than a single crop like maize in terms of the share of GDP.

Although Rwanda ranks high in general in the Doing Business Report, it is ranked low in the ease of trading across borders. Given the importance of trade for Rwanda in the future, it is essential to improve this performance. A joint public-private strategy should be developed in cooperation with neighbouring countries to ease the requirements, lower the cost, and speed up the time for formal cross-border trade. This strategy should also involve improving transportation and storage infrastructure and maintaining grades and standards for the most important products.

However, achieving 8.5%/year growth in agricultural GDP requires not only yield increases for crops and livestock but also a shift to higher value products. Because projected yield increases for field crops together fall far short of 8.5%/year, a lot of the targeted 8.5%/year growth in agricultural GDP will have to come from other sources, including increase in production of high value crops, especially fruits and vegetables for local consumption (do not require a lot of land but labour); and increase in livestock products (do not take much land but labour and capital). Farmers with as little as .25 ha can make a good living with vegetables or livestock.

1. Background and iterative process of the ASIP-2 development

The CAADP Post Compact Guidelines describe the National Investment Plan as a comprehensive and wide ranging plan that covers all investment in the agriculture sector. The plan should be developed through a participatory process involving all stakeholders in the sector and be strongly led by the Ministries of Finance and Agriculture. Rwanda's has followed this guidance in the preparation of the present document.

Rwanda has demonstrated high-level political commitment to Africa-wide initiatives such as the Comprehensive Africa Agriculture Development Program (CAADP) by signing a CAADP compact in 2007 and has renewed its commitment with its partners in 2014. The commitment of adhering to the CAADP principles goes beyond the 2 most prominent targets to achieve annual agricultural sector growth of at least 6% and allocate at least 10% of the national budget to agriculture or agriculture-related spending of public resources. Rwanda's renewed commitment to the continental CAADP-process embraces in fact all 4 CAADP pillars, but gives particular emphasis to pillar N° 2 "Private sector development, rural infrastructure, improved trade and market access".

The Government of Rwanda has developed the ASIP-2 as a framework and guiding references for both public and private investment in agriculture through 2018. For the first time, Rwanda's ASIP quantifies the amount of private investment expected to support agriculture development over the medium term (2014-18). The ASIP-2 shows a clear shift towards private sector engagement in the PSTA-3 Programs 1, 2 and especially 3 (see below). This shift is expected to leverage the impact of public agriculture spending on Rwanda's GDP growth-, export growth and poverty reduction targets.

The preparation of the ASIP-2 document has been informed by the following key-inputs:

■ The Strategic Plan for the Transformation of Agriculture in Rwanda Phase III (PSTA-3), approved in July 2013; the ASIP-2 has been based on the 4 Programs (see Chapter 8 for a detailed description of the 24 Sub-Programs) of PSTA-3, but has further developed the sector's strategic results- and M&E framework and the explanatory narrative for the chosen output priorities.

* Sustainable agriculture and animal resource intensification (P 1)
* Research, technology transfer and professionalization of farmers (P 2)
* Value chain development, private sector investment and export promotion (P 3)
* Institutional strengthening and cross cutting issues (P 4)
* Numerous consultations (both bilateral and through the Agriculture Sector Working Group) were conducted along the preparation of the PSTA-3 Document between August 2012 and July 2013; they have been documented in Anne II.2 of the latter.
* MINAGRI commissioned in 2013 with the World Bank and USAID 2 CAADP-I review studies, namely the "Rwanda Agricultural Markets, Private Sector Development, Supply and Competitiveness Study" and "The Role of Agriculture in the Fast Growing Rwandan Economy: Assessing Growth Alternatives". Both studies involved wide stakeholder consultations and their findings have substantially informed the PSTA-3's results- framework exercise. The same holds true for the regular consultations conducted by MINAGRI and its agencies along the budget planning cycle for Fiscal Year 2013/14 and 2014/15 with Districts, farmer federations, producer organisations, NGO's and the private sector.

**Box 1: Key drivers for agricultural-driven growth and poverty reduction identified under PSTA-3**

* Continued investment in land husbandry, irrigation and inputs;
* Expansion of the Crop Intensification Programme (CIP) to further increase productivity of staple crops;
* Expansion of the livestock sector, particularly small stock and fisheries;
* Investment in mechanisation, processing and post-harvest facilities to modernise production;
* Targeting of producers via extension for the development of a skill-based sector;
* Research that responds to farmers’ needs and identifies optimal crop varieties;
* Aggregation of smallholder production to provide sufficient quantities for markets;
* Improvement of the quality of traditional export crops to generate higher premiums;
* Increased production of emerging export crops, including horticulture;
* Value chain development to strengthen supply and develop market demand;
* Encouragement of entrepreneurship through agricultural financing and insurance to manage risk;
* Attracting of investment through soft and hard market infrastructure;
* Building of institutional capacity across the sector;
* Facilitation of a participatory approach, including women and youth, for inclusive growth; and
* Environmental sustainability and climate change adaptation for the long-term prosperity of the sector.
* The ASIP-2 is based on the PSTA-3 results framework (see Chapter 7) that has been refined between March and August 2014. During the months of March and May 2014, all Directorates of MINAGRI and its agencies NAEB and RAB as well as all other public servants dealing with planning in M&E in Rwanda's agricultural sector did jointly analyse, review and refine the Results Framework for PTSA-3 during an iterative and intensive process with >10 consecutive work sessions. This exercise was facilitated and guided by MINAGRI and the World Bank and the outputs identified under each of the 24 PSTA-3 Sub-Programs became the core reference for the ASIP-2 costing exercise. In the 2nd semester of Fiscal Year 2014/15, an additional effort will be needed to review and specify the Metadata for several indicators presented in Chapter 7 and 13.
* The financial and economic analysis for the main capital investments (see Chapter 6), was informed to a large extent by the Economic and Financial Analysis models used in 2013 for the Land Husbandry, Water Harvesting and Hillside Irrigation Project (LWH) and the Rural Sector Support Project Phase 2 (RSSP2); both co-funded by MINAGRI and the World Bank.
* Ahead of the CAADP-2 Business Meeting in June 2014, several advanced drafts of the ASIP-2 document were e-mailed to all members of the Agriculture Sector Working Group with a request for review and comments. The received comments helped to identify omissions and improve the ASIP-2 document.
* The FAO Investment Centre conducted upon the request of MINAGRI and the FAO Country Representative a review of the Draft Agriculture Sector Investment Plan. The costing methodology was found to be sound but concerns were expressed regarding the consistence (results framework, lessons learned, budget allocation priorities) and explanatory detail (e.g. absorption and implementation capacity) of the document. These comments guided the preparation of an improved final ASIP-2 document.
* An Independent Technical Review of the ASIP document was also commissioned by MINAGRI and the AU's NEPAD agency. It took place in Rwanda from 28/05 to 02/06/2014 to enhance the quality of the ASIP and guide its post-Business Meeting operationalization. 2 key conclusions were drawn for improving the ASIP Draft document: (1) To increase the grading and investment allocation to institutional capacity development, and (2) the need for a more robust analysis and articulation of the strategies and interventions to harness the transformative role of the private sector for Rwanda's agricultural growth. The findings were presented to the plenary of the Rwanda CAADP II High-Level Stakeholders meeting (9-10 June 2014).

4 The methodology applied in the costing of the 2nd Agriculture Sector Investment Plan

* The costing methodology was output-based, i.e. based on the key-outputs (see Chapter 4) identified during the PSTA-3 results-framework planning exercise. Time- and resource constraints did not allow conducting a detailed activity-based costing. Unit costs, applied to each output, have been sourced from preparatory ASIP-2 costing studies in 2013 where available; otherwise they have been estimated.
* Costing was undertaken in RWF and converted to USD using projected exchange rates (Annex 1a). Costs are expressed in current prices. The projected inflation rates used to estimate costs for the various years are set out in Annex 1b. The projected exchange- and inflation rates were provided by MINECOFIN.
* Private sector and PPP cost estimates have been undertaken by costing lists of priority investment projects in agriculture and agribusiness as supplied by development corporations, banks and representative organisations of the private sector. An approach based on line items rather than outputs has been followed for private sector costs, whereby the implementation costs of each investment project are either taken from project profiles (if available) or estimated.
* A funding scenario was constructed whose credibility is based on a trend analysis of past governmental- and donor funding to the sector.

Key elements of the ASIP-2 document are:

1. The strategic framework of the ASIP-2 (Chapter 1)
2. Findings of the Agriculture Expenditure Review conducted in FY 2013/14 (Chapter 5)

\* j The economic justification (modelling) of the main capital investments (Chapter 6)

1. Comments on key outputs and outcomes of the 24 PSTA-3 Sub-Program (Chapter 8)
2. Public Sector- and Private Sector Costs under ASIP-2 (Chapter 10 and 11)
3. Implementation responsibilities for public- & private sector ASIP- 2 costs (Chapter 9)
4. Financing of the ASIP-2 costs (Chapter 12)
5. Results- and M&E Framework (Chapter 7)
6. M&E requirements for PSTA-3 and ASIP-2 (Chapter 13)

5 Findings of the 2014 Agriculture Public Expenditure Review (AgPER)

Main findings of the Mini Public Agriculture Expenditure Review (Mini AgPER) conducted during the preparation of the Agriculture Sector Investment Plan.

* MINAFGRI's total approved budget stands at 90.3 Rwanda Francs (RWF) billion in Fiscal Year (FY) 2014/15 (a 8.8% increase compared to FY 2013/14 and a 62.4% compared to Fiscal Year FY 2009/10).
* MINAGRI’s share in the total national budget follows since FY 2009/10 a downward trend and reaches only 5,15% in FY 2014/15, i.e. the average annual increase of the National Budget is not matched by increases in the agriculture budget.
* 10% of public expenditure on agriculture - the CAADP (Comprehensive Africa

Agriculture Development Programme) compact target - is reached if all natural resource management-, Cooperative-, SME-, investment- and trade- promotion as well as standard-compliance/quality-enhancement budgets are considered (see Table 1).

* The discrepancy above stresses the importance of a strengthened coordination during the ASIP-2 period between MINAGRI and the other involved governmental agencies so as to ensure maximum coherence and synergy of public agriculture-related expenditures towards the common EDPRS-2 economic development-, export growth- and poverty reduction- targets.
* Budgetary allocations for investments in Rwanda’s agriculture sector are spread across MINAGRI, its affiliated agencies (Rwanda Agriculture Board, National Agriculture Export Development Board), Single Project Implementation Units, Districts, the Ministry of Trade and Industry (Agro-processing, Trade promotion), the Rwanda Cooperative Agency (Cooperative Development), MINIRENA (Sustainable land and forestry management), RDB (Private Sector Investment) and the National Capacity Building Secretariat (NCBS).
* The share of MINAGRI’s Development Budget has remained in recent years consistently around 90% as well as it’s externally financed part which stands at 56% in FY 2014/15.Then share of the domestically financed Development Budget oscillates since Fiscal Year 2009/10 around 50%.
* Since Fiscal Year 2011/12, consistently 50-60% of the annual budget of MINAGRI and its agencies are allocated to Sub-Program 1.1 (Soil Conservation, Land Husbandry) and 1.2 (Irrigation). In recent years, the large increase in the area of land that was reported as protected against soil erosion was accomplished at relatively low cost.
* There is a need for an improved annual public expenditure reviews for the main capital investments in the sector (manky soil conservation, irrigation, feeder roads).
* In terms of budget execution, MINAGRI and its affiliated agencies exhibit adequate capacity to absorb their respective allocations with execution rates of close or even beyond 100% (if actual execution is compared with the original budget before the half­year revision/increase of the certain ceilings).

Most of the agricultural allocations are still retained centrally, reflecting the large internal and donor funded SPIUs managed by MINAGRI.

The development budget constitutes the largest share of MINAGRI’s budget because of the continued emphasis on soil conservation, irrigation and market infrastructure investments.

The share of the annual governmental contribution to the budget of MINAGRI and its agencies during PSTA-2 (2009-12) has been consistently around 50%. Program N° 1 (Intensification and development of sustainable production systems) and 3 (Promotion of commodity chains and agribusiness development) were given on average over 80%.

In spite of a consistent upward trend of agricultural earmarked transfers (from USD 2 million in 2009/10 to 12 USD Million in FY 2014/15), the resources transferred to Districts are still low vis-a-vis the important role of Districts for soil conservation, the roll-out of the new public extension model, value chain development, oversight and facilitation.

Rwanda, 2nd Agriculture Sector Investment Plan (ASIP-2; 2013/14 - 2017/18)

**Table 1:** Trend of public budgets for agriculture-related spending in Rwanda between 2009/10 and 2014/15 (**in USD** and in proportion to total public spending)

\* Applied RWF/USD Exchange rate = 1st July of the corresponding Fiscal Year (Source: BNR, National Bank of Rwanda)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Program / Sub-Program** | **Agency** | **2009/10** | **2010/11** | **FY 2011/12** | **FY 2012/13** | **FY 2013/14** | **FY 2014/15** |
| Administrative and support services | MINAGRI/NAEB/RAB | 0 | 0 | 0 | 0 | 9.787.913 | 10.253.529 |
| Agriculture and animal resource intensification | MINAGRI/NAEB/RAB | 64.733.515 | 87.625.829 | 90.309.497 | 105.010.462 | 99.789.577 | 92.432.024 |
| Research, technological transfer, advisory services, professionalization | MINAGRI/NAEB/RAB | 3.181.704 | 6.163.400 | 5.999.713 | 4.624.778 | 4.225.839 | 6.437.110 |
| Value chain development and private sector investment | MINAGRI/NAEB/RAB | 15.840.730 | 10.934.962 | 10.933.638 | 14.452.303 | 13.994.216 | 22.682.838 |
| Institutional development and agricultural cross­cutting issues | MINAGRI/NAEB/RAB | 9.189.497 | 9.172.346 | 5.006.166 | 3.923.175 | 1.146.773 | 463.461 |
| RCA, Investment, trade and business facilitation, SME development, Standards/Certification/Quality and safety testing, Weather forecasting **(50%)** | MINICOM, RDB, MININFRA | 5.276.675 | 11.487.817 | 14.546.625 | 9.554.498 | 12.692.216 | 7.832.957 |
| Sustainable agriulture development | PRESIREP, RDB | 0 | 0 | 0 | 422.866 | 714.176 | 209.465 |
| Higher Institute of Agricultulture and Animal Husbandry | MINEDUC | 0 | 0 | 0 | 228.657 | 226.149 | 0 |
| Land administration and land use management | MINIRENA | 5.269.992 | 5.595.481 | 5.974.182 | 3.657.375 | 1.449.266 | 4.085.927 |
| Integrated water resource management | MINIRENA | 3.478.699 | 1.156.638 | 2.000.462 | 628.023 | 1.703.338 | 3.413.386 |
| Environment and Climate Change Resilience | MINIRENA | 0 | 388.828 | 3.678.559 | 8.850.151 | 7.739.396 | 7.347.140 |
| Terrestrial ecosystems and forest resource management | MINIRENA | 4.125.992 | 4.794.702 | 7.104.901 | 3.136.290 | 4.665.355 | 5.619.810 |
| Local development initiatives | MINALOC | 18.340.293 | 9.588.052 | 3.610.929 | 3.040.308 | 566.388 | 914.487 |
| Fight against malnutrition | LODA | 0 | 0 | 0 | 0 | 0 | 2.636.629 |
| Fight against malnutrition | MOH | 130.312 | 509.307 | 712.677 | 644.502 | 383.065 | 345.402 |
| Social Protection (Support to Vulnerable Groups) | DISTRICTS | 2.161.123 | 2.088.629 | 2.095.369 | 12.510.080 | 29.028.092 | 31.330.315 |
| Community Development | DISTRICTS | 0 | 0 | 42.773.890 | 7.539.924 | 0 | 0 |
| Forestry, Environmental | DISTRICTS | 59.597 | 58.850 | 2.484.890 | 3.207.471 | 5.635.495 | 3.846.037 |
| Market Infrastructure | DISTRICTS | 0 | 0 | 0 | 720.279 | 9.110.875 | 17.777.757 |
| Rural/Feeder Roads | DISTRICTS | 0 | 0 | 7.665.038 | 22.116.960 | 13.552.751 | 28.043.724 |
| Agric. intensification, Value chains, Support to prodcucers, Food Security | DISTRICTS | 2.100.221 | 5.162.140 | 6.805.883 | 13.669.541 | 7.276.961 | 11.446.462 |
| **Total Agriculture Budget** |  | **133.888.349** | **154.726.982** | **211.702.418** | **217.937.643** | **223.687.839** | **257.118.462** |
| Total National Budget |  | 1.474.229.055 | 1.673.023.186 | 1.853.941.417 | 2.531.333.359 | 2.572.809.470 | 2.568.158.869 |
| **Agriculture Budget in % of Total National Budget** |  | **9,08%** | **9,25%** | **11,42%** | **8,61%** | **8,69%** | **10,01%** |

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6 Economic analysis of the main capital investments under ASIP-2

A cash flow model is used to assess the ex-ante productivity, effectiveness, and efficiency of public investments in different PSTA-3 sub-programs (SPs), using the ASIP-2 scenario of RWF 0.6 billion over 5 years (Table 2). While the costs of all SPs are included in the analysis, the model only quantifies direct benefits for 8 of the 24 SPs (84% of public investment). Costs and benefits of private sector- and PPP investments are not quantified in the current analysis.

Table 2: ASIP public sector investments by sub-program as included in the analytical model

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Investment costs for 5-year period** | **ASIP-2 Cost Scenario** | | **High Cost Scenario** | |
| **Sub-program** | **million RWF** | **share of total** | **million RWF** | **share of total** |
| **1.1. Land Conservation** | 69,296 | 11% | 183,567 | 15% |
| **1.2. Irrigation** | 190,119 | 29% | 388,242 | 32% |
| **1.3. Mechanization** | 27,311 | 4% | 210,252 | 18% |
| **1.4. Improve soil fertility** | 45,968 | 7% | 75,071 | 6% |
| **1.5. Seed improvement** | 25,029 | 4% | 29,091 | 2% |
| **2.1. Research & technology tr.** | 23,250 | 4% | 7,621 | 1% |
| **2.2. Extension services** | 26,075 | 4% | 11,299 | 1% |
| **3.8. Market oriented infrast.** | 140,320 | 22% | 189,170 | 16% |
| **Sub Total** | 547,367 | 84% | 1,094,314 | 91% |
| **Remaining 20 sub-programs (1)** | 101,532 | 16% | 104,881 | 9% |
| **Total Public Sector Investment** | **648,900** | **100%** | **1,199,196** | **100%** |

**(2)**

Note: (1) In the analysis costs are allocated proportionally between the other 8 sub-programs.

(2) Analysis excludes ASIP costs assigned to private sector and public private partnerships.

The analytical model estimates the impact of sub-program investments on revenues and costs in 6 different enterprise models: [1](#bookmark21) 1) Cropping on irrigated hillside areas (command areas); 2) Cropping on non-irrigated hillside terraces; 3) Cropping on irrigated marshlands; 4) Post-harvest drying of crops on new drying floors; 5) Post-harvest storage of crops in new storage facilities; and 6) Post-harvest transport on improved feeder roads. The analysis quantifies also benefits from greater employment opportunities in agriculture and an estimate of the economic value of increased carbon sequestration. The key drivers of agricultural growth are quantified such that changes in public investment costs lead to an increase in the number or hectares with terracing or irrigation; the number of infrastructures built for post-harvest drying/storage; and the extent of improved feeder roads. The model captures also how SPs are designed to enhance farm-level yields and affect input use. The captured linkages can be summarized as follows:

1 The analytical model and its assumptions are an amalgamation of the Economic and Financial Analysis models used in 2013 for the Land Husbandry, Water Harvesting and Hillside Irrigation Project (LWH, WB), and the Rural Sector Support Project Phase 2 (RSSP2, WB). Financial prices are converted to economic prices using adjustment factors. Net present value is calculated using a discount rate of 12% over a period of 25 years with constant RWF 2014 amounts (no inflation included).

SP 1.1: Investments in terracing/soil conservation improve the farming practices on hill­sides by increasing yields, avoiding yield losses due to erosion, and generate employment.

SP 1.2: Investments in irrigation improve yields on hillsides and marshlands and generate employment.

SP 1.3: Mechanization investment reduce labour cost but also employment in cropping areas.

SP 1.4: Soil fertility investments lead to increased yields and associated fertilizer use.

SP 1.5: Seed development investments lead to increased yields and associated seed costs.

SP 2.1: Research and technology transfer investments lead to increased yields.

SP 2.2: Extension investments improve the adoption rates of new cropping practices.

SP 3.8: Market infrastructure investments reduce yield and price losses through improved drying and storage. Improved feeder roads reduce costs of produce and farm inputs.

As with all farm-level assumptions on revenue and costs, the relative contributions of each sub-program investment are based on assessments by the LWH and RSSP project teams. Table 3 illustrates sub-program investments that are estimated to affect the progress towards the maximum yield potential in 3 different production areas. If investments are reduced in one of the sub-programs, the maximum yield potential is not reached; e.g. if the soil fertility sub- program's share of the ASIP investment halves to from 7% to 3.5%, then 25% of the maximum with-program yield on irrigated marshlands will decrease by 50%, equal to a 12.5% reduction.

Table 3: Example of model drivers - yield impacts by sub-program

|  |  |  |  |
| --- | --- | --- | --- |
| **Share of max yield potential**  **(1)**  **Sub-program (2)** | **W/P Yield on Irrigated hillside areas** | **W/P Yield on Non­irrigated hillside areas** | **W/P Yield on Irrigated marshlands** |
| **1.1. Land Conservation** | 10% | 10% |  |
| **1.2. Irrigation** | 25% |  | 25% |
| **1.4. Improve soil fertility** | 22% | 30% | 25% |
| **1.5. Seed improvement** | 22% | 30% | 25% |
| **2.1. Research and technology transfer** | **22%** | 30% | 25% |
| **Total share of max yield potential (1)** | 100% | 100% | 100% |

Note: (1) Each crop has its own assumed maximum yield potential in each cropping areas.

(2) Each sub-program contributes by a certain share of 100% to reach the max yield potential.

Estimates for the ASP cost scenario indicate that the planned RWF 0.6 billion 5-year investment yields a sound overall economic Net Present Value (NPV) of RWF 198 billion with an Economic Rate of Return (ERR) of 18%. Annual net benefits are shown in Annex 4 for the financial and economic values. These estimates are based on a 25 year model which includes recurrent investment costs in year 6 and onwards. Undiscounted, this is equivalent to an average annual economic net benefit of RWF 82 billion. Using this estimate as a proxy for annual growth in the agriculture sector, this constitutes approximately 5% of the agricultural share of GDP.[2](#bookmark0) The analysis seems generally consistent with an 8.5% growth target for the sector, given that the 3.5% gap may be covered when quantifying net benefits from livestock production and other incremental benefits not captured in the analysis and those that extend beyond the program area. The ASIP cost scenario drives a change in cropping pattern and farm management practices that greatly improve farm-level income. Estimates (Table 3) indicate a 77% increase in per hectare gross margin on non-irrigated hillsides, and much larger increases on irrigated areas. With a farm size of 0.6 hectares, household incomes could increase by between RWF 208,000 and 1,430,000 per year.

Table 4: Increased annualized financial gross margins by cropping area with programme

|  |  |  |  |
| --- | --- | --- | --- |
| **1000 RWF/ha**  (Apr-2014 prices) | **Irrigated hillside areas** | **Non-irrigated hillside areas** | **Marshland areas** |
| **Without Program** | 430 | 451 | 589 |
| **With Program** | 2,811 | 797 | 2,807 |
| **Incremental increase** | 2,382 | 347 | 2,218 |
| **% increase** | 554% | 77% | 376% |

Note: Estimates based on annualized and weighted averages of crops harvested in each area.

Under the ASIP cost scenario, the net present value of increased agricultural employment due to changes in cropping practices only was estimated as RWF 9.6 billion. The average economic net benefit was RWF 1.6 billion per year, which (with a daily economic wage rate of RWF 634/day) is equivalent to 2.6 million work days and - assuming 260 (130) work days per year - almost 10,000 (20,000 person) years. This includes increases due to cropping intensification and decreases from mechanization. This is a conservative estimate of employment generation because it only includes direct effects on cropping labour. The estimate excludes employment generation in other agricultural production systems such as livestock, post-harvest infrastructures, and construction[[1]](#footnote-2) [[[2]](#footnote-3)](#bookmark1) and any multiplier effects on employment inside and outside the program area. Other than delay in developing areas with terraces and irrigation systems, returns to program investments are particularly sensitive to how many farmers ultimately adopt the new farming practices and how fast they do so. For example, the investment only breaks-even if new practices are adopted on 2/3 of the total developed area. The NPV also drops to zero if the annual adoption rate drops to 10% compared to the assumed 20%. Because large shares of total program returns are generated by crops on non-irrigated hillsides, the results are also sensitive to changes in the associated yields and output prices. Risk management strategies should increase farmer adoption rates through extension. Yield increases are supported particularly through SPs for soil fertility, seed development, research and technology transfer. Based on analyses in projects such as the LWH and RSSP, investments in terracing lead to increased livestock production due to increased farmer income and the availability of fodder. The increased availability of manure benefits the local cropping systems.

7 Results- and Monitoring Framework of PSTA-3 / ASIP-2

The Results framework of PSTA-3 was improved in 2014 by the Directorates of all MINAGRI agencies and members of the Agriculture Sector Working Group so as to meet the economic development-, export growth-, and poverty/vulnerability- reduction targets of EDPRS-2. The list below highlights several of the most essential indicators under each of the 4 Programs.

**Program 1: Agriculture and Animal Resource Intensification**

Ha of land developed with progressive and bench/radical terraces, based on agreed standards Hectares developed for hillside, marshland and small-scale irrigation

Proportion of cultivable land with mechanized land cultivation

% of farmers utilising fertilizer for strategic crops according to recommended standards

% of farmers utilizing improved and certified seeds for strategic crops

Production of milk, beef meat, goat meat, pork meat, poultry meat, eggs, honey, fish

% of improved breeds of dairy cows, cattle and goats

% of cattle held in intensive livestock keeping systems

**Program 2: Research and Technology Transfer, Advisory Services and Professionalization of Farmers**

N of released technologies (food crops, export crops)

N° of farmers benefitting from FFS according to established standards (disaggregated by sex)

N° of farmers supported through TWIGIRE in horticulture-/export crop value chains

% of farmers that are member of a cooperatives, association or self-help group

% of farmers utilising cooperative services for input supplies and marketing

% of total production marketed through cooperatives/farmer organizations

% of cooperatives trained in management, organisation and entrepreneurial skills

% of cooperatives trained in food safety, SPS and quality standards

**Program 3: Value Chain Development and Private Sector Investment**

Investor Framework / Multi-sector agri-business strategic plan

N° of SMEs involved in crop and livestock production (inputs, agro-processing, marketing)

Capacities of agro-processing installations for food/staple crops

Productivity of coffee, tea, pyrethrum, flowers and horticulture production

% of coffee production that is fully washed; N° of ISO 2200-2005 certified tea factories Revenue of exports: coffee, tea, pyrethrum, flowers, horticulture

Value of cottage industry (silk, essential and plant oils, dried fruit etc.) production

% of annual exports of F&V audited against social and environmental standards

N° of GlobalGAP and/or ISO 22000 certified abattoirs

N° of certified milk collection centres (MCCs); Processing capacities for dairy products

Total loans allocated to agricultural sector (production and value addition)

% of rural households benefitting from agricultural group credits:

N° of farmers benefitting from Warehouse Receipt System finance

N° of farmers with crop and/or livestock insurance

Postharvest losses (%): maize, beans, Irish potatoes, Rice

Km of rural feeder roads rehabilitated and maintained according to the established standards

**Program 4: Institutional Development and Agricultural Cross-Cutting Issues**

Total Volume of Public Spending on Agriculture by Districts

Regulations and roles for agricultural finance clarified, established and communicated Agro-chemical registration system (agro-dealers) established

MIS System is developed, and functional, and utilised across the sector

N° of newly released crop growing protocols translated into Kinyarwanda

% of women and youth enrolled in agricultural self-help groups, cooperatives and associations Joint agro-environmental plan and assessment (MINAGRI-REMA)

Regulations for organic agriculture, pesticide- and lime use approved and communicated Proportion of cultivable agricultural land covered by multi- or single-purpose trees Average animal protein production (g/capita/day) in % of "safe consumption % of households (Ubudehe 1 and 2) with permanently used nutrition/kitchen gardens

**Note: During the Metadata-refinement exercise in the 2nd half of Fiscal Year 2014/15, several baseline values, targets and metadata will still have to be refined / defined.**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Results**  **(Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
| **High-Level Indicators** | | | | | | | | | | |
| CAADP compact is complied with | 0.1 | % of public budget allocated to agriculture sector | % | MINECOFIN, Budget | Annual | 8 | 9 | 10 | 10 | 10 |
| Vision 2020 and EDPRS- 2 targets for economic growth and poverty reduction are supported adequaetly by the agriculture sector | 0.2 | Agricultural GDP growth rate | % | BNR | Annual | 3.9 | +8.5% | +8.5% | +8.5% | +8.5% |
| 0.3 | Agricultural export revenue growth rate | % | BNR | Annual | 159.000.000  USD | +28% | +28% | +28% | +28% |
| 0.4 | % of rural population under the national poverty line | % | EICV | Every 5 years | 44,9 | - | 30,2 | - | <30 |
| 0.5 | Average monetary income per rural household from cropping | RWF/ year | Annual agricult. household survey | Every 2 years |  |  |  |  |  |
| 0.6 | Average monetary income per rural household from livestock-keeping | RWF/ year | Annual agricult. household survey | Every 2 years |  |  |  |  |  |
| Increased food- and nutrition security in Rwanda, especially among vulnerable households | 0.7 | % of households with acceptable food consumption score | % | CFSVA/FSNMS | Every 6 months | 79 | 81 | 82 | 82 | 82 |
| 0.8 | % of stunting among children aged 6-59 months | % | DHS/Community- based screening | Annual | 44 |  |  |  | 24,5 |
| Sustained availability of land ressources for agricultural land use | 0.9 | % of arable land effectively protected against soil erosion and sustainably managed | % | RAB-Team/TF | Annual | 73,0 | 80,2 | 83,2 | 87,0 | 90,7 |
| 0.10 | Area of cultivable land per agricultural household (Median) | ha | RNRA-Land  Department | Annual | 0,33 |  |  |  |  |
| **Program 1: Agriculture and Animal Resource Intensification**  **(Specific Objective N°1: To support sustainable intensification and diversification of cropping and animal husbandry effectively)** | | | | | | | | | | |
| Improved use of scarce land ressources through crop and livestock productivity gains | 1.1 | Agriculture land under modernized agricultur-al technologies (seeds, fertilizers, mechan.) | % | Seasonal Survey | Annual |  |  |  |  |  |
| 1.2 | Average yields of strategic crops: Maize | MT/ha | Seasonal Survey | Seasonal | 2,45 | 3,83 | 4,80 | 6,00 | 7,50 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Results**  **(Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
|  | 1.3 | Average yields of strategic crops: Bush beans | MT/ha | Seasonal Survey | Seasonal | 0,65 | 1,15 | 1,50 | 2,00 | 2,70 |
| 1.4 | Average yields of strategic crops:  Climbing beans | MT/ha | Seasonal Survey | Seasonal | 1,70 | 2,66 | 3,30 | 4,20 | 5,20 |
| 1.5 | Average yields of strategic crops:  Cassava | MT/ha | Seasonal Survey | Seasonal | 30,00 |  |  |  | 45,00 |
| 1.6 | Average yields of strategic crops: Irish Potatoes | MT/ha | Seasonal Survey | Seasonal | 25,00 |  |  |  | 35,00 |
| 1.7 | Average yields of rice under marshland irrigation | MT/ha | Seasonal Survey | Seasonal | 4,85 | 5,87 | 6,45 | 7,10 | 7,80 |
| 1.8 | Productivity of dairy cows | l/day | Annual livestock  survey | Annual |  |  |  |  |  |
| **Sub-Program 1.1: Soil Conservation and Land Husbandry** | | | | | | | | | | |
| Increased coverage, efficiency and sustainability of soil conservation infrastructure and practices | 1.1.1 | Efficiency of soil protection infrastructure (= maintenance of terracing structure) | % | RAB-Team/TF | Every 2 years | 57,2 | 61,2 | 66,6 | 73,4 | 80,1 |
| 1.1.2 | Ha of land developed with progressive terraces, based on agreed standards | Ha | Districts: Routine  M&E | Annual | 802.292 | 894.072 | 955.259 | 1.031.743 | 1.054.661 |
| 1.1.3 | Ha of land developed with bench/radical terraces, based on agreed standards | Ha | Districts: Routine  M&E | Annual | 46.246 | 74.528 | 84.528 | 94.984 | 104.731 |
| 1.1.4 | **Multi-sectoral** soil conservation and land husbandry | Docu­ment | ASWG | Single event |  | X |  |  |  |
| policy and strategic plan |
| **Sub-Program 1.2: Irrigation and Water Management** | | | | | | | | | | |
| Increased land productivity and climate-change resilience through expanded access to | 1.2.1 | Proportion of households practicing irrigation | % | Seasonal Survey | Annual | 2,1% |  |  |  |  |
| 1.2.2 | Hectares developed for hillside irrigation | Ha | Districts: Routine  M&E | Annual | 3.075 | 7.255 | 9.075 | 12.075 | 15.075 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Results**  **(Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
| irrigation systems | 1.2.3 | Hectares developed for marshland irrigation | Ha | Districts: Routine  M&E | Annual | 24.721 | 31.636 | 34.093 | 37.550 | 39.721 |
| 1.2.4 | Hectares developed for small scale irrigation | Ha | Districts: Routine  M&E | Annual | 1.000 | 1.750 | 2.050 | 2.300 | 2.500 |
| Increased self-reliance and technical capacity of Water User Associations | 1.2.5 | % of WUA trained in flood control, O&M and irrigation management | % | Districts: Routine  M&E | Annual |  |  |  |  |  |
| 1.2.6 | N° of farmers enrolled in WUA that are legally established and pay their water user fees | # | Districts: Routine  M&E | Annual |  |  |  |  |  |
| Improved public spending on irrigation | 1.2.7 | National Irrigation policy and strategic plan | Docu­ment | ASWG | Single event | Policy | Strategic Plan |  |  |  |
| **Sub-Program 1.3: Agricultural Mechanisation** | | | | | | | | | | |
| Increased land- and labour productivity through the availability of agricultural mechanization technology and services | 1.3.1 | Proportion of cultivable land with mechanized land cultivation | % | Districts: Routine  M&E | Every 2 years | 12 | 18 | 20 | 23 | 25 |
| 1.3.2 | N° of cooperatives that offer mechanization (land cultivation) services | # | Districts: Routine  M&E | Annual |  |  |  |  |  |
| 1.3.3 | N° of implements utilized for mechanised farming | # | MINAGRI, I&M  Taskforce | Annual |  |  |  |  |  |
| 1.3.4 | National Agriculture Mechanization policy and strategic plan | Docu­ment | ASWG | Single event |  |  |  |  |  |
| **Sub-Program 1.4: Inputs to Improve Soil Fertility and Management** | | | | | | | | | | |
| Improved Integrated Soil Fertiliy Management by Rwandan farmers | 1.4.1 | Kg of inorganic fertilizer used per ha per year | kg/ha/ year | Seasonal Survey | Annual | 29 | 35 | 39 | 42 | 45 |
| 1.4.2 | % of farmers utilising fertilizer for strategic crops according to recommended standards | % | Seasonal Survey | Annual | 30 | 42 | 48 | 54 | 60 |
| 1.4.3 | MT of inorganic fertilizers imported | MT/ha | MINAGRI | Annual | 36.000 | 48.000 | 54.000 | 62.000 | 70.000 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Results**  **(Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
|  | 1.4.4 | % of agricultural households utilising registered agro­dealers | # | MINAGRI | Annual |  |  |  |  |  |
| 1.4.5 | National Fertilizer Policy and regulatory framework | Docu­ment | ASWG | Single event |  | X |  |  |  |
| **Sub-Program 1.5: Seed Development** | | | | | | | | | | |
| Improved availability and utilization of seeds to increase agricultural productivity, diversification, quality and resilience | 1.5.1 | % of farmers utilizing improved and certified seeds for strategic crops | % | Seasonal Survey | Annual | 30 | 46 | 54 | 62 | 70 |
| 1.5.2 | % of area planted with certified seed to total area of food crops (Seed Change Ratio) | % | Districts: Routine  M&E | Annual |  |  |  |  |  |
| 1.5.3 | Output of commercial seed producers operating in the country | MT | RDB | Annual |  |  |  |  |  |
| 1.5.4 | Nat. Seed policy and strategic plan coherent with COMESA Trade Harmonized Regulations | Docu­ment | ASWG | Single event |  | X |  |  |  |
| **Sub-Program 1.6. Livestock Development** | | | | | | | | | | |
| Improved infrastructure of livestock production | 1.6.1 | Total area of established functional feedlots | # | RAB | Annual |  |  |  |  |  |
| Increased and sustainable production of livestock commodities | 1.6.2 | Production of milk | MT | Annual livestock  survey | Annual | 6.510 | 16.430 | 21.031 | 26.919 | 34.457 |
| 1.6.3 | Production of beef meat | MT | Annual livestock  survey | Annual | 2.816 | 4.745 | 60.734 | 7.774 | 9.951 |
| 1.6.4 | Production of goat meat | MT | Annual livestock  survey | Annual |  |  |  |  |  |
| 1.6.5 | Production of pork meat | MT | Annual livestock  survey | Annual |  |  |  |  |  |
| 1.6.6 | Production of poultry meat | MT | Annual livestock  survey | Annual |  |  |  |  |  |
| 1.6.7 | Production of eggs | MT | Annual livestock  survey | Annual | 6.324 |  |  |  | tbd |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Results**  **(Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
|  | 1.6.8 | Production of honey | MT | Annual livestock  survey | Annual | 3.221 |  |  |  | 8.695 |
| 1.6.9 | Production of fish | MT | Annual livestock  survey | Annual | 21.400 |  |  |  | 112.000 |
| 1.6.10 | Production of hides and skins | MT | Annual livestock  survey | Annual | 12.927 | 16.546 | 21.179 | 27.109 | 34.700 |
| Improved productivity of the national livestock herd | 1.6.11 | % of improved breeds (dairy cows) | % | Annual livestock  survey | Annual | 15 | 21 | 24 | 27 | 30 |
| 1.6.12 | % of improved breeds (cattle) | % | Annual livestock  survey | Annual | 5 | 9 | 11 | 13 | 15 |
| 1.6.13 | % of improved breeds (goats) | % | Annual livestock  survey | Annual | 2 | 3 | 4 | 5 | 6 |
| Improved health of the national livestock herd | 1.6.14 | % of cells with at least one appointed and trained animal-health-worker (AHW) | % | Districts: Routine  M&E | Annual |  |  |  |  |  |
| 1.6.15 | % reduction of incidence of brucellosis | % | Annual livestock  survey | Annual | 5 | 3 | 3 | 2 | 1 |
| 1.6.16 | % reduction of mastis of cattle | % | Annual livestock  survey | Annual | 10 | 6 | 4 | 4 | 3 |
| Improved effectiveness of public spending in the livestock sector | 1.6.17 | % of cattle held in intensive livestock keeping systems | % | Annual livestock  survey | Every 2 years | 65 | 75 | 80 | 85 | 90 |
| 1.6.18 | Validation of Integrated Livestock Policy and corresponding Strategy document | Docu­ment | ASWG | Single event |  |  |  |  |  |
| **Program 2: Research and Technology Transfer, Advisory Services and Professionalization of Farmers**  **(Specific Objective N° 2: To support for farmers and their organisations the accessibility, affordability and efficient use of quality inputs and agricultural support services)** | | | | | | | | | | |
| **Sub-Program 2.1: Research and Technology Transfer** | | | | | | | | | | |
| Increased availability of technologies to increase the productivity, quality and resilience of food | 2.1.1 | N° of released technologies (food crops): e.g. Vit A enriched casssava, QPM maize | # | RAB Routine Monitoring | Annual |  |  |  |  |  |
| 2.1.2 | N° of released technologies (export crops) | # | RAB Routine Monitoring | Annual |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Results (Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
| and export crops | 2.1.3 | Average N° of Farmer Field Schools per Zone to promote agricultural technologies | # | RAB Routine Monitoring | Annual |  |  |  |  |  |
| 2.1.4 | Updated National Agriculture Resarch and Extension Policy and Strategic Plan | Docu­ment | ASWG | Single event |  |  |  |  |  |
| **Sub-Program 2.2: Extension and Proximity Services for Producers** | | | | | | | | | | |
| Improved provision of proximity- and quality extension services according to local demand | 2.2.1 | Ratio of farmer households per extension agent (village level) | Ratio | Districts: Routine M&E | Annual | 1/839 | 1/743 | 1/695 | 1/647 | 1/600 |
| 2.2.2 | N° of villages with maintained agricultural demonstration plots | # | Districts: Routine M&E | Annual |  |  |  |  | 14.837 |
| 2.2.3 | N° of farmers benefitting from FFS according to established standards (disaggregated by sex) | # | Districts: Routine M&E | Annual | 83.000 | 589.800 | 843.200 | 1.096.600 | 1.350.000 |
| 2.2.4 | N° of farmer promoters trained and posted in Imidugudus | # | Districts: Routine M&E | Annual |  |  |  |  |  |
| 2.2.5 | N° of farmers supported through TWIGIRE in horticulture production and marketing | # | Districts: Routine M&E | Annual |  |  |  |  |  |
| **Sub-Program 2.3: Farmer Cooperatives and Organisations** | | | | | | | | | | |
| Improved capacity of agricultural cooperatives to link farmers efficiently to input- and output markets | 2.3.1 | % of farmers that are member of a cooperatives, association or self-help group | % | Annual survey of agr. cooperatives | Annual | 23 |  |  |  | 50 |
| 2.3.2 | % of agricuture cooperatives/farmer organizations graded "A" or "B" (audit rating) | % | Annual survey of agr. cooperatives | Annual |  |  |  |  |  |
| 2.3.3 | % of farmers utilising cooperative services for input supplies and marketing | % | Annual survey of agr. cooperatives | Annual |  |  |  |  | 50 |
| 2.3.4 | % of total production marketed through cooperatives/farmer organizations | % | Annual survey of agr. cooperatives | Annual | 40 | 56 | 64 | 72 | 80 |
| 2.3.5 | % of cooperatives trained in management, organisation and entrepreneurial skills | % | Annual survey of agr. cooperatives | Annual |  |  |  |  |  |
| 2.3.6 | % of cooperatives trained in food safety, SPS and quality standards | % | Annual survey of agr. cooperatives | Annual |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Results (Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
| **Program 3: Value Chain Development and Private Sector Investment**  **(Specific Objective: To improve agricultural value addition and value chain development through an enabling environment for agricultural investment and the business of smallholder farming)** | | | | | | | | | | |
| Increased market- oriented production and value-addition of Rwandan farmers | 3.1 | Value of marketed food crop production | USD | Annual agricult. household survey | Annual |  |  |  |  |  |
| 3.2 | Value of marketed export crop production | USD | Annual agricult. household survey | Annual |  |  |  |  |  |
| 3.3 | Value of marketed livestock production | USD | Annual agricult. household survey | Annual |  |  |  |  |  |
| 3.4 | Agricultural value addition strategy | Docu­ment | ASWG | Single event |  |  |  |  |  |
| 3.5 | SPS and food safety policy framework and action plan | Docu­ment | ASWG | Single event |  |  |  |  |  |
| **Sub-Program 3.1: Creating an Environment to Attract Private Investment, Encourage Entrepreneurship and Facilitate Market Access** | | | | | | | | | | |
| An improved enabling environment for doing agribusiness and the business of smallholder farming | 3.1.1 | Investor Framework / Multi-sector agri-business strategic plan | Docu­ment | ASWG | Single event |  |  |  |  |  |
| 3.1.2 | Amount of private investment (domestic and foreign) in agricultural value chains | USD | RDB | Annual | 64.700.000 |  |  |  |  |
| 3.1.3 | Economic, social and environmental impact analysis of agriculture investment (FDI) | Docu­ment | ASWG | Every 2 years |  |  |  |  |  |
| 3.1.4 | Private sector perception of the “doing agri-business” enabling environment (scale 0-5) | Docu­ment | World Bank | Annual |  |  |  |  |  |
| 3.1.5 | N° of SMEs involved in crop production (by input supply, agro-processing, marketing) | # | MINICOM | Annual |  |  |  |  |  |
| 3.1.6 | N° of SMEs involved in livestock production (by input supply, agro-processing, marketing) | # | MINICOM | Annual |  |  |  |  |  |
| Increased contract farming that meets sustainability and "Decent Work" criteria | 3.1.7 | N° of farmers benefitting from contract farming arrangements (MINAGRI = 3rd party signatory) | # | Annual survey of agr. cooperatives | Annual |  |  |  |  |  |
| 3.1.8 | % of produce of group-based production marketed through contract farming | % | Annual survey of agr. cooperatives | Annual |  |  |  |  |  |

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| **Results**  **(Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
| **Sub-Program 3.2: Development of Priority Value Chains: Food Crops** | | | | | | | | | | |
| Increased value addition of food crops by producer organisations | 3.2.1 | % of group-based production organisations running agro-processing facilities | % | Annual survey of agr. cooperatives | Annual |  |  |  |  |  |
| 3.2.2 | % of produce of group-based staple crop production processed in own facilities | % | Annual survey of agr. cooperatives | Annual |  |  |  |  |  |
| 3.2.3 | Capacities of agro-processing installations for food/staple crops | MT | Annual survey of agr. cooperatives | Annual |  |  |  |  |  |
| 3.2.4 | Number of farmers trained in agro processing | # | Annual survey of agr. cooperatives | Annual |  |  |  |  |  |
| **Sub-Program 3.3: Development of Priority Value Chains: Export Crops** | | | | | | | | | | |
| Reduced 'trading across borders' costs | 3.3.1 | Unit cost of 1 kg airfreight | USD | MINICOM | Annual | 2,2 | - | - | - | 1,6 |
| Increased production, productivity and quality of traditional agricultural export commodities | 3.3.2 | Productivity of coffee production | kg/tree/ year | NAEB: Routine M&E | Annual | 2,4 | 2,7 | 2,8 | 3 | 3,1 |
| 3.3.3 | % of coffee production that is fully washed | % | NAEB: Routine M&E | Annual | 31,7 | 43,0 | 50,0 | 59,0 | 71,0 |
| 3.3.4 | Revenue of exports - Coffee | USD | NAEB: Routine M&E | Annual | 55.204.349 | 76.200.000 | 85.100.000 | 95.100.000 | 1.043.000.000 |
| 3.3.5 | Productivity of Tea production | MT/ha/ year | NAEB: Routine M&E | Annual | 6,8 | 7 | 7,5 | 8 | 9 |
| 3.3.6 | N° of ISO 2200-2005 certified tea factories | # | NAEB: Routine M&E | Annual | 7 |  |  |  | 16 |
| 3.3.7 | Revenue of exports - Tea | USD | NAEB: Routine M&E | Annual | 68.600.000 | 73.400.000 | 81.000.000 | 89.300.000 | 94.900.000 |
| Increased production, productivity and quality of non-traditional agricultural export commodities | 3.3.8 | Production of Fruit and Vegetables | MT | Annual horticult.  survey | Annual | 39.940 | 43.427 | 46.570 | 49.930 | 52.381 |
| 3.3.9 | Export Revenues of Fruit and Vegetables | USD | Annual horticult.  survey | Annual | 11.881.119 | 12.881.119 | 18.181.119 | 21.881.119 | 25.438.000 |

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| **Results**  **(Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
|  | 3.3.10 | Production of Flowers | Ha | Annual horticult.  survey | Annual | 10 | 70 | 205 | 355 | 650 |
| 3.3.11 | Revenue of exports - Flowers | USD | Annual horticult.  survey | Annual | 9.800.000 | 14.000.000 | 65.000.000 | 102.900.000 | 104.187.000 |
| 3.3.12 | Quantity of Pyrethrum production: Diluted Pale Extract (PY 50%), in MT | MT | NAEB: Routine M&E | Annual | 20 | 33 | 63 | 122 | 173 |
| 3.3.13 | Productivity of Pyrethrum production | kg/ha/ year | NAEB: Routine M&E | Annual | 250 | 375 | 563 | 844 | 1.276 |
| 3.3.14 | Revenue of exports - Pyrethrum | USD | NAEB: Routine M&E | Annual | 9.095.000 | 9.400.000 | 16.302.000 | 30.976.000 | 46.206.000 |
| Increased developmental impact of agricultural export value chains | 3.3.15 | Value of cottage industry (silk, essential and plant oils, dried frut etc.) production | USD | Annual horticult.  survey | Annual |  |  |  |  |  |
| 3.3.16 | % of rural households participating in cottage (local agricultural value-addition) industry | % | Annual horticult.  survey | Annual |  |  |  |  |  |
| 3.3.17 | % of annual exports of F&V audited against social and environmental standards | % | NAEB: Routine M&E | Annual |  |  |  |  |  |
| **Sub-Program 3.4: Development of Priority Value Chains: Dairy and Meat** | | | | | | | | | | |
| Increased livestock export revenues | 3.4.1 | Export revenues for livestock products (milk, meat, eggs, honey, hides and skins) | USD | Annual livestock  survey | Annual | 16.700.000 |  |  |  |  |
| Increased livestock value chain infrastructure that meets international quality standards | 3.4.2 | Capacities of agro-processing installations for meat products | MT/ month | Districts: Routine  M&E | Annual |  |  |  |  |  |
| 3.4.3 | N° of GlobalGAP and/or ISO 22000 certified abattoirs | # | Districts: Routine  M&E | Annual | 4 | 4 | 5 | 6 | 7 |
| 3.4.4 | N° of certified milk collection centres (MCCs) | # | Districts: Routine  M&E | Annual | 90 | 100 | 105 | 110 | 116 |
| 3.4.5 | Capacities of agro-processing installations for dairy products | MT/ month | Districts: Routine  M&E | Annual |  |  |  |  |  |

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| **Results (Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
|  | 3.4.6 | Capacities of agro-processing installations for other animal products (e.g. tanneries) | MT/ month | Districts: Routine M&E | Annual |  |  |  |  |  |
| **Sub-Program 3.5: Development of Priority Value Chains: Fisheries** | | | | | | | | | | |
| Increased addtion of value to fisheries value chains | 3.5.1 | Proportion of processed fish products in total production | % | Annual livestock survey | Annual | 0 |  |  |  | 20 |
| **Sub-Program: 3.6. Development of Priority Value Chains: Apiculture** | | | | | | | | | | |
| Increzased capacities for quality management in market- oriented apiculture | 3.6.1 | Proportion of bee populations kept in modern beehives (as opposed to traditional apiaries) | % | Districts: Routine M&E | Annual | 1 |  |  |  | 30 |
| 3.6.2 | Volume of total honey production captured by honey collection centers | # | Districts: Routine M&E | Annual | 21 |  |  |  |  |
| 3.6.3 | N° of companies and cooperatives with certified honey | # | Districts: Routine M&E | Annual | 9 |  |  |  | 15 |

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| **Results (Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
| **Sub-Program 3.7: Agricultural Finance** | | | | | | | | | | |
| Increased availability and improved utlization of financial services in the agriculture sector | 3.7.1 | Total loans allocated to agricultural sector (production and value addition) | USD | BNR | Annual |  |  |  |  |  |
| 3.7.2 | N° of business plans of agric. cooperatives / SMEs approved and financed by FI's | # | BNR | Annual |  |  |  |  |  |
| 3.7.3 | % of rural households benefitting from agricultural group credits: | % | BNR | Annual |  |  |  |  |  |
| 3.7.4 | Average agricultural credit per SACCO member (production and marketing credit) | RWF | BNR | Annual |  |  |  |  |  |
| 3.7.5 | N° of farmers benefitting from Warehouse Receipt System finance | # | East Africa Exchange | Annual |  |  |  |  |  |
| 3.7.6 | N° of farmers with crop and/or livestock insurance | # | MINAGRI/IFC | Annual | 20.238 | 92.140 | 128.000 | 165.000 | 200.000 |
| **Sub-Program 3.8: Market-oriented Infrastructure** | | | | | | | | | | |
| Reduced post-harvest lossess in staple food crops | 3.8.1 | % of households accessing services for post-harvest treatment and storage of food crops | % | Annual agricult. household survey | Annual |  |  |  |  |  |
| 3.8.2 | N° of farmers participating in post-harvest treatment and storage training | # | Districts: Routine M&E | Annual |  |  |  |  |  |
| 3.8.3 | Postharvest losses (%) - Maize | % | Seasonal Survey | Annual | 10.4% |  |  |  | 5% |
| 3.8.4 | Postharvest losses (%) - Beans | % | Seasonal Survey | Annual | 27.4% |  |  |  | 5% |
| 3.8.5 | Postharvest losses (%) - Irish potatoes | % | Seasonal Survey | Annual |  |  |  |  |  |
| 3.8.6 | Postharvest losses (%) - Rice | % | Seasonal Survey | Annual | 8.3% |  |  |  | 5% |
| 3.8.7 | Capacity of storage facilities (warehouses, metalic silos) | MT | Districts: Routine M&E | Annual |  |  |  |  | 116.500 |

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| **Results**  **(Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
| Reduced transport costs to market agricultural produce | 3.8.8 | Km of rural feeder roads rehabilitated according to the established standards | km | MINAGRI SPIU | Annual |  |  |  |  | 2.550 |
| 3.8.9 | Km of rural feeder roads maintained according to the established standards | km | MINAGRI SPIU | Annual |  |  |  |  |  |
| **Program 4: Institutional Development and Agricultural Cross-Cutting Issues**  **(Specific Objective N°4: To increase the instutional capacities at central- and local goverment to support the implementation of the sector strategy and ensure social and environmental sustainability)** | | | | | | | | | | |
| **Sub-Program 4.1: Institutional Capacity Building** | | | | | | | | | | |
| Strengthened capa­cities of agricultural public servants | 4.1.1 | Capacity building action plan | Docu­ment | MINAGRI SPPC | Annual |  |  |  |  |  |
| **Sub-Program 4.2: Decentralisation in Agriculture** | | | | | | | | | | |
| Increased fiscal- and technical agrciultural decentralization | 4.2.1 | Total Volume of Public Spending on Agriculture by Districts | RWF | MINECOFIN, Budget | Annual |  |  |  |  |  |
| 4.2.2 | Progress report by RAB, NAEB and Districts on implementation of TWIGIRE | Docu­ment | ASWG | Annual | - | X | X | X | X |
| 4.2.3 | Proportion of Districts with functional (accor-ding to mandate) agricultural committees | Docu­ment | RAB/Districts |  |  |  |  |  |  |
| 4.2.4 | Annual Assessment of the effectiveness and efficiency of agricultural decentralziation | Docu­ment | MIS (LODA, MINAGRI), IFMIS | Annual | - | X | X | X | X |
| **Sub-Program 4.3: Legal and Regulatory Framework** | | | | | | | | | | |
| Increased efficiency in provision of agric financial services | 4.3.1 | Regulations and roles for agricultural finance clarified, established and communicated | Docu­ment | ASWG | Single event |  | X |  |  |  |
| Increased control on dissemination of agrochemicals | 4.3.2 | Agro-chemical registration system (agro-dealers) established | Registrar | Audit | Single event |  |  |  |  |  |
| **Sub-Program 4.4: Agricultural Communication, Statistical Systems, M&E and Management Information Systems** | | | | | | | | | | |
| Strengthened infor­mation manage-ment | 4.4.1 | MIS System is developed, and functional, and utilised across the sector | MIS | MINAGRSPPC  Directorate | Single event |  | X |  |  |  |

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| **Results (Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
| **~~p~~**i **~~JLL.LU~~**I performance assessment | 4.4.2 | Integrated framework for agricultural surveys and statistics | Docu­ment | MINAGRSPPC Directorate | Single event |  |  |  |  |  |
| Increased accessibility of quality information by farmers and other agricultural sector stakeholders | 4.4.3 | N° of new agriculture communication products - radio spots | # | CICA | Annual |  |  |  |  |  |
| 4.4.4 | N° of newly released crop growing protocols translated into Kinyarwanda | # | CICA | Annual |  |  |  |  |  |
| 4.4.5 | Average monthly users of MINAGRI/CICA website (including E-Soko) | Retrieval | CICA | Monthly |  |  |  |  |  |
| **Sub-Program 4.5: Gender and Youth in Agriculture** | | | | | | | | | | |
| Youth integrated within agricultural growth strategies | 4.5.1 | A strategy to ensure the inclusion of youth in Rwanda’s agriculture development | Docu­ment | ASWG | Single event |  |  |  |  |  |
| 4.5.2 | % of youth enrolled in agricultural self-help groups, cooperatives and associations | % | Annual survey of agr. cooperatives | Annual |  |  |  |  |  |
| Women integrated within agricultural growth strategies | 4.5.3 | % of women enrolled in agricultural self-help groups, cooperatives or associations | % | Annual survey of agr. cooperatives | Annual |  |  |  |  |  |
| **Sub-Program 4.6: Environmental Mainstreaming in Agriculture** | | | | | | | | | | |
| Agro-environmental performance ass­essment improved | 4.6.1 | Joint action plan (MINAGRI-REMA) | Docu­ment | ASWG | Annual | No Assessment | X | X | X | X |
| Increased protec-tion of organic production systems | 4.6.2 | Regulations for organic agriculture, pesticide- and lime use approved and communicated | Docu­ment | ASWG | Single event |  |  |  |  |  |

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| **Results (Outcomes, Outputs)** | **#** | **Indicator** | **Unit** | **Data Source** | **Frequency** | **Baseline 2014 (or latest available data)** | **Target** | **Target** | **Target** | **Target** |
|  |  |  |  |  | **2014/2015** | **2015/2016** | **2016/2017** | **2017/2018** |
| Increased diversity and sustanability of production systems through agroforestry | 4.6.3 | Total plantlet production of tree nurseries (including fruit- and (agro-)forestry species) | % | Districts: Routine M&E | Annual |  |  |  |  |  |
| 4.6.4 | Proportion of cultivable agricultural land covered by multi- or single-purpose trees. | Ha | Districts: Routine M&E | Annual |  |  |  |  |  |
| Improved protection of watershed areas | 4.6.5 | Total forestry area in watershed catchment basins | Ha | RNRA | Annual |  |  |  |  |  |
| **Sub-Program 4.7: Nutrition and Household Vulnerability** | | | | | | | | | | |
| Increased availa-bility and afforda-bility of animal protein for vulner-able households | 4.7.1 | Average animal protein production (g/capita/day) in % of "safe consumption | % | Annual livestock survey | Annual | 14,2 |  | 18,0 |  |  |
| 4.7.2 | Number of school children benefiting from “One cup of milk programme” | # | Districts: Routine M&E | Annual | 84.700 | 120.000 | 150.000 | 175.000 | 200.000 |
| Sustainaned preparednees for food emergencies | 4.7.3 | MT of maize and beans existing as food reserve | MT | MINAGRI | Annual | 15.909 | 15.000 | 20.000 | 25.000 | 30.000 |
| Increased house-hold capacities for dietary diversification and food utilization | 4.7.4 | % of households (Ubudehe 1 and 2) with permanently used kitchen gardens | % | Districts: Routine M&E | Annual | 57 |  |  |  | 95 |
| 4.7.5 | N° of participants in trainings on kitchen gardens, food transformation and nutrition | # | Districts: Routine M&E | Annual |  |  |  |  |  |
| Increased availability of micro-nutrient enriched staple food staffs | 4.7.6 | Production area of iron-fortified bean seeds | Ha | Districts: Routine M&E | Annual |  |  |  |  |  |
| 4.7.7 | Production area of vitamin A-enriched -sweet potatoes | Ha | Districts: Routine M&E | Annual |  |  |  |  |  |

8 Key outcomes, outputs and strategic considerations of the 24 PSTA-3 Sub-Programs

The following chapter describes in detail for each of the PSTA-3 Sub-Programs the key indicators (sourced from the results framework) and the corresponding key outputs costed in the presented Agriculture Sector Investment Plan.

**Sub-Program 1.1: Soil Conservation and Land Husbandry**

**Results-Framework Indicators**

* "Efficiency of soil protection infrastructure (= maintenance of terracing structure)"
* Ha of land developed with progressive terraces, based on agreed standards
* Ha of land developed with bench/radical terraces, based on agreed standards
* Multi-sectoral soil conservation and land husbandry policy and strategic plan

**Costed Ouputs (Public Sector)**

* Progressive Terrace Construction
* Progressive Terrace Maintenance
* Radical Terrace Construction
* Radical Terrace Maintenance
* Assessment of effectiveness of land conservation infrastructure
* Fertiliser recommendations for types of soils and crops
* Decision support tool for soil erosion monitoring and control
* Adapted agro-forestry tree species increased
* Updated soil conservation and land husbandry policy and strategy

**Costed Ouputs (Private Sector)**

* Rehabilitation and equipping of soil and plant testing laboratories

Improvements in progressive terraces, which have been maintained traditionally for many years, are much less expensive and quicker to implement than radical terracing. Although radical terracing does result in land capable of producing higher yields, and it provides quick injections of cash into the rural economy, its cost-effectiveness is not assured and needs to be compared with alternatives under the present ASIP-2. It will be pursued to share costs for terracing increasingly with farmers and ensure that annually the established soil conservation infrastructure is mapped in terms of coverage and assessed in its effectiveness. It is further planned to rehabilitate, equip and expand soil testing laboratories through PPP arrangements, to develop a decision support tool for soil erosion monitoring and control and to update Rwanda's soil conservation and land husbandry policy and strategy.

**Sub-Program 1.2: Irrigation and Water Management**

**Results-Framework Indicators**

Proportion of households practicing irrigation

Hectares developed for hillside irrigation

Hectares developed for marshland irrigation

Hectares developed for small scale irrigation

% of WUA trained in flood control, O&M and irrigation management

N° of farmers enrolled in WUA that are legally established and pay their water user fees

* National Irrigation policy and strategic plan

**Costed Outputs (Public Sector)**

* Approved National Irrigation Policy and Strategy
* Approved National Irrigation Law
* Established National Irrigation Board
* Hillside Irrigation Construction
* Hillside Irrigation Maintenance
* Marshland Irrigation Construction
* Marshland Irrigation Maintenance
* Small-scale Irrigation Construction
* Small-scale Irrigation Maintenance
* Increased numbers of Irrigation Technicians
* Increased hectares of irrigation schemes rehabilitated
* WUOs established and functional
* Transferred schemes to rural communities

**Costed Outputs (Private Sector)**

* Hillside Irrigation Construction
* Hillside Irrigation Maintenance
* Marshland Irrigation Construction
* Marshland Irrigation Maintenance

Hillside irrigation is an expensive form of infrastructure (at an average cost of USD 15,000 per hectare) and needs to be reserved for high-value crops and compared with other, lower cost methods of irrigation. The development of marshland irrigation has provided cash income for farmers and taken some of the pressure for growing food crops off of the hillsides. However, marshlands where this can be done at reasonable cost, are limited. As less suitable marshlands are developed, the cost is rising. Investment proposals under the 2nd ASIP are guided by pursuing lower costs and more efficient irrigation techniques for higher value crops. Government support to farmers investing in minor irrigation technologies of their choice can expand irrigated area faster and at less cost than if government continues to design all schemes and pay all costs. **.** Increased land will be developed with small-scale irrigation, alternative models for Water User Organisations (WUOs) established and around 80 irrigation schemes (10 in hillsides, 70 in marshlands) transferred to their operation by rural communities.

**Sub-Program 1.3: Agricultural Mechanisation**

**Results-Framework Indicators**

Proportion of cultivable land with mechanized land cultivation

N° of cooperatives that offer mechanization (land cultivation) services

N° of implements utilized for mechanised farming

National Agriculture Mechanization policy and strategic plan

**Costed Outputs (Public Sector)**

* Developed Agricultural Mechanisation Policy
* Tractors purchased
* Power Tillers purchased
* Attachments purchased
* Planting Machines purchased
* Crop Treatment Machines purchased
* Harvesters purchased
* Post Harvesting Machines purchased
* Agro-processing Machines purchased
* Agricultural Machinery Maintenance
* National Agricultural Mechanisation Centre established
* Training farmers and technicians in mechanisation

**Costed Outputs (Private Sector**)

* Establishment of Machinery Repair Workshops
* Establishment of local distribution selling point of farm equipment
* Power tiller assembly plant

Rwanda has a low rate of use of agricultural mechanisation and almost all machinery is imported. PSTA-3 sets a target for the rate of use of machinery in farm operations to more than double from 12% in 2012/13 to 25% in 2017/18. The provision of agricultural machinery needs to be appropriate for use by women, who undertake most farming activities. Innovative mechanisms of shared use need to be developed to ensure that the poor have access to agricultural machinery. MINAGRI will invest in agricultural mechanisation - but at a declining rate. The provision of agricultural machinery will progressively shift to the private sector. Investment by the private sector will be encouraged and facilitated to establish machinery repair workshops and local machinery distribution- and selling points in each district. The establishment of a power tiller assembly plant is envisioned to take place under a PPP arrangement. Maintenance of agricultural machinery is also an opportunity for the development of cottage industries that can be run by the poor. The possibilities for channelling public spending for mechanization into subsidies to farmers, buying equipment or investing in minor irrigation systems will be further analysed. Subsidizing farmers to buy machinery of their choice will reduce the risk to buy the wrong equipment. A lot of machinery is expected to be bought by smallholder farmers to sell services to neighbours and even travel across country to satisfy seasonal demands in other districts.

**Sub-Program 1.4: Inputs to Improve Soil Fertility and Management**

**Results-Framework Indicators**

* Kg of inorganic fertilizer used per ha per year
* % of farmers utilising fertilizer for strategic crops according to recommended standards
* MT of inorganic fertilizers imported
* % of agricultural households utilising registered agro-dealers
* National Fertilizer Policy and regulatory framework

**Costed Outputs (Public Sector)**

* Fertiliser policy in place
* Fertiliser regulatory framework developed
* Train fertiliser distributors and agro-dealers
* Train farmers in fertiliser and input use
* Farmers access smart subsidies for lime and fertiliser
* Lime producers access subsidies

**Costed Outputs (Private Sector)**

Establish additional fertiliser storage capacity

Establish a fertiliser blending plant

Increased fertiliser use by farmers is a principal factor behind the increase in agricultural productivity over the last decade. PSTA-3 sets a target for the rate of fertiliser use to increase to 45kg/ha/year by 2017/18. Increased uptake by farmers will be promoted through demonstration plots and training. The private sector will increasingly be involved in the marketing and distribution of fertiliser and other agricultural inputs. Fertiliser subsidies will be reduced. Estimates of economic rates of return are secondary matters for input subsidies - if inputs are available, farmers will buy if they see a return. Subsidies can make it easier for farmers to buy, but should not be so large or so targeted to specific technologies that they deflect farmers’ decisions according to economic returns. Once farmer demand and market supply are established, government can cut subsidies. Fertiliser and lime subsidies are scheduled to be phased out by 2017/18. The Imports of fertiliser by the private sector, the uptake of loans by distributors and agro-dealers and the access of farmers to credit to purchase soil inputs will be increased. Training will be provided on soil inputs and logistics management to agro-dealers to increase the number of accredited dealers. Private sector investment in additional fertiliser storage capacity in each district and in a fertiliser blending plant will be pursued. Farmers will be trained to increase their use of inorganic and organic fertiliser and lime. Lime producing cooperatives will be organized to improve the production and distribution of lime. A fertiliser policy and regulatory framework will be developed.

**Sub-Program 1.5: Seed Development**

**Results-Framework Indicators**

* % of farmers utilizing improved and certified seeds for strategic crops
* % of area planted with certified seed to total area of food crops (Seed Change Ratio)
* Output of commercial seed producers operating in the country
* Nat. Seed policy and strategic plan coherent with COMESA Trade Harmonized Regulations

**Costed Outputs (Public Sector)**

* Develop a seed policy, strategy and action plan
* Train farmers to use improved seed
* Government decreases seeds subsidy
* Establish a Seeds Coordinating Unit
* Employ additional seed inspectors
* Establish the National Seeds Laboratory

**Costed Outputs (Private Sector)**

* Establish a seed production and processing plant

Historically, most yield growth has come from genetic improvement. If Rwandan farmers do not see at least 3-6 new varieties each year for major and minor field crops, the contribution of genetics to yield increases is unlikely to reach 1 - 2%/year. Introduction of enough new varieties to support rapid growth in crop yields can be achieved with private companies competing to identify and introduce varieties from foreign breeding, with RALIS enforcing phyto-sanitary controls on imported seed. Through the COMESA Seed Trade Harmonization process, the Government of Rwanda has agreed to the principle that private companies will be allowed to introduce new varieties registered in any two COMESA countries and entered into a COMESA variety catalogue. Increased quantity and quality of pre-basic and basic seed production by the private sector for profitable crops (rice, maize, Irish potato) is expected as well as an increased production of pre-basic and basic seed for non-profitable food crops by the public sector. Private investment to increase the number of seed growers and seed production companies will be pursued. The establishment of a National Seed Laboratory and Seed Certification Service is foreseen and an increased in number of seed inspectors. It is further foreseen that the seed subsidy will be phased-out by 2017/18. Demonstration plots will be established and farmer field days held to promote the use of high yielding varieties of seeds.

**Sub-Program 1.6. Livestock Development**

**Results-Framework Indicators**

* Total area of established functional feedlots
* Production of milk
* Production of beef meat
* Production of goat meat
* Production of pork meat
* Production of poultry meat
* Production of eggs
* Production of honey
* Production of fish
* Production of hides and skins
* % of improved breeds (dairy cows)
* % of improved breeds (cattle)
* % of improved breeds (goats)
* % of cells with at least one appointed and trained animal-health-worker (AHW)
* % reduction of incidence of brucellosis
* % reduction of mastis of cattle
* % of cattle held in intensive livestock keeping systems
* Validation of Integrated Livestock Policy and corresponding Strategy document

**Costed Outputs (Public Sector)**

* Livestock policy developed
* Milk production increased
* Girinka Dairy Cow Programme
* Meat production increased
* Fish production increased
* Honey production increased
* Honey collection centres operational
* Increase production of hides and skins

**Costed Outputs (Private Sector)**

* Feedlots installed and operational
* Fingerling production centres installed
* Hatcheries installed and operational
* MCCs built equipped and renovated

Livestock intensification through greater use of corralling, crop residues, agricultural by­products, and assistance in the establishment of feed mills is vital to the expansion of this sector, given the shortage of land available for pasture or forage. However, as long as there is available pasture, forage, and crop residues without good alternative uses, it is economically profitable to convert these low cost resources to calories and proteins in the milk and meat of animal ruminants. The introduction of livestock genetics through private import (with RALIS blocking introduction of livestock diseases) is also key for faster productivity growth in the livestock sector.. Increased production (milk, meat, eggs, fish, honey, hides and skins) will be pursued through improved organisations and training of breeders, improved animal nutrition and veterinary services and infrastructure. Private sector investment is expected in feedlots, collection- and production (fingerlings), hatcheries) centres. The development of a comprehensive and integrated national livestock policy and strategy is planned.

**Sub-Program 2.1: Research and Technology Transfer**

**Results-Framework Indicators**

* "N° of released technologies (food crops):
* e.g. Vit A enriched casssava, QPM maize "
* "N° of released technologies
* (export crops)"
* Average N° of Farmer Field Schools per Zone to promote agricultural technologies
* Updated National Agriculture Resarch and Extension Policy and Strategic Plan

**Costed Outputs (Public Sector)**

* MINAGRI crop based research programmes
* MINAGRI livestock based research programmes
* MINAGRI agro-forestry based research programmes
* MINAGRI value chain research

Over 5 years Rwanda could move decisively to establish world class capabilities in agricultural science. This involves regulations, e.g. allowing a modern seed industry to develop. A strong agricultural faculty - managing public research along with degree training - will be another key element. RAB and NAEB research priorities will be assessed in relation to their links with poverty reduction and economic profitability. Agricultural education will be strengthened by cultivating links with international universities (e.g. Wageningen in the Netherlands). Laboratories will be upgraded for phyto-sanitary analyses and for soil testing. Publically funded research programs will focus on improved varieties of staple food crops, improved livestock breeds, pasture agronomy, agro-forestry tree varieties to combat soil erosion and increase on-farm income, and staff training in research skills and techniques. Farmer demonstration plots will be established and supported by local research stations to demonstrate higher productivity from improved varieties. Jointly funded research programs with the private sector will concentrate on varieties for high value crops (coffee, tea, horticulture), post-harvest storage and processing technology, and crop and livestock value chain analysis. An improved collaboration for joint research programs with international research organisations and universities will be pursued.

**Sub-Program 2.2: Extension and Proximity Services for Producers**

**Results-Framework INDICATORS**

* Ratio of farmer households per extension agent (village level)
* N° of villages with maintained agricultural demonstration plots

N° of farmers benefitting from FFS according to established standards (disaggregated by sex)

N° of farmer promoters trained and posted in Imidugudus

N° of farmers supported through TWIGIRE in horticulture production and marketing

**Costed Outputs (Public Sector)**

* Development of National Extension Policy
* Expansion of Farmer Field Schools
* Expansion and support to Farmer Promoters
* Expansion and support to Agricultural Committees

**Costed Ouputs (Private Sector)**

* Provision of extension services for high value crops

MINAGRI has developed in 2014 a new Farmer-to-Farmer Extension System (TWIGIRE), a decentralized approach to empower districts and devolve decision-making management and implementation of agricultural activities to the village level. Farmers are organized into groups of 15- 20 farmers. Farmer promoters are selected at one per village and trained in practical and soft skills. Facilitators who are trained through the FFS approach are mapped out at cell level. Agriculture committees are established at all levels. The National Extension Policy will be updated, including a costed strategic implementation plan for TWIGRE. A key activity will be the training of Farmer-Field School (FFS) facilitators. It is envisaged to increase the number of farmers reached by FFS groups from 83,000 in 2012/13 to 1,350,000 in 2017/18 and the number of village-level promoters trained in sustainable agricultural intensification from 11,127 in 2012/13 to 14,837 in 2017/18. It is further planned to establish Agricultural at the level of all Districts (30) and Sectors (416). Private sector investment will be needed and facilitated in particular for the provision of extension services for high value export crops, including coffee, tea, pyrethrum and horticulture.

**Sub-Program 2.3: Farmer Cooperatives and Organisations**

**Results-Framework Indicators**

* % of farmers that are member of a cooperatives, association or self-help group
* % of agriculture cooperatives/farmer organizations graded "A" or "B" (audit rating)
* % of farmers utilising cooperative services for input supplies and marketing
* % of total production marketed through cooperatives/farmer organizations
* % of cooperatives trained in management, organisation and entrepreneurial skills
* % of cooperatives trained in food safety, SPS and quality standards

**Costed Outputs (Public Sector)**

* Expansion and support to farmer cooperatives
* Training and capacity building of farmer cooperatives

Rwanda's 2007 Agricultural Land Use Consolidation Decree (ALUCD) provides for cooperative farming, facilitated contract farming, and joint corporate farming. Government policy is to support and increase rapidly the establishment and coverage of agricultural cooperatives. For example for horticulture, led by NAEB and RCA, this effort has been highly successful. Over 90% of the horticultural cooperatives and associations enumerated in a 2014 country-wide census had been established since 2000 and more than half since 2010. A strong cooperative of contracted farmers is a vital component of contract farming involving small-scale producers. It will be necessary for cooperatives to be involved in 38

most contract farming arrangements in Rwanda, because of the exceptionally small size of farms that means large numbers of farmers are likely to be supplying the buying enterprise. Policy will be to encourage existing and new cooperatives to engage in contract farming arrangements and to support and strengthen the ability of cooperatives to perform their functions within such arrangements effectively. NAEB, RAB, MINICOM and the Rwanda Cooperative Agency (RCA) will support the management capacities of cooperatives to ensure that they can participate effectively and on equal terms with the buying enterprise. It is further envisaged that an increasing proportion of cooperatives will procure farm inputs for their members and access agricultural finance through improved business planning skills.

**Sub-Program 3.1: Creating an Environment to Attract Private Investment, Encourage Entrepreneurship and Facilitate Market Access**

**Results-Framework Indicators**

* Investor Framework / Multi-sector agri-business strategic plan
* Amount of private investment (domestic and foreign) in agricultural value chains
* Economic, social and environmental impact analysis of agriculture investment (FDI)
* Private sector perception of the “doing agri-business” enabling environment (scale 0-5)
* N° of SMEs involved in crop production (by input supply, agro-processing, marketing)
* N° of SMEs involved in livestock production (by input supply, agro-processing, marketing)
* N° of farmers benefitting from contract farming arrangements (MINAGRI = 3rd party signatory)
* % of produce of group-based production marketed through contract farming

COSTED OUTPUTS (PUBLIC SECTOR)

* Training of entrepreneurs
* Creation of a farm management unit to facilitate private sector development
* Finalise the PPP law
* Establish the Agriculture Investment Task Force
* Develop an export certification programme with RBS
* Develop a programme to protect organic certification
* Improve SPS measures and train exporters
* Increase airport cold storage space
* Marketing and logistics studies

The fact that the enabling environment for private business is supportive suggests that one should look elsewhere to see why the volume of agricultural FDI is still low. For example, although Rwanda ranks high in general in the Doing Business Report, it is ranked low in the ease of trading across borders. Given the importance of trade for Rwanda in the future, it is essential to improve this performance which will require continuing the efforts with neighbouring countries to ease the requirements, lower the cost, and speed up the time for formal cross-border trade. The Investor Framework which MINAGRI will develop with support from USAID and in partnership with RDB, other concerned governmental agencies (e.g. MININFRA, RRA, MINIRENA, MINALOC) and representatives of the private sector will tackle all bottlenecks required to translate Rwanda's overall conducive doing business environment into increased agricultural investment, trade and entrepreneurship in both export-oriented and food-crop value chains. Capacity building under this sub-program will strengthen different private sector driven mechanisms for bulking up production, including contract farming, satellite farming and land leasing. MINAGRI's Agriculture Investment Task

Force will facilitate agri-business investment, training for the private sector and provide support to identify and/or strengthen PPPs (e.g. airport cold storage space). A Catalytic Fund is envisaged to provide venture capital for new agri-business enterprises and innovation in new product markets. Program-type support will strengthen capacities for export certification, increase awareness of export standards amongst farmers and the private sector, protect existing organic certification and encourage the private sector to pursue organic- and other certification schemes for which a business case exist. Producer organizations and agricultural SME’s will be trained in entrepreneurial skills and business plan development (see also Sub-Programs 2.3 and 3.7).

**Sub-Program 3.2: Development of Priority Value Chains: Food Crops**

**Results-Framework Indicators**

* % of group-based production organisations running agro-processing facilities
* % of produce of group-based staple crop production processed in own facilities
* Capacities of agro-processing installations for food/staple crops
* Number of farmers trained in agro processing

COSTED OUTPUTS (PUBLIC SECTOR)

* Training of food crop entrepreneurs
* Banana market support and facilitation
* Wheat market support and facilitation
* Maize market support and facilitation
* Rice market support and facilitation
* Irish potato market support and facilitation
* Cassava market support and facilitation
* Beans market support and facilitation
* Food crop production and marketing strategies

**Costed Outputs (Private Sector)**

* Upgrade of maize milling capacity
* Rice milling plant
* Establishment of cassava plantations
* Cassava processing plants
* Establishment of banana plantations
* Banana wine processing plant
* Beans processing and canning
* Soybean processing
* Irish potato plant established

Staple food crops have great importance for food security and nutrition. There are also possibilities for regional trade for some food staples Better quality planting materials provided to banana growers and a market study will be commissioned dried apple bananas and chips. Banana disease control programmes, extension and research will be strengthened. Contract farming relationships will be facilitated between processors and farmers. Grant mechanisms will be utilized to endow cooperatives with appropriate post­harvest facilities, including storage. The number of farmers trained in storage and agro­processing will be up-scaled country-wide to reinforce the impact of TWIGIRE. Private sector investment will be pursued to upgrade maize roller mill capacity to produce finer grade maize which has export potential and for building up rice milling capacities. An increased number of potato growers will be sensitized and trained to register and become seed growers. Public and private aeroponic screen houses will be constructed and rehabilitated and private sector investment facilitated for Irish Potato and Cassava processing plants. Soya Bean production will be promoted under the CIP and research strengthened (see also Sub-Program 2.1) to introduce new bean varieties appropriate for each agro ecological zone.

**Sub-Program 3.3: Development of Priority Value Chains: Export Crops**

**Results-Framework Indicators**

* Unit cost of 1 kg airfreight
* Productivity of coffee production
* % of coffee production that is fully washed
* Revenue of exports - Coffee
* Productivity of Tea production
* N° of ISO 2200-2005 certified tea factories
* Revenue of exports - Tea
* Production of Fruit and Vegetables
* Export Revenues of Fruit and Vegetables
* Production of Flowers
* Revenue of exports - Flowers
* Quantity of Pyrethrum production: Diluted Pale Extract (PY 50%), in MT
* Productivity of Pyrethrum production
* Revenue of exports - Pyrethrum
* Value of cottage industry (silk, essential and plant oils, dried frut etc.) production
* % of rural households participating in cottage (local agricultural value-addition) industry
* % of annual exports of F&V audited against social and environmental standards

COSTED OUTPUTS (PUBLIC SECTOR)

* Training of export crop entrepreneurs
* Coffee market support and facilitation
* Tea market support and facilitation
* Pyrethrum market support and facilitation
* Horticulture and floriculture market support and facilitation
* Sericulture market support and facilitation
* Export crop production and marketing strategies

**Costed Outputs (Private Sector)**

* Establishment of coffee plantations
* Coffee hulling plant
* Coffee washing stations
* Coffee roasting plants
* Expansion of tea estates
* Establishment of tea estates and factories
* Tea bag processing
* Floriculture estates
* Horticulture estates
* Essential oils production
* Macadamia nuts
* Sericulture production
* Establishment of an avocado estate
* Sugar plantation and mill
* Stevia processing
* Fruit juice processing plant
* Pineapple processing plant
* Expansion of chilli production
* Expansion of passion fruit production
* Expansion of pyrethrum production
* Gishari Flower Park
* Kigali Wholesale Market

Given transport costs to import fertilizer and export produce, Rwanda has little opportunity to export bulk commodities out of the region. Programs to promote new high value exports (horticulture, herbs, spices, essential oils) will offer modest support to companies demonstrating an ability to export products that fit the definition (high value, non­perishable). Overall, value chain logistics will be strengthened to ensure shipping space is fully used and that appropriate packing methods are used to maintain product quality in shipping. The program currently in place to replace existing coffee washing stations with those that are smaller will be continued and strengthened until these smaller stations are available to all coffee producers. TWIGIRE/FFS will be utilized to improve on-farm management of coffee crops through pest management, fertiliser application, high yielding varieties and the potential for intercropping. Private sector investment will be required for coffee hulling and roasting plants and washing stations. An appellation program will be developed to link unique taste profile to specific growing areas. Cooperatives will be assisted in certification processes. Tea yields and quality will be improved by expanding FFS (TWIGIRE) to tea producing areas. Private sector investment will be promoted towards expanding the area under tea cultivation and tea processing/packaging facilities. Support to the Pyrethrum value chain will involve SOPYRWA and SACCOs to develop contract farming and facilitate loans and also the measures to increase the quality of the distillates to increase market share and revenue. Horticulture value chains with export potential will be developed based on research into niche markets, improved planting material, suitability of agro-climatic zones and investor interest. Private sector investment will be needed (PPP) for the Kigali Wholesale Market and the Flower Park. Private sector investment in processing facilities will also be promoted in the value chains of macadamia, avocado estates, pineapple and silk and for the expansion of the production of chilli and passion fruit.

**Sub-Program 3.4: Development of Priority Value Chains: Dairy and Meat**

**Results-Framework Indicators**

* Export revenues for livestock products (milk, meat, eggs, honey, hides and skins)
* Capacities of agro-processing installations for meat products
* N° of GlobalGAP and/or ISO 22000 certified abattoirs
* N° of certified milk collection centres (MCCs)
* Capacities of agro-processing installations for dairy products
* Capacities of agro-processing installations for other animal products (e.g. tanneries)

COSTED OUTPUTS (PUBLIC SECTOR)

* Training of dairy and meat entrepreneurs
* Dairy market support and facilitation
* Meat market support and facilitation
* Dairy and meat production and marketing strategies

**Costed Outputs (Private Sector)**

Animal feeds plant established

Establishment of modern meat processing plants

Establishment of modern tanneries

Dairy processing plant

Dairy and meat production both increased significantly over the last decade. There remains however a need to improve product quality and to invest in modernised processing facilities. Dairy markets will be promoted through raising consumer awareness of milk consumption benefits, making milk more consistently available and producing innovative products. Milk quality will be improved through modernising the supply chain, including support to MCCs to increase their utilisation and productivity and linking MCCs to cooperatives and processors. The involvement of all concerned stakeholders in the dairy sub-sector within the Rwanda National Dairy Board will be pursued. Private sector investment will be needed to modernise the meat supply chain through rehabilitating and establishing new abattoirs and meat processing facilities under PPP arrangements as well as an animal feeds factory. Sanitary control will be improved to develop hygienic slaughterhouse facilities. Technical staff will be trained in applying the guidelines for good hygiene practices.

**Sub-Program 3.5: Development of Priority Value Chains: Fisheries**

**Results-Framework Indicators**

* Proportion of processed fish products in total production

COSTED OUTPUTS (PUBLIC SECTOR)

* Training of fishery entrepreneurs
* Fish market support and facilitation
* Fish production and marketing strategies

**Costed Outputs (Private Sector)**

* Fish farming

Rwanda has many lakes and rivers that can potentially provide a rich harvest of fish. The problem in recent years has been the over-exploitation of this resource and the need for fish farmers to apply more sustainable harvesting techniques. Cage and tank fish farming is possible on many sites and provide investment opportunities for the private sector. Private sector investment will be needed for cage and tank aquaculture and an envisaged PPP arrangement for an aquaculture park. The feasibility of processing fish waste into animal feeds and fertilisers investigated. Training of fishery entrepreneurs in production, post­harvest handling, and marketing will help to raise the quality of fish production. The same applies to the strengthening of inspection capacities to verify the compliance with harvesting-, packaging- and transportation standards. The proportion of processed fish versus the total production is expected to have increased significantly by 2018.

**Sub-Program: 3.6. Development of Priority Value Chains: Apiculture**

**Results-Framework INDICATORS**

* Proportion of bee populations kept in modern beehives (as opposed to traditional apiaries)
* Volume of total honey production captured by honey collection centres
* N° of companies and cooperatives with certified honey

**Costed Outputs (Public Sector)**

* Training of apiculture entrepreneurs
* Honey market support and facilitation
* Honey production and marketing strategies

**COSTED OUTPUTS (PRIVATE SECTOR)**

* Honey production

Honey production is as yet on a small scale but provides an important source of household income for farmers on marginal land for agriculture, especially in forested areas in the south-west of the country. It is planned to increase honey production through the training of apiculture entrepreneurs and farmer groups and also facilitate their access to (and the importation of) honey processing equipment. Demonstration apiaries will be established to promote honey production and improved management practices. Cooperative members will be trained in quality standards and hygiene practices. An inspection programme is envisaged to ensure that quality standards are met and national and international quality certification obtained, including organic certification. The use of modern beehives, the volume of honey captured by collection centres and the number of cooperatives /SMEs with certified honey are expected to have increased significantly by 2018.

**Sub-Program 3.7: Agricultural Finance**

**Results-Framework Indicators**

* Total loans allocated to agricultural sector (production and value addition)
* N° of business plans of agric. cooperatives / SMEs approved and financed by FI's
* % of rural households benefitting from agricultural group credits:
* Average agricultural credit per SACCO member (production and marketing credit)
* N° of farmers benefitting from Warehouse Receipt System finance
* N° of farmers with crop and/or livestock insurance

**Costed Outputs (Public Sector)**

* Agricultural Cooperative Bank established
* Creation of new SACCOs in new sectors
* Improve access to agricultural finance and insurance
* Catalytic fund established

The availability of rural finance has increased in recent years, notably through growth in the network of Savings and Credit Cooperatives (SACCOs) which are now present in all districts and in many sectors. The SACCO network will further expand to ensure farmers are close to a source of finance. SACCOs at the district level consolidated under an Agricultural Cooperative Bank as an apex organisation that will strengthen SACCO organisation, re­financing capacities and reduce risk. The expansion of the SACCO network into new administrative sectors is required. Warehouse credit schemes will be expanded in close coordination with the East Africa Exchange and allow farmers to obtain financing based on harvests stored in certified facilities (expanding the traded crops beyond maize and beans). Value chain (triangular) finance facilitation will involve a financial institution and two agents in the sector, such as a cooperative and an exporter. Overall it is expected that agricultural finance for production and value addition, the N° of bankable business plans of agricultural cooperatives and SMEs, the N° of households benefitting from agricultural group credits and 44

the N° of households covered through crop- and/or livestock insurance schemes will have increased significantly by 2018.

**Sub-Program 3.8: Market-oriented Infrastructure**

**Results-Framework Indicators**

* % of households accessing services for post-harvest treatment and storage of food crops
* N° of farmers participating in post-harvest treatment and storage training
* Postharvest losses (%) - Maize
* Postharvest losses (%) - Beans
* Postharvest losses (%) - Irish potatoes
* Postharvest losses (%) - Rice
* Capacity of storage facilities (warehouses, metallic silos)
* Km of rural feeder roads rehabilitated according to the established standards
* Km of rural feeder roads maintained according to the established standards

|  |  |
| --- | --- |
| **COSTED OUTPUTS (PUBLIC SECTOR)** | |
| ■ | Expanded storage facilities |
| ■ | Post-harvest equipment distributed to farmers |
| ■ | Drying grounds constructed |
| ■ | Rural feeder roads constructed |
| ■ | Rural feeder roads maintained |

**Costed Outputs (Private Sector)**

■ Expanded storage and post-harvest facilities

Good rural roads and sufficient storage, warehousing and processing facilities are vital for minimising post-harvest losses. The 2013 Post Harvest Loss Survey found significant losses and also showed high returns to training farmers in loss prevention. Both the public and private sector are expected to invest in increased storage and warehousing capacity. MINAGRI in close coordination with RTDA will continue its programme of rural feeder rehabilitation and maintenance (in exceptional cases also construction), including rural bridges. Private sector investment will be needed for expanding storage capacities and warehouse receipt systems respectively. Districts will be key agencies to ensure the efficient and effective spending on feeder roads, based on District-level master plans but they will also continue their spending on rural market- and post-harvest (e.g. drying grounds) basic infrastructure. Overall it is expected that post-harvest losses of staple crops (especially maize, beans, rice, Irish potatoes) will drop significantly during the ASIP-2 period, crosses and that at the same time improved market access and market infrastructure will allow farmers to raise the marketed share and value of their production commensurate to the annual growth targets established under EDPRS-2 and PSTA-3.

**Sub-Program 4.1: Institutional Capacity Building**

**Results-Framework Indicators**

* Capacity building action plan

**Costed Outputs (Public Sector)**

* Comprehensive human resource needs assessment and development plan
* Approved capacity building action plan

Capacity of MINAGRI staff improved Experts recruited and counterparts trained

MINAGRI will implement a Human Resource Development (HRD) plan, based on the outcome of the 2014 public sector restructuration which has been oriented towards an accelerated agricultural decentralization and a progressive transfer of SPIUs to its agencies (RAB, NAEB). The development and implementation of a comprehensive HRD will include sub-national administrations (Districts, Sectors) and a functional review of the institutional roles and capacities to implement the sector’s 24 sub-programs. The latter will also include other agencies with key roles conducive to Rwanda’s agricultural development, i.e. RDB and MININFRA (private sector investment), MINICOM (agro-processing, cooperative development), MINALOC (decentralization), LODA-MINECOFIN (fiscal decentralization), RTDA (feeder roads), RNRA (land use planning and consolidation), REMA (agro- environmental compliance, use of packaging materials).

**Sub-Program 4.2: Decentralisation in Agriculture**

**Results-Framework Indicators**

* Total Volume of Public Spending on Agriculture by Districts
* Progress report by RAB, NAEB and Districts on implementation of TWIGIRE
* Proportion of Districts with functional (accor-ding to mandate) agricultural committees
* Annual Assessment of the effectiveness and efficiency of agricultural decentralization

**Costed Outputs (Public Sector)**

* Strategy and action plan for capacity development at a local level
* All district staff trained according to the plan
* Community Innovation Centres established

Districts are responsible for local service delivery and their responsibilities for local economic development include agriculture. Implementation of the decentralisation strategy has increased their technical and PFM capacity to plan, procure and monitor agriculture capital investments and support services. The success of the roll-out of TWIGIRE, the sector’s efforts to create an enabling agri-business environment, the agriculture sector’s contribution to the community-based 1000 Days campaign (fight against chronic malnutrition) will depend significantly on the capacities of local governments to leverage these efforts. Rwanda’s administrative sectors are the level of government that is closest to farmers and have a particular role in coordinating the provision of technical advice and extension. The strategic and day-to-day alignment of activities between RAB, NAEB and SPIUs and local government agronomists and veterinaries will defined to a large extent the success of agricultural decentralisation during the ASIP-2 period. Community Innovation Centres (CICs) will be established in each district by 2017/18 and the continued increase of the volume and discretion in agricultural earmarked transfers will entrust Districts with greater responsibility and flexibility to meet local level priorities.

**Sub-Program 4.3: Legal and Regulatory Framework**

**Results-Framework INDICATORS**

* Regulations and roles for agricultural finance clarified, established and communicated
* Agro-chemical registration system (agro-dealers) established

**Costed Outputs (Public Sector)**

* Policy reviews in the agriculture sector
* Comprehensive national SPS policy, strategy and action plan
* Registration system for agrochemicals and seeds
* Border control system to regulate agricultural exports and imports

A strong legal and regulatory framework for agriculture is vital to create stability in the sector. For each of the 4 main Programs under PSTA-3/ASIP-2, the regulatory framework will significantly leverage or constrain progress through 2018. This refers to land use regulations (P. 1), the privatization of the seed- and fertilizer market and extension services (P. 2), the Investor Framework (P.3), as well as to agro-environmental regulations and the provisions for re-structured institutional roles and competences (P.4). MINAGRI will invest during the ASIP-2 period to strengthen its capacities for Policy Analysis commensurate to the implementation of a new advanced Management Information System but also to identify and monitor regulations issued by other governmental agencies that affect the sector’s performance. Policy reviews are needed in many agriculture sub-sectors to establish whether new laws and regulations are needed. Some measures whose importance has been identified at the onset of the ASIP-2 period are (i) a comprehensive national sanitary, phyto- sanitary and safety (SPS) policy, (ii) a registration system for agrochemicals, seeds and plant breeder’s rights, (iii) a well-functioning system of border controls for the regulation and certification of agricultural exports and imports, (iv) regulations for a value chain guarantee fund and a catalytic fund, and (v) regulations for contract farming .

**Sub-Program 4.4: Agricultural Communication, Statistical Systems, M&E and Management Information Systems**

**Results-Framework Indicators**

* MIS System is developed, and functional, and utilised across the sector
* Integrated framework for agricultural surveys and statistics
* N° of new agriculture communication products - radio spots
* N° of newly released crop growing protocols translated into Kinyarwanda
* Average monthly users of MINAGRI/CICA website (including E-Soko)

**Costed Outputs (Public Sector)**

* Agricultural information communicated to users
* Publish regular agricultural surveys and statistics
* Implement a strengthened M&E system

During Fiscal Year 2014/15 MINAGRI will conclude the design, development of a web-based Agricultural Management Information System that will include also its agencies, SPIUs and Districts. The sector’s M&E, MIS and Market Information Systems will harness increasingly the benefits of ‘ICT for Agriculture (ict4ag)’ approaches. The functionality of e-Soko will be expanded into new areas to inform farmers more effectively. A strengthened cooperation with NISR will improve the quality of surveys, sampling frames and agricultural statistics in general. MINAGRI will invest into an up-to-date statistical program to be aligned to Rwanda’s National Statistical System. A communication strategy will be developed for the agricultural sector and an ict4ag strategic plan will be developed to increase the effectiveness and efficient use of ICT solutions addressing different challenges in agricultural sector. A more regular interaction with farmers in forms that they can easily access will leverage the impact of the TWIGIRE extension system.

**Sub-Program 4.5: Gender and Youth in Agriculture**

**Results-Framework Indicators**

* A strategy to ensure the inclusion of youth in Rwanda’s agriculture development
* % of youth enrolled in agricultural self-help groups, cooperatives and associations
* % of women enrolled in agricultural self-help groups, cooperatives or associations

**Costed Outputs (Public Sector)**

* MINAGRI programmes are gender sensitive
* Young farmers trained in agricultural entrepreneurship

Women need equitable access to farm inputs and agricultural services. Preparation for self­employment for both youth and women will be partially based on the cottage industry (high-value addition activities in the immediate proximity of the rural household; e.g. silk, essential oils) model of small self-employment businesses to increase income. MINAGRI staff will be further trained in gender-sensitive approaches of agricultural value chain development, especially local extension staff that are generally the first point of contact with farmers. Outcome and output data in MINAGRI's M&E system related to the access to agricultural technology, inputs and services will be increasingly disaggregated by gender. A TVET curriculum will be developed for technical agricultural technical skills in food processing, post-harvest management, mechanisation and irrigation. Training in entrepreneurship and business skills will be provided to young farmers. An agricultural leadership programme will be developed to for youth to spread appealing hands-on experience and opportunities in Rwanda's agricultural transformation processes. Overall a substantial increase in the proportion of women and youth enrolled in agricultural self-help groups, cooperatives and associations is expected by 2018.

**Sub-Program 4.6: Environmental Mainstreaming in Agriculture**

**Results-Framework INDICATORS**

* Joint action plan (MINAGRI-REMA)
* Regulations for organic agriculture, pesticide- and lime use approved and communicated
* Total plantlet production of tree nurseries (including fruit- and (agro-)forestry species)
* Proportion of cultivable agricultural land covered by multi- or single-purpose trees
* Total forestry area in watershed catchment basins

COSTED OUTPUTS (PUBLIC SECTOR)

* Train district environmentalists and agronomists
* Strengthen MINAGRI environmental focal point

The outputs of Sub-Program 4.6 (as well as most of agro-environmental considerations in the sub-programs of Program 1) have been derived from the findings of the 2011 Strategic Environmental Assessment of the Agriculture Sector (SEA) in Rwanda which will guide all measures required to ensure the environmental sustainability of ASIP investments. During the ASIP-2 period, MINAGRI and REMA will conduct annually a joint assessment with stakeholders to measure progress towards the implementation of the SEA recommend-

dations and at the same time update the SEA findings. To promote good environmental practice in soil and water conservation is a fundamental feature of Sub-Program 1.1 above. Under sub-program 2.2, farmers will be trained in integrated soil fertility and pest management. Regulatory activities under the present SP will ensure the regular publication of list of approved and banned agro-chemicals, that all agro-chemical products are plastic- tagged with Kinyarwanda instruction. The development of hydrological information systems to better assess water balance and water use efficiency for the planning and operating irrigation systems will require a close collaboration between MINAGRI and agencies of MINIRENA. Water catchment structures will be constructed to reduce flood damage and provide water in drought. Marshland development designs need to ensure that the land’s flood mitigation properties are not compromised. Climate-proofed rural feeder road standards and specifications will be developed and applied. Risk assessments and vulnerability mapping will be conducted vis-a-vis the local impact of climate change. District and sector agronomists and village promoters will be trained in sound agro-environmental management.

**Sub-Program 4.7: Nutrition and Household Vulnerability**

**Results-Framework Indicators**

* Average animal protein production (g/capita/day) in % of "safe consumption
* Number of school children benefiting from “One cup of milk programme”
* MT of maize and beans existing as food reserve
* % of households (Ubudehe 1 and 2) with permanently used kitchen gardens
* N° of participants in trainings on kitchen gardens, food transformation and nutrition
* Production area of iron-fortified bean seeds
* Production area of vitamin A-enriched -sweet potatoes

**Costed Outputs (Public Sector)**

* Finalise the Food and Nutrition Policy
* Training in the use of kitchen gardens
* Increase One Cow uptake by poor families
* Increase One Cup of Milk uptake by poor schoolchildren
* Establish a food information system

Food security and nutritional status in Rwanda has improved over the last decade with greater availability of food and increased rural incomes from increased agricultural production. A significant number of households however remain food insecure with 460,000 households (21%) having poor or borderline food consumption in 2012 and 44% of children under the age of 5 years chronically malnourished as of 2010. Poor rural households with very small or no plots of land are the most food and nutrition insecure households and also the most vulnerable to shocks that disrupt food production. It is foreseen to continue the support to the "One Cup of Milk per Child" and "One Cow per Poor Family (GIRINKA)" Programs and to increase support towards small livestock ownership and nutritious food production and consumption by vulnerable households. The approach of the interventions under this SP will be 4-fold: (1) to increase the availability and affordability of animal protein; (2) to increase the number of households producing year-round nutritious food in their backyards; (3) to contribute to the elimination of micronutrient deficiencies through fortified staple crops; and (4) to facilitate a coordination between community health workers and agriculture village promoters within the context of Rwanda's community-based nutrition programming and 1000 Days campaign respectively. In line with the priorities 49

outlined under SP 4.4 above, it is expected to further strengthen Rwanda's Food and Nutrition Security Monitoring and Information System.

9 Implementation arrangements for PSTA-3 / ASIP-2

Table 6: Indicative implementation responsibilities by Sub-Program of PSTA-3

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **MINAGRI** | **RAB** | **NAEB** | **Districts** | **Other agency** | **Private Sector** |
| **P 1: Agriculture and Animal resource Intensification** | | | | | |  |
| SP 1.1 Soil Conservation and Land Husbandry |  | X |  | X | REMA, RNRA |  |
| SP 1.2 Irrigation and Water Management |  | X |  | X | REMA | (X) |
| SP 1.3 Agricultural Mechanization |  | X |  |  | RBS | X |
| SP 1.4 Inputs to Improve Soil Fertility and Management |  | X |  |  | IFDC, One  Acre Fund | X |
| SP 1.5 Seed Development |  | X | X |  | NSL | X |
| SP 1.6 Livestock Development |  | X |  |  | MINICOM | X |
| SP 1.7 Nutrition and Household Vulnerability | X |  |  | X | MOH, MINALOC |  |
| **P 2: Research and Technology Transfer, and Professionalization of Farmers Advisory Services** | | | | | |  |
| SP 2.1 Research and Technology Transfer |  | X |  |  | RBS |  |
| SP 2.2 Extension and Proximity Services for Producers |  | X |  | X | MINALOC, Districts | X |
| SP 2.3 Farmer Cooperatives and Organizations | X |  |  | X | RCA |  |
| **P 3: Value Chain Development and Private Sector Investment** | | | | | |  |
| SP 3.1 Creating an environment to attract priv. inv./entrepreneurship | X |  | X |  | RDB | X |
| SP 3.2 Development of Priority Value Chains: Food Crops |  | X |  |  | RBS, MINICOM |  |
| SP 3.3 Development of Priority Value Chains: Export Crops |  |  | X |  | RBS, MINICOM | X |
| SP 3.4 Development of Priority Value Chains: Dairy and Meat |  | X |  |  | Land O’ Lakes |  |
| SP 3.5 Development of Priority Value Chains: Fisheries |  | X |  |  | NUR, FAO |  |
| SP 3.6 Development of Priority Value Chains: Apiculture |  | X | X |  | UNICO- APIGI |  |
| SP 3.7: Agricultural Finance | X |  | X | X | BRD | X |
| SP 3.8: Market-oriented Infrastructure |  |  | X | X | MINICOM | X |
| **P 4: Institutional Development and Agricultural Cross-Cutting Issues** | | | | | |  |
| SP 4.2 Decentralization in Agriculture | X |  |  | X | MINALOC |  |
| SP 4.3 Legal and Regulatory Framework | X |  |  |  | RDB |  |
| SP 4.4 Agricultural Communication, Statistical Systems, M&E, MIS | X |  |  | X | NISR |  |
| SP 4.5 Gender and Youth | X |  |  |  | MIGEPROF |  |
| SP 4.6 Environmental Mainstreaming in Agriculture | X |  |  |  | REMA |  |

Table 7: Ranking of public sector outputs according to their total cost (covering 95% of ASIP-2 costs)

|  |  |  |  |
| --- | --- | --- | --- |
| **ASIP-2 Output** | **in 1000‘ USD** | **% of ASIP** | **Main Implementing agency** |
| Marshland Irrigation Construction | 168.579 | 13,89% | RAB, SPIUs, I&M TF |
| Rural feeder roads constructed | 147.363 | 26,04% | SPIU, RTDA, Districts |
| Hillside Irrigation Construction | 112.386 | 35,30% | RAB (Private Sector) |
| Radical Terrace Construction | 91.290 | 42,82% | RAB, LODA, District |
| Food crop\* market support and facilitation | 72.842 | 48,82% | RAB |
| Training in the use of kitchen gardens | 52.031 | 53,11% | RAB (partnering NGOs) |
| Smart subsidies for lime and fertiliser | 48.381 | 57,10% | MINAGRI (Private Sector) |
| Seeds subsidy | 30.291 | 59,59% | MINAGRI (Private Sector |
| Expansion of Farmer Field Schools | 27.800 | 61,88% | MINAGRI / Districts |
| Girinka Dairy Cow Programme | 26.998 | 64,11% | MIAGRI - MINALOC |
| Coffee market support and facilitation | 26.015 | 66,25% | NAEB |
| Tea market support and facilitation | 26.015 | 68,40% | NAEB |
| Horticulture/floriculture market support/facilitation | 26.015 | 70,54% | NAEB |
| Rural feeder roads maintained | 24.315 | 72,54% | Districts, SPIU, RTDA |
| Milk production increased | 23.836 | 74,51% | RAB |
| Expanded storage facilities | 23.566 | 76,45% | RAB (Private Sector) |
| MINAGRI crop based research programmes | 20.012 | 78,10% | RAB |
| Increase One Cow uptake by poor families | 16.730 | 79,48% | MINALOC - MINAGRI |
| Harvesters purchased | 13.556 | 80,59% | MINAGRI, Banks, P. Sector |
| Progressive Terrace Construction | 13.131 | 81,68% | RAB / LODA / Districts |
| Lime producers access subsidies | 13.052 | 82,75% | MINAGRI |
| Meat production increased | 11.073 | 83,66% | RAB |
| Fish production increased | 10.878 | 84,56% | RAB |
| Expansion of/support to Agricultural Committees | 8.871 | 85,29% | MINAGRI |
| MINAGRI livestock based research programmes | 8.005 | 85,95% | RAB |
| One Cup of Milk (poor schoolchildren) | 7.858 | 86,60% | RAB, MINEDUC |
| Marshland Irrigation Maintenance | 6.809 | 87,16% | Water User Associations |
| Agro-processing Machines purchased | 6.724 | 87,71% | MINAGRI, Banks, P. Sector |
| Train farmers in fertiliser and input use | 6.504 | 88,25% | RAB |
| Train farmers to use improved seed | 6.504 | 88,79% | RAB |
| Publish regular agricultural surveys and statistics | 6.244 | 89,30% | MINAGRI |
| Attachments purchased | 6.215 | 89,81% | MINAGRI, Banks, P. Sector |
| Agricultural Machinery Maintenance | 6.004 | 90,31% | RAB (Private Sector) |
| MINAGRI value chain research | 6.004 | 90,80% | RAB |
| Experts recruited and counterparts trained | 5.603 | 91,26% | MINAGRI / SCBI Secretariat |
| Expansion and support to farmer cooperatives | 5.539 | 91,72% | RAB, MINICOM, RCA |
| Expansion and support to Farmer Promoters | 5.363 | 92,16% | RAB, Districts |
| Community Innovation Centres established | 5.206 | 92,59% | RAB, Districts |
| Hillside Irrigation Maintenance | 4.539 | 92,96% | Water User Associations |
| Planting Machines purchased | 4.178 | 93,31% | MINAGRI, Banks, P. Sector |
| Transferred schemes to rural communities | 4.162 | 93,65% | Water User Associations |
| Post-harvest equipment distributed to farmers | 4.002 | 93,98% | MINAGRI, Banks, P. Sector |
| Radical Terrace Maintenance | 3.687 | 94,29% | Districts / Farmers |
| Drying grounds constructed | 3.362 | 94,56% | Districts |
| MINAGRI agro-forestry based research programmes | 3.202 | 94,83% | RAB, RNRA, REMA |
| All district staff trained according to the plan | 3.202 | 95,09% | MINAGRI, LODA, Districts |

Table 8: Ranking of private sector outputs according to total cost (covering 100% of ASIP-2 costs)

|  |  |  |  |
| --- | --- | --- | --- |
| **ASIP-2 Output** | **in 1000‘ USD** | **% of ASIP** | **Main government. partner** |
| Expanded storage and post-harvest facilities | 62.916 | 13,58% | RAB |
| Establishment of coffee plantations | 42.425 | 22,74% | NAEB |
| Expansion of tea estates | 42.425 | 31,89% | NAEB |
| Establishment of tea estates and factories | 34.271 | 39,29% | NAEB |
| Provision of extension services for high value crops | 33.940 | 46,62% | NAEB, Districts |
| Coffee washing stations | 20.364 | 51,01% | NAEB |
| Marshland Irrigation Construction | 19.855 | 55,30% | RAB |
| Hillside Irrigation Construction | 13.237 | 58,16% | RAB |
| Establishment of Machinery Repair Workshops | 13.237 | 61,01% | MINAGRI, I&M TF |
| Coffee roasting plants | 10.182 | 63,21% | NAEB |
| Beans processing and canning | 9.688 | 65,30% | RAB, MINICOM |
| Dairy processing plant | 9.688 | 67,39% | RAB |
| Establishment of an avocado estate | 8.666 | 69,26% | NAEB |
| Sugar plantation and mill | 8.666 | 71,13% | MINAGRI, RDB, MINICOM |
| Macadamia nuts | 8.279 | 72,92% | NAEB |
| MCCs built equipped and renovated | 7.942 | 74,64% | RAB, Districts |
| Pineapple processing plant | 7.065 | 76,16% | NAEB |
| Tea bag processing | 6.999 | 77,67% | NAEB |
| Cassava processing plants | 6.864 | 79,15% | NAEB |
| Establishment of selling point of farm equipment | 6.618 | 80,58% | MINAGRI, RAB |
| Upgrade of maize milling capacity | 5.983 | 81,87% | RAB, MINICOM |
| Honey production | 5.453 | 83,05% | RAB, MINICOM |
| Feedlots installed and operational | 5.337 | 84,20% | RAB |
| Horticulture estates | 5.198 | 85,32% | NAEB |
| Expansion of chilli production | 4.248 | 86,24% | NAEB |
| Expansion of passion fruit production | 4.248 | 87,16% | NAEB |
| Establishment of modern meat processing plants | 4.194 | 88,06% | MINAGRI, RDB, MINICOM |
| Establishment of modern tanneries | 4.194 | 88,97% | MINAGRI, RDB, MINICOM |
| Fruit juice processing plant | 4.139 | 89,86% | NAEB |
| Expansion of pyrethrum production | 4.139 | 90,76% | NAEB |
| Animal feeds plant established | 4.007 | 91,62% | MINAGRI, RAB, RDB |
| Gishari Flower Park | 3.892 | 92,46% | MINAGRI, NAEB, RDB |
| Sericulture production | 3.532 | 93,22% | NAEB |
| Stevia processing | 3.532 | 93,99% | NAEB |
| Soybean processing | 3.532 | 94,75% | MINAGRI, RDB, MINICOM |
| Establish additional fertiliser storage capacity | 3.309 | 95,46% | MINAGRI |
| Kigali Wholesale Market | 3.287 | 96,17% | MINAGRI, RDB, MININFRA |
| Fish farming | 3.206 | 96,86% | RAB |
| Hatcheries installed and operational | 2.669 | 97,44% | RAB |
| Coffee hulling plant | 1.656 | 97,80% | NAEB |
| Power tiller assembly plant | 1.614 | 98,15% | MINAGRI, RBS |
| Establishment of cassava plantations | 1.272 | 98,42% | RAB |
| Fingerling production centres installed | 1.103 | 98,66% | RAB |
| Rice milling plant | 974 | 98,87% | MINAGRI, RDB, MINICOM |
| Banana wine processing plant | 850 | 99,05% | MINAGRI, RDB, MINICOM |
| Marshland Irrigation Maintenance | 802 | 99,22% | RAB |
| Establish a fertiliser blending plant | 552 | 99,34% | MINAGRI, RDB |
| Hillside Irrigation Maintenance | 535 | 99,46% | RAB |
| Establishment of banana plantations | 509 | 99,57% | RAB |
| Floriculture estates | 507 | 99,68% | NAEB |
| Irish potato plant established | 497 | 99,79% | MINAGRI, RDB, MINICOM |
| Establish a seed production and processing plant | 427 | 99,88% | MINAGRI, RDB |
| Essential oils production | 350 | 99,95% | NAEB |
| Rehab./ Equipping soil and plant testing laboratories | 215 | 100,00% | MINAGRI, RAB |

1. Public Sector Investment Costs

* The total public sector cost for the implementation of Rwanda's 2nd Agriculture Sector Investment Plan is 1,213 USD Million, thereof 52.14% Capital Costs and 47.86% Recurrent Costs.
* 52.74% of the public sector investment costs correspond to Program N° 1 of PSTA-3: "Agriculture and Animal Resource Intensification".
* 7.09% of the public sector investment costs correspond to Program N° 2 of PSTA-3: "Research and Technology Transfer, Advisory Services and Professionalization of Farmers".
* 31.52% of the public sector investment costs correspond to Program N° 3 of PSTA-3: "Value Chain Development and Private Sector Investment".
* 8.65% of the public sector investment costs correspond to Program N° 4 of PSTA-3: "Institutional Development and Agricultural Cross-Cutting Issues".
* As regards the 9.15% of ASIP-2 public sector costs allocated to Sub-Program 1.1 (Soil Conservation and Land Husbandry), by far the largest share (7.83% of ASIP-2 public sector costs) corresponds to the construction and maintenance of radical/bench terraces. This underscores the importance of monitoring closely that all radical/bench terraces are utilized (i) sustainability and (ii) with crops whose value creation per ha does justify this disproportionate (as compared to progressive terracing) investment.
* Sub-Program 1.2 (Irrigation and Water Management) requires by far the largest share (25.09%) of the total ASIP-2 public sector costs, which underscores the necessity to monitor closely effectiveness and efficiency of public spending on irrigation during the ASIP-2 period. 13.89% of all ASIP-2 public sector costs correspond to "Marshland Irrigation Construction" (see also Table 9). The remark made in the paragraph above about the necessity to justify with high-value crops the investment in radical/bench terracing applies under this Sub-Program even more to the construction of hillside irrigation investments, characterized by per ha investment costs of up to 15.000 - 20.000 USD.
* Only 3.47% of the ASIP-2 public sector costs correspond to Sub-Program 2.2 (Extension and Proximity Services for Producers). However, it is expected that once the costing of the agriculture sector's new 'Farmer-to-Farmer (TWIGIRE)' extension model has been validated by the end of FY 2014/15, that this proportion will have to be increased substantially.
* 16.70% of the ASIP-2 public sector costs correspond to Sub-Program 3.8 (Market- oriented Infrastructure), the largest share of it being related to the rehabilitation/ construction of rural feeder roads.
* The total of subsidies (fertilizer, lime, seeds) under ASIP-2 (see also Table 7) reaches 6.48% of all ASIP-2 public sector costs and a decreasing trend as MINAGRI intends to phase out of most of its input subsidies by 2018. At the same time, new subsidy schemes are considered (not yet validated) to promote agricultural technology (small-scale irrigation, mechanization, post-harvest/processing equipment).

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **ANNUAL COSTS (in USD Thousands)** | | | | | **Total Costs (in USD Thousands)** | | | **in % of ASIP-2 Public Costs** |
| **Project/Output (= Unit)** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **Capital** | **Recurrent** | **Total** |
| **Program 1: Agriculture and Animal Resource Intensification** | **133.326** | **141.426** | **131.122** | **121.434** | **112.650** | **430.167** | **209.791** | **639.957** | **52,74%** |
| Sub-Program 1.1: Soil Conservation and Land Husbandry | 20.519 | 21.852 | 22.424 | 22.874 | 23.311 | 105.982 | 4.998 | 110.980 | 9,15% |
| Sub-Program 1.2: Irrigation and Water Management | 56.280 | 59.958 | 61.630 | 62.707 | 63.904 | 286.429 | 18.050 | 304.478 | 25,09% |
| Sub-Program 1.3: Agricultural Mechanisation | 10.016 | 10.330 | 8.573 | 7.715 | 6.867 | 37.288 | 6.212 | 43.500 | 3,58% |
| Sub-Program 1.4: Inputs to Improve Soil Fertility and Management | 18.186 | 24.026 | 16.103 | 8.423 | 1.367 | 0 | 68.105 | 68.105 | 5,61% |
| Sub-Program 1.5: Seed Development | 13.874 | 10.536 | 7.336 | 4.357 | 1.549 | 0 | 37.652 | 37.652 | 3,10% |
| Sub-Program 1.6. Livestock Development | 14.451 | 14.724 | 15.056 | 15.359 | 15.652 | 468 | 74.773 | 75.242 | 6,20% |
| **Program 2: Research, Technology Transfer, Advisory Services, Professionalization of Farmers** | **12.157** | **15.647** | **18.060** | **19.701** | **20.482** | **0** | **86.046** | **86.046** | **7,09%** |
| Sub-Program 2.1: Research and Technology Transfer | 7.154 | 7.263 | 7.453 | 7.603 | 7.748 | 0 | 37.222 | 37.222 | 3,07% |
| Sub-Program 2.2: Extension and Proximity Services for Producers | 3.837 | 7.129 | 9.247 | 10.638 | 11.234 | 0 | 42.084 | 42.084 | 3,47% |
| Sub-Program 2.3: Farmer Cooperatives and Organisations | 1.166 | 1.254 | 1.359 | 1.460 | 1.500 | 0 | 6.740 | 6.740 | 0,56% |
| **Program 3: Value Chain Development and Private Sector Investment** | **65.075** | **70.046** | **74.915** | **84.099** | **88.360** | **202.608** | **179.888** | **382.495** | **31,52%** |
| Sub-Program 3.1: Private Investment, Encourage Entrepreneurship, Facilitate Market Access | 600 | 914 | 625 | 638 | 650 | 0 | 3.426 | 3.426 | 0,28% |
| Sub-Program 3.2: Development of Priority Value Chains: Food Crops | 14.500 | 14.722 | 15.107 | 15.410 | 15.705 | 0 | 75.444 | 75.444 | 6,22% |
| Sub-Program 3.3: Development of Priority Value Chains: Export Crops | 16.650 | 16.905 | 17.347 | 17.695 | 18.033 | 0 | 86.631 | 86.631 | 7,14% |
| Sub-Program 3.4: Development of Priority Value Chains: Dairy and Meat | 1.200 | 1.218 | 1.250 | 1.275 | 1.300 | 0 | 6.244 | 6.244 | 0,51% |
| Sub-Program 3.5: Development of Priority Value Chains: Fisheries | 250 | 254 | 260 | 266 | 271 | 0 | 1.301 | 1.301 | 0,11% |
| Sub-Program: 3.6. Development of Priority Value Chains: Apiculture | 120 | 122 | 125 | 128 | 130 | 0 | 624 | 624 | 0,05% |
| Sub-Program 3.7: Agricultural Finance | 1.195 | 1.213 | 1.245 | 1.270 | 1.294 | 0 | 6.217 | 6.217 | 0,51% |
| Sub-Program 3.8: Market-oriented Infrastructure | 30.560 | 34.698 | 38.955 | 47.418 | 50.978 | 202.608 | 0 | 202.608 | 16,70% |
| **Program 4: Institutional Development and Agricultural Cross-Cutting Issues** | **18.831** | **20.186** | **21.079** | **21.980** | **22.941** | **0** | **105.018** | **105.018** | **8,65%** |
| Sub-Program 4.1: Institutional Capacity Building | 1.615 | 1.742 | 1.683 | 1.717 | 1.750 | 0 | 8.506 | 8.506 | 0,70% |
| Sub-Program 4.2: Decentralisation in Agriculture | 1.065 | 1.437 | 1.683 | 1.982 | 2.291 | 0 | 8.459 | 8.459 | 0,70% |
| Sub-Program 4.3: Legal and Regulatory Framework | 100 | 305 | 365 | 319 | 325 | 0 | 1.413 | 1.413 | 0,12% |
| Sub-Program 4.4: Agricultural Communication, Statistical Systems, M&E and MIS | 1.400 | 1.421 | 1.459 | 1.488 | 1.516 | 0 | 7.284 | 7.284 | 0,60% |
| Sub-Program 4.5: Gender and Youth in Agriculture | 320 | 325 | 333 | 340 | 347 | 0 | 1.665 | 1.665 | 0,14% |
| Sub-Program 4.6: Environmental Mainstreaming in Agriculture | 115 | 117 | 120 | 123 | 125 | 0 | 600 | 600 | 0,05% |
| Sub-Program 4.7: Nutrition and Household  Vulnerability | 14.215 | 14.839 | 15.436 | 16.011 | 16.588 | 0 | 77.089 | 77.089 | 6,35% |
| **TOTAL** | **229.389** | **247.305** | **245.175** | **247.215** | **244.433** | **632.775** | **580.742** | **1.213.517** | **100,00%** |
| thereof: CAPITAL COSTS | 114.901 | 120.492 | 124.913 | 134.124 | 138.345 | 632.775 | 0 | 0 | 52,14% |
| thereof: RECURRENT COSTS | 114.488 | 126.813 | 120.262 | 113.091 | 106.088 | 0 | 580.742 | 0 | 47,86% |

1. Private sector investment costs

* The total private sector cost envisaged for the implementation of Rwanda's 2nd Agriculture Sector Investment Plan is 543 USD Million, thereof 86.39% Capital Costs and 13.61% Recurrent Costs. The latter reflects the high costs involved in establishing the agricultural processing facilities which form the bulk of the private sector investments.
* Private sector investment accounts for just over 40% of public sector investment costs as the private sector takes on an increasingly important role in the development and prospects of Rwanda's agricultural sector.
* Particular areas in which private sector involvement is expected to increase during the years ahead are: (i) the provision of agricultural mechanisation, (ii) extension services for high-value crops and (iii) the production and processing of export crops.
* 14.25% of the private sector investment costs correspond to Program N° 1 of PSTA-3: "Agriculture and Animal Resource Intensification".
* 13.61% (in fact all the recurrent costs) of the private sector investment costs correspond to Program N° 2 of PSTA-3: "Research and Technology Transfer, Advisory Services and Professionalization of Farmers".
* By far the largest share, namely 72.13% of the private sector investment costs correspond to Program N° 3 of PSTA-3: "Value Chain Development and Private Sector Investment".
* No private sector investment costs are foreseen to support Program N° 4 of PSTA-3: "Institutional Development and Agricultural Cross-Cutting Issues".
* Whereas as much as 49.34% of all private sector costs to implement the ASIP-2 correspond to Sub-Program 3.3 (Development of Export Crops Value Chains), only 5.55% relate to Sub-Program 3.4 (Development of Food Crop Value Chains). This proportion underscores the importance of a close coordination between MINAGRI, RAB and MINICOM in the promotion of local value addition capacities for food crops and it might be considered to raise the proportion of SP 3.4 in subsequent years.
* PPP opportunities were identified from the investment project profiles provided by RDB. The following PPP costs have been identified at 139.6 USD Million (25.% of private sector costs):
* Rehabilitation and equipping of soil and plant testing laboratories
* Hillside irrigation construction and maintenance
* Marshland irrigation construction and maintenance
* Power tiller assembly plant
* Milk Collection Centres built, equipped and renovated
* Research collaboration with the private sector
* Coffee-, Tea-, and Horticulture PPP projects; Gishari Flower Park
* Kigali Wholesale Market
* Establishment of modern meat processing plants and tanneries

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ANNUAL COSTS (in USD Thousands) | | | | | Total Costs (in USD Thousands) | | | **in % of ASIP-2 Private Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| **Program 1: Agriculture and Animal Resource Intensification** | **14.352** | **16.660** | **15.550** | **15.299** | **15.591** | **77.452** | **0** | **77.452** | **14,25%** |
| Sub-Program 1.1: Soil Conservation and Land Husbandry | 0 | 215 | 0 | 0 | 0 | 215 | 0 | 215 | 0,04% |
| Sub-Program 1.2: Irrigation and Water Management | 6.360 | 6.780 | 6.958 | 7.097 | 7.233 | 34.428 | 0 | 34.428 | 6,34% |
| Sub-Program 1.3: Agricultural Mechanisation | 3.816 | 5.489 | 3.976 | 4.056 | 4.133 | 21.469 | 0 | 21.469 | 3,95% |
| Sub-Program 1.4: Inputs to Improve Soil Fertility and Management | 636 | 646 | 1.215 | 676 | 689 | 3.861 | 0 | 3.861 | 0,71% |
| Sub-Program 1.5: Seed Development | 212 | 215 | 0 | 0 | 0 | 427 | 0 | 427 | 0,08% |
| Sub-Program 1.6. Livestock Development | 3.328 | 3.315 | 3.402 | 3.470 | 3.536 | 17.051 | 0 | 17.051 | 3,14% |
| **Program 2: Research and Technology Transfer, Advisory Services and Professionalization of Farmers** | **14.215** | **14.433** | **14.811** | **15.108** | **15.396** | **0** | **73.964** | **73.964** | **13,61%** |
| Sub-Program 2.1: Research and Technology Transfer | 7.692 | 7.810 | 8.014 | 8.175 | 8.331 | 0 | 40.024 | 40.024 | 7,37% |
| Sub-Program 2.2: Extension and Proximity Services for Producers | 6.523 | 6.623 | 6.796 | 6.933 | 7.065 | 0 | 33.940 | 33.940 | 6,25% |
| **Program 3: Value Chain Development and Private Sector Investment** | **49.811** | **79.745** | **79.568** | **102.350** | **80.447** | **391.921** | **0** | **391.921** | **72,13%** |
| Sub-Program 3.2: Development of Priority Value Chains: Food Crops | 1.957 | 3.063 | 7.856 | 13.761 | 3.532 | 30.169 | 0 | 30.169 | 5,55% |
| Sub-Program 3.3: Development of Priority Value Chains: Export Crops | 32.933 | 61.531 | 49.833 | 63.042 | 60.754 | 268.093 | 0 | 268.093 | 49,34% |
| Sub-Program 3.4: Development of Priority Value Chains: Dairy and Meat | 1.631 | 1.656 | 5.610 | 11.421 | 1.766 | 22.084 | 0 | 22.084 | 4,06% |
| Sub-Program 3.5: Development of Priority Value Chains: Fisheries | 0 | 0 | 3.206 | 0 | 0 | 3.206 | 0 | 3.206 | 0,59% |
| Sub-Program: 3.6. Development of Priority Value Chains: Apiculture | 1.060 | 1.076 | 1.042 | 1.127 | 1.148 | 5.453 | 0 | 5.453 | 1,00% |
| Sub-Program 3.8: Market-oriented Infrastructure | 12.231 | 12.418 | 12.022 | 12.999 | 13.247 | 62.916 | 0 | 62.916 | 11,58% |
| **TOTAL** | **78.379** | **110.838** | **109.928** | **132.757** | **111.434** | **469.373** | **73.964** | **543.336** | **100,00%** |
| thereof: CAPITAL COSTS | 64.163 | 96.405 | 95.118 | 117.649 | 96.038 | 469.373 | 0 | 0 | 86,39% |
| thereof: RECURRENT COSTS | 14.215 | 14.433 | 14.811 | 15.108 | 15.396 | 0 | 73.964 | 0 | 13,61% |

Table 11: Projection of ASIP-2 costs versus funding by government and development partners

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **ANNUAL COSTS (in USD Million)** | | | | | **Total Costs (in USD Million)** | | | in % of ASIP- 2 Public Costs |
| Cost / Donor | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Program 1: Agriculture and Animal Resource Intensification | 133 | 141 | 131 | 121 | 113 | 430 | 210 | 640 | 52,74% |
| Program 2: Research and Technology Transfer, Advisory Services | 12 | 16 | 18 | 20 | 20 | 0 | 86 | 86 | 7,09% |
| Program 3: Value Chain Development and Private Sector Investment | 65 | 70 | 75 | 84 | 88 | 203 | 180 | 382 | 31,52% |
| Program 4: Institutional Development and Agricultural Cross-Cutting Issues | 19 | 20 | 21 | 22 | 23 | 0 | 105 | 105 | 8,65% |
| **TOTAL** | **229** | **247** | **245** | **247** | **244** | **633** | **581** | **1.214** | **100,00%** |
| thereof: CAPITAL COSTS | 115 | 120 | 125 | 134.124 | 138.345 | 272.829 |  | 272.829 | 52,14% |
| thereof: RECURRENT COSTS | 114 | 127 | 120 | 113 | 106 |  | 581 | 581 | 47,86% |
| **Government Funds** | **60,0** | **60,0** | **60,0** | **60,0** | **60,0** |  |  | **300,0** | 24,72% |
| **Sector Budget Support / Program-for-Results** | **40,6** | **77,7** | **83,7** | **106,0** | **71,0** |  |  | **379,0** | 31,23% |
| IDA (Program-for-Results) |  | 33,0 | 33,0 | 34,0 |  |  |  | 100,0 | 8,24% |
| DFID | 15,6 | 19,7 | 14,7 | 14,0 | 13,0 |  |  | 77,0 | 6,35% |
| IFAD |  |  |  | 21,0 | 21,0 |  |  | 42,0 | 3,46% |
| European Union (EU) | 25,0 | 25,0 | 36,0 | 37,0 | 37,0 |  |  | 160,0 | 13,18% |
| **Project Support** | **76,9** | **161,7** | **135,3** | **83,8** | **63,3** |  |  | **521,0** | 42,93% |
| World Bank Projects | 33,6 | 80,5 | 52,1 | 18,0 | 9,8 |  |  | 194,0 | 15,99% |
| Swiss Development Cooperation (SDC) | 2,0 | 2,0 | 2,0 |  |  |  |  | 6,0 | 0,49% |
| Netherlands Embassy | 3,6 | 3,6 | 1,4 | 1,4 |  |  |  | 10,0 | 0,82% |
| USAID (includes 40 USD Million for PfR) | 14,5 | 36,5 | 33,5 | 28,5 | 25,0 |  |  | 138,0 | 11,37% |
| JICA |  | 4,0 | 9,0 | 11,0 | 8,0 |  |  | 32,0 | 2,64% |
| AfDB | 3,5 | 9,5 | 7,0 |  |  |  |  | 20,0 | 1,65% |
| DFID | 0,0 | 1,6 | 5,0 | 3,2 | 3,2 |  |  | 13,0 | 1,07% |
| IFAD Projects | 17,7 | 20,0 | 19,3 | 13,7 | 7,3 |  |  | 78,0 | 6,43% |
| FAO | 2,0 | 4,0 | 6,0 | 8,0 | 10,0 |  |  | 30,0 | 2,47% |
| **Total Development Partner Funds** | **117,5** | **239,4** | **219,0** | **189,8** | **134,3** |  |  | **900,0** | 74,16% |
| **DEFICIT / SURPLUS** | -52 | 52 | 34 | 3 | -50 |  |  | -14 | -1,11% |

* Table 11 above illustrates that the total of the projected ASIP-2 public sector costs is largely covered (a deficit of 1.11%, equivalent to 14 USD Million) by the aggregate of the projected governmental- and development partner funding to the sector.
* However, the projected governmental share (domestically financed recurrent and development budgets) in the total ASIP-2 public sector costs amounts to only 24.72%. This value however increases to 55.95% if sector budget support and the Program-for- Results funding are included.
* Key measures to monitor if the ASIP-2 financing is "on-track" will be (a) the annual analytical breakdown of the Project Support by Sub-Program, (b) the implementation of the Agriculture Management Information System (and its integration with IFMIS), and (c) the annual assessment of private sector investments (including FDI, domestic investors and farmer/cooperative investments). Templates are provided in Annex 3.

13 M&E arrangements for PSTA-3 / ASIP-2

During the implementation of PSTA-3/ASIP-2, strengthening of the following M&E capacities in the agriculture sector is envisaged:

* Implementation of an Agriculture Management Information System integrated with IFMIS, the quarterly progress reporting of local government administrations and other governmental agencies closely related to Rwanda's agriculture sector prospects (RDB, MINICOM and RCA, MINALOC (LODA), and MINIRENA (RNRA, REMA).
* Review and strengthening (in close coordination with NISR, FAO and USDA), of Rwanda's Integrated Survey Framework for Agricultural Statistics.
* Increased investments in agriculture routine (annual, quarterly) and periodical (3-5 years) data collection, data processing and data and policy analysis capacities (see also Annex 2a).
* Improved and regular (at least twice annually) information on the off-budget funding to the sector by development partners (see Template in Annex 3).

To ensure the feasibility to monitor the results-framework (see Chapter 7) of PSTA-3 /ASIP- 2, a thorough review and refinement of the Metadata for all indicators that were not previously monitored (PSTA-2) needs to be conducted before the end of Fiscal Year 2014/15.

This refinement of the Metadata will also clarify to what extent the different 'monitoring/survey areas' specified in Table 12 below can be covered through the existing mechanisms and capacities or instead require additional investments. The projected ASIP-2 public investments for this purpose (see Annex 2a and 2b) are about 6.7 USD Million through 2018.

Table 12: Indicative order of the Results-Framework indicators by type of survey/monitoring

|  |  |
| --- | --- |
| **Expanded Seasonal** Agriculture Survey | ■ Agriculture land under modernized agricultural technologies |
| ■ Average yields of Maize, Bush Beans, Climbing Beans, Cassava, Irish Potatoes |
| ■ Average yields of rice under marshland irrigation |
| ■ Area planted with certified seed |
| ■ Output of commercial seed producers |
| ■ Productivity: Coffee, Tea, Pyrethrum |
| ■ Production: Fruits and Vegetables, Flowers |
| ■ Postharvest losses (%): Maize, Beans, Irish Potatoes, Rice |
| ■ Capacity of storage facilities (warehouses, metallic silos) |
| ■ N° of released technologies (food crops): e.g. Vit A enriched casssava, QPM maize |
| ■ N° of released technologies (export crops) |
| ■ Production area of iron-fortified bean seeds |
| ■ Production area of vitamin A-enriched -sweet potatoes |

|  |  |
| --- | --- |
| Annual Assessment of **Agricultural Land** | ■ % of cultivable land effectively protected against soil erosion & sustainably managed |
| ■ Area of cultivable land per agricultural household (Median) |
| ■ Efficiency of soil protection infrastructure |
| ■ Ha of land developed with progressive, bench/radical terraces (based on standards) |
| ■ Hectares developed for hillside-, marshland- and small scale irrigation |
| ■ Proportion of cultivable land with mechanized land cultivation |
| ■ Km of rural feeder roads rehabilitated and maintained according to standards |
| ■ Total plantlet production of tree nurseries (fruit- and (agro-)forestry species) |
| ■ Proportion of cultivable agricultural land covered by multi- or single-purpose trees |
| ■ Total forestry area in watershed catchment basins |

|  |  |
| --- | --- |
| Annual Agricultural **Household** Survey | ■ Average monetary income per rural household from cropping / livestock-keeping |
| ■ Proportion of households practicing irrigation |
| ■ N° of implements utilized for mechanised farming |
| ■ Kg of inorganic fertilizer used per ha per year |
| ■ % of farmers utilising fertilizer for strategic crops according to standards |
| ■ % of agricultural households utilising registered agro-dealers |
| ■ % of farmers utilizing improved and certified seeds for strategic crops |
| ■ % of farmers utilising cooperative services for input supplies and marketing |
| ■ N° of farmers benefitting from contract farming arrangements |
| ■ % of rural households benefitting from agricultural group credits |
| ■ N° of farmers benefitting from Warehouse Receipt System finance |
| ■ N° of farmers with crop and/or livestock insurance |
| ■ % of HH accessing services for post-harvest treatment and storage of food crops |
| ■ % of youth/women enrolled in agricultural self-help  groups/cooperatives/associations |
| ■ % of households (Ubudehe 1 and 2) with permanently used kitchen gardens |

|  |  |
| --- | --- |
| Annual **Livestock** Survey | ■ Productivity of dairy cows |
| ■ Total area of established functional feedlots |
| ■ Production of milk, beef meat, goat meat, pork meat, poultry meat, eggs, honey, fish |
| ■ Production of hides and skins |
| ■ % of improved breeds (dairy cows), (cattle), (goats) |
| ■ % of cells with at least one appointed and trained animal-health-worker (AHW) |

|  |  |
| --- | --- |
|  | ■ % reduction of incidence of brucellosis and mastis |
| ■ % of cattle held in intensive livestock keeping systems |
| ■ Capacities of agro-processing installations for meat products |
| ■ N° of GlobalGAP and/or ISO 22000 certified abattoirs |
| ■ N° of certified milk collection centres (MCCs) |
| ■ Capacities of agro-processing installations for dairy- and other animal products |
| ■ Proportion of processed fish products in total production |
| ■ Proportion of bee populations kept in modern beehives |
| ■ Volume of total honey production captured by honey collection centres |
| ■ Average animal protein production (g/capita/day) in % of "safe consumption |

|  |  |
| --- | --- |
| Annual survey of agricultural farmer **cooperatives and associations** | ■ N° of farmers enrolled in WUA that are legally established and pay water user fees |
| ■ N° of cooperatives that offer mechanization (land cultivation) services |
| ■ % of farmers that are member of a cooperatives, association or self-help group |
| ■ % of agriculture cooperatives/farmer organizations graded "A" or "B" (audit rating) |
| ■ % of total production marketed through cooperatives/farmer organizations |
| ■ Value of marketed food crop production |
| ■ Value of marketed export crop production |
| ■ Value of marketed livestock production |
| ■ % of produce of group-based production marketed through contract farming |
| ■ % of group-based production organisations running agro-processing facilities |
| ■ % of produce of group-based staple crop production processed in own facilities |
| ■ Capacities of agro-processing installations for food/staple crops |
| ■ % of coffee production that is fully washed |
| ■ N° of ISO 2200-2005 certified tea factories |
| ■ Quantity of Pyrethrum production: Diluted Pale Extract (PY 50%), in MT |
| ■ Value of cottage industry (silk, essential and plant oils, dried frut etc.) production |
| ■ % of rural households participating in agricultural/horticultural cottage industries |
| ■ % of annual exports of F&V audited against social and environmental standards |
| ■ N° of companies and cooperatives with certified honey |
| ■ N° of business plans of agric. cooperatives / SMEs approved and financed by FI's |

|  |  |  |  |
| --- | --- | --- | --- |
|  | | ■ | % of WUA trained in flood control, O&M and irrigation management |
| Annual assessment of T**WIGIRE** | and other agricultural **training** records | ■ | Average N° of Farmer Field Schools per Zone to promote agricultural technologies |
| ■ | Ratio of farmer households per extension agent (village level) |
| ■ | N° of villages with maintained agricultural demonstration plots |
| ■ | N° of farmers benefitting from FFS according to established standards |
| ■ | N° of farmer promoters trained and posted in Imidugudus |
| ■ | N° of farmers supported through TWIGIRE in horticulture production and marketing |
| ■ | % of cooperatives trained in management, organisation and entrepreneurial skills |
| ■ | % of cooperatives trained in food safety, SPS and quality standards |
| ■ | Number of farmers trained in agro processing |
| ■ | N° of farmers participating in post-harvest treatment and storage training |
|  | ■ | N° of participants in trainings on kitchen gardens, food transformation and nutrition |

|  |  |
| --- | --- |
| Source: **MINECOFIN and RDB** | ■ Amount of private investment (domestic and foreign) in agricultural value chains |
| ■ N° of SMEs involved in crop production (input supply, agro-processing, marketing) |
| ■ N° of SMEs involved in livestock product. (input supply, agro-processing, marketing) |
| ■ % of public budget allocated to agriculture sector |
| ■ Total Volume of Public Spending on Agriculture by Districts |

|  |  |
| --- | --- |
| Annual Accounts of **BNR and**  **NAEB** | ■ Agricultural GDP growth rate |
| ■ Agricultural export revenue growth rate |
| ■ Unit cost of 1 kg airfreight |
| ■ Revenue of exports - Coffee |
| ■ Revenue of exports - Tea |
| ■ Export Revenues of Fruit and Vegetables |
| ■ Revenue of exports - Flowers |
| ■ Revenue of exports - Pyrethrum |
| ■ Export revenues for livestock products (milk, meat, eggs, honey, hides and skins) |
| ■ Total loans allocated to agricultural sector (production and value addition) |
| ■ Average agricultural credit per SACCO member (production and marketing credit) |

|  |  |
| --- | --- |
| MINAGRI **SPPC** | ■ MT of inorganic fertilizers imported |
| ■ Proportion of Districts with functional agricultural committees |
| ■ Regulations and roles for agricultural finance clarified, established and communicated |
| ■ Agro-chemical registration system (agro-dealers) established |
| ■ A strategy to ensure the inclusion of youth in Rwanda’s agriculture development |
| ■ Number of school children benefiting from “One cup of milk programme” |
| ■ MT of maize and beans existing as food reserve |
| ■ N° of new agriculture communication products - radio spots |
| ■ Average monthly users of MINAGRI/CICA website (including E-Soko) |
| ■ Regulations for organic agriculture, pesticide and lime use approved & communicated |

|  |  |
| --- | --- |
| **Strategic Documents** (Policies, Strategies, Annual Plans and Progress Reports) | ■ Multi-sectoral soil conservation and land husbandry policy and strategic plan |
| ■ National Irrigation policy and strategic plan |
| ■ National Agriculture Mechanization policy and strategic plan |
| ■ National Fertilizer Policy and regulatory framework |
| ■ Nat. Seed policy and strategic plan coherent with COMESA Trade Regulations |
| ■ Validation of Integrated Livestock Policy and corresponding Strategy document |
| ■ Updated National Agriculture Research and Extension Policy and Strategic Plan |
| ■ Agricultural value addition strategy |
| ■ SPS and food safety policy framework and action plan |
| ■ Investor Framework / Multi-sector agri-business strategic plan |
| ■ Capacity building action plan |
| ■ Progress report by RAB, NAEB and Districts on implementation of TWIGIRE |
| ■ Annual Assessment of effectiveness and efficiency of agricultural decentralization |
| ■ MIS System is developed, and functional, and utilised across the sector |
| ■ Integrated framework for agricultural surveys and statistics |
| ■ N° of newly released crop growing protocols translated into Kinyarwanda |
| ■ Joint action plan (MINAGRI-REMA) |

|  |  |
| --- | --- |
| **External**  Surveys | ■ % of rural population under the national poverty line |
| ■ % of households with acceptable food consumption score |
| ■ % of stunting among children aged 6-59 months |
| ■ Economic, social and environmental impact analysis of agriculture investment (FDI) |
| ■ Private sector perception of the “doing agri-business” enabling environment |

ANNEXES

|  |  |
| --- | --- |
| 1A: | Projected Exchange Rates: RWF / USD |
| 1B: | Inflation rates used in ASIP-2 costing |
| 2.1A: | Detailed (by output) public sector costs by Sub-Program |
| 2.1B: | Detailed (by output) public sector costs by Sub-Program |
| 2.2A: | Detailed (by output) private sector costs by Sub-Program |
| 2.2B: | Detailed (by output) private sector costs by Sub-Program |
| 2.3: | Public Private Partnership (PPP) costs of the Private Sector by Sub­Program |
| 3: | Templates for the monitoring of Public and Private Investments/Financing during the ASIP-2 period |
| 4A: | Net Financial Benefit by Year (calculation based on ASIP-2 public costs) |
| 4B: | Net Economic Benefit by Year |
|  | (calculation based on ASIP-2 public costs) |

**ANNEX 1A: PROJECTED EXCHANGE RATES: RWF / USD**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fiscal Year | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** |
| Exchange rate | 650 | 679 | 699 | 720 | 742 |

NOTE: Costing was undertaken in RWF and converted to USD, using the projected exchange rates above that were provided by MINECOFIN.

**ANNEX 1B: INFLATION RATES USED IN ASIP-2 COSTING**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Fiscal Year | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** |
| Inflation rate | - | 6.0% | 5.7% | 5.1% | 5.0% |

NOTE: Costs are expressed in current prices. The projected inflation rates used to estimate costs for the fiscal years 2013/14 - 2017/18 were provided by MINECOFIN.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in RWF) | ANNUAL COSTS (RWF Millions) | | | | | Total Costs (RWF Millions) | | | **in % of ASIP-2 Public Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Program 1: Agriculture and Animal Resource Intensification | | | | | | | 86.662 | 95.971 | 91.654 | 87.457 | 83.591 | 300.402 | 170.755 | 445.335 | **52,53%** |
| Sub-Program 1.1: Soil Conservation and Land Husbandry | | | | | | | 13.337 | 14.829 | 15.674 | 16.474 | 17.297 | 74.070 | 3.542 | 77.612 | 9,16% |
| Progressive Terrace Construction | 50.474 | 50.474 | 50.474 | 50.474 | 50.474 | 32.500 | 1.640 | 1.739 | 1.838 | 1.932 | 2.028 | 9.177 |  | 9.177 | 1,08% |
| Progressive Terrace Maintenance |  | 50.474 | 50.474 | 50.474 | 50.474 | 1.625 | 0 | 87 | 92 | 97 | 101 |  | 377 | 377 | 0,04% |
| Radical Terrace Construction | 11.697 | 11.697 | 11.697 | 11.697 | 11.697 | 975.000 | 11.405 | 12.089 | 12.778 | 13.430 | 14.101 | 63.802 |  | 63.802 | 7,53% |
| Radical Terrace Maintenance |  | 11.697 | 11.697 | 11.697 | 11.697 | 48.750 | 0 | 604 | 639 | 671 | 705 |  | 2.620 | 2.620 | 0,31% |
| Assessment of effectiveness of land conservation infrastructure | 1 | 1 | 1 | 1 | 1 | 97.500.000 | 98 | 103 | 109 | 115 | 121 |  | 545 | 545 | 0,06% |
| Fertiliser recommendations for types of soils and crops | 1 | 1 | 1 | 1 | 1 | 32.500.000 | 33 | 34 | 36 | 38 | 40 | 182 |  | 182 | 0,02% |
| Decision support tool for soil erosion monitoring and control | 1 | 1 | 1 | 1 | 1 | 97.500.000 | 98 | 103 | 109 | 115 | 121 | 545 |  | 545 | 0,06% |
| Adapted agro-forestry tree species increased | 1 | 1 | 1 | 1 | 1 | 32.500.000 | 33 | 34 | 36 | 38 | 40 | 182 |  | 182 | 0,02% |
| Updated soil conservation and land husbandry policy and strategy | 1 | 1 | 1 | 1 | 1 | 32.500.000 | 33 | 34 | 36 | 38 | 40 | 182 |  | 182 | 0,02% |
| Sub-Program 1.2: Irrigation and Water Management | | | | | | | 36.582 | 40.687 | 43.079 | 45.161 | 47.419 | 200.182 | 12.747 | 212.929 | 25,12% |
| Approved National Irrigation Policy and Strategy |  | 1 |  |  |  | 32.500.000 | 0 | 34 | 0 | 0 | 0 |  | 34 | 34 | 0,00% |
| Approved National Irrigation Law |  |  | 1 |  |  | 32.500.000 | 0 | 0 | 36 | 0 | 0 |  | 36 | 36 | 0,00% |
| Established National Irrigation Board |  |  | 1 |  |  | 65.000.000 | 0 | 0 | 73 | 0 | 0 |  | 73 | 73 | 0,01% |
| Hillside Irrigation Construction | 2160 | 2.160 | 2.160 | 2.160 | 2.160 | 6.500.000 | 14.040 | 14.882 | 15.731 | 16.533 | 17.360 | 78.546 |  | 78.546 | 9,27% |
| Hillside Irrigation Maintenance |  | 2.160 | 2.160 | 2.160 | 2.160 | 325.000 | 0 | 744 | 787 | 827 | 868 |  | 3.225 | 3.225 | 0,38% |
| Marshland Irrigation Construction | 2700 | 2.700 | 2.700 | 2.700 | 2.700 | 7.800.000 | 21.060 | 22.324 | 23.596 | 24.799 | 26.039 | 117.819 |  | 117.819 | 13,90% |
| Marshland Irrigation Maintenance |  | 2.700 | 2.700 | 2.700 | 2.700 | 390.000 | 0 | 1.116 | 1.180 | 1.240 | 1.302 |  | 4.838 | 4.838 | 0,57% |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in RWF) | ANNUAL COSTS (RWF Millions) | | | | | Total Costs (RWF Millions) | | | **in % of ASIP-2 Public Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Small-scale Irrigation Construction | 300 | 300 | 300 | 300 | 300 | 975.000 | 293 | 310 | 328 | 344 | 362 | 1.636 |  | 1.636 | 0,19% |
| Small-scale Irrigation Maintenance |  | 300 | 300 | 300 | 300 | 48.750 | 0 | 16 | 16 | 17 | 18 |  | 67 | 67 | 0,01% |
| Increased numbers of Irrigation Technicians | 3 | 3 | 3 | 3 | 3 | 6.500.000 | 20 | 21 | 22 | 23 | 24 |  | 109 | 109 | 0,01% |
| Increased hectares of irrigation schemes rehabilitated | 1000 | 1.000 | 1.000 | 1.000 | 1.000 | 390.000 | 390 | 413 | 437 | 459 | 482 | 2.182 |  | 2.182 | 0,26% |
| WUOs established and functional | 4 | 4 | 4 | 4 | 4 | 65.000.000 | 260 | 276 | 291 | 306 | 321 |  | 1.455 | 1.455 | 0,17% |
| Transferred schemes to rural communities | 16 | 16 | 16 | 16 | 16 | 32.500.000 | 520 | 551 | 583 | 612 | 643 |  | 2.909 | 2.909 | 0,34% |
| Sub-Program 1.3: Agricultural Mechanisation | | | | | | | 6.510 | 7.010 | 5.992 | 5.556 | 5.096 | 25.823 | 30.164 | 30.164 | 3,56% |
| Developed Agricultural Mechanisation Policy |  |  | 1 |  |  | 32.500.000 | 0 | 0 | 36 | 0 | 0 |  | 36 | 36 | 0,00% |
| Tractors purchased | 50 | 40 | 30 | 20 | 10 | 11.841.900 | 592 | 502 | 398 | 279 | 146 | 1.918 |  | 1.918 | 0,23% |
| Power Tillers purchased | 100 | 80 | 60 | 40 | 20 | 2.001.629 | 200 | 170 | 135 | 94 | 49 | 648 |  | 648 | 0,08% |
| Attachments purchased | 1000 | 800 | 600 | 400 | 200 | 1.311.891 | 1.312 | 1.112 | 882 | 618 | 324 | 4.249 |  | 4.249 | 0,50% |
| Planting Machines purchased | 400 | 320 | 240 | 160 | 80 | 2.205.000 | 882 | 748 | 593 | 415 | 218 | 2.856 |  | 2.856 | 0,34% |
| Crop Treatment Machines purchased | 300 | 300 | 300 | 300 | 300 | 315.000 | 95 | 100 | 106 | 111 | 117 | 529 |  | 529 | 0,06% |
| Harvesters purchased | 200 | 200 | 200 | 200 | 200 | 8.467.308 | 1.693 | 1.795 | 1.897 | 1.994 | 2.094 | 9.474 |  | 9.474 | 1,12% |
| Post Harvesting Machines purchased | 150 | 150 | 150 | 150 | 150 | 843.471 | 127 | 134 | 142 | 149 | 156 | 708 |  | 708 | 0,08% |
| Agro-processing Machines purchased | 4 | 4 | 4 | 4 | 4 | 210.000.000 | 840 | 890 | 941 | 989 | 1.039 | 4.699 |  | 4.699 | 0,55% |
| Agricultural Machinery Maintenance | 1 | 1 | 1 | 1 | 1 | 750.000.000 | 750 | 795 | 840 | 883 | 927 |  | 4.196 | 4.196 | 0,49% |
| National Agricultural Mechanisation Centre established | 0 | 1 | 0 | 0 | 0 | 700.000.000 | 0 | 742 | 0 | 0 | 0 | 742 |  | 742 | 0,09% |
| Training farmers and technicians in mechanisation | 600 | 600 | 600 | 600 | 600 | 32.500 | 20 | 21 | 22 | 23 | 24 |  | 109 | 109 | 0,01% |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in RWF) | ANNUAL COSTS (RWF Millions) | | | | | Total Costs (RWF Millions) | | | **in % of ASIP-2 Public Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Sub-Program 1.4: Inputs to Improve Soil Fertility and Management | | | | | | | 11.821 | 16.304 | 11.256 | 6.066 | 1.015 | 0 | 46.462 | 46.462 | 5,48% |
| Fertiliser policy in place |  | 1 |  |  |  | 32.500.000 | 0 | 34 | 0 | 0 | 0 |  | 34 | 34 | 0,00% |
| Fertiliser regulatory framework developed |  |  | 1 |  |  | 32.500.000 | 0 | 0 | 36 | 0 | 0 |  | 36 | 36 | 0,00% |
| Train fertiliser distributors and agro-dealers | 250 | 250 | 250 | 250 | 250 | 32.500 | 8 | 9 | 9 | 10 | 10 |  | 45 | 45 | 0,01% |
| Train farmers in fertiliser and input use | 25000 | 25.000 | 25.000 | 25.000 | 25.000 | 32.500 | 813 | 861 | 910 | 957 | 1.005 |  | 4.545 | 4.545 | 0,54% |
| Farmers access smart subsidies for lime and fertiliser |  |  |  |  |  |  | 9.000 | 11.900 | 8.000 | 4.000 | 0 | 0 | 32.900 | 32.900 | 3,88% |
| Lime producers access subsidies |  |  |  |  |  |  | 2.000 | 3.500 | 2.300 | 1.100 | 0 | 0 | 8.900 | 8.900 | 1,05% |
| Sub-Program 1.5: Seed Development | | | | | | | 9.018 | 7.150 | 5.128 | 3.138 | 1.149 | 0 | 25.583 | 25.583 | 3,02% |
| Develop a seed policy, strategy and action plan |  | 1 |  |  |  | 32.500.000 | 0 | 34 | 0 | 0 | 0 |  | 34 | 34 | 0,00% |
| Train farmers to use improved seed | 25000 | 25.000 | 25.000 | 25.000 | 25.000 | 32.500 | 813 | 861 | 910 | 957 | 1.005 |  | 4.545 | 4.545 | 0,54% |
| Government decreases seeds subsidy |  |  |  |  |  |  | 8.173 | 6.130 | 4.087 | 2.043 | 0 | 0 | 20.433 | 20.433 | 2,41% |
| Establish a Seeds Coordinating Unit | 1 | 1 | 1 | 1 | 1 | 32.500.000 | 33 | 34 | 36 | 38 | 40 |  | 182 | 182 | 0,02% |
| Employ additional seed inspectors |  | 8 | 8 | 8 | 8 | 6.500.000 | 0 | 55 | 58 | 61 | 64 |  | 239 | 239 | 0,03% |
| Establish the National Seeds Laboratory |  | 1 | 1 | 1 | 1 | 32.500.000 | 0 | 34 | 36 | 38 | 40 |  | 149 | 149 | 0,02% |
| Sub-Program 1.6. Livestock Development | | | | | | | 9.393 | 9.991 | 10.524 | 11.061 | 11.614 | 327 | 52.257 | 52.585 | 6,20% |
| Livestock policy developed |  | 1 |  |  |  | 32.500.000 | 0 | 34 | 0 | 0 | 0 |  | 34 | 34 | 0,00% |
| Milk production increased | 49628,2 | 49.628 | 49.628 | 49.628 | 49.628 | 60.000 | 2.978 | 3.156 | 3.336 | 3.506 | 3.682 |  | 16.658 | 16.658 | 1,97% |
| Girinka Dairy Cow Programme | 42159,2 | 42.159 | 42.159 | 42.159 | 42.159 | 80.000 | 3.373 | 3.575 | 3.779 | 3.972 | 4.170 |  | 18.869 | 18.869 | 2,23% |
| Meat production increased | 18444 | 18.444 | 18.444 | 18.444 | 18.444 | 75.000 | 1.383 | 1.466 | 1.550 | 1.629 | 1.710 |  | 7.739 | 7.739 | 0,91% |

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|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in RWF) | ANNUAL COSTS (RWF Millions) | | | | | Total Costs (RWF Millions) | | | **in % of ASIP-2 Public Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Fish production increased | 18120 | 18.120 | 18.120 | 18.120 | 18.120 | 75.000 | 1.359 | 1.441 | 1.523 | 1.600 | 1.680 |  | 7.603 | 7.603 | 0,90% |
| Honey production increased | 1094,8 | 1.095 | 1.095 | 1.095 | 1.095 | 75.000 | 82 | 87 | 92 | 97 | 102 |  | 459 | 459 | 0,05% |
| Honey collection centres operational | 1,8 | 2 | 2 | 2 | 2 | 32.500.000 | 59 | 62 | 66 | 69 | 72 | 327 |  | 327 | 0,04% |
| Increase production of hides and skins | 325 | 325 | 325 | 325 | 325 | 492.308 | 160 | 170 | 179 | 188 | 198 |  | 895 | 895 | 0,11% |
| Program 2: Research and Technology Transfer, Advisory Services and Professionalization of Farmers | | | | | | | 7.902 | 10.618 | 12.624 | 14.189 | 15.198 | 0 | 60.531 | 60.531 | **7,14%** |
| Sub-Program 2.1: Research and Technology Transfer | | | | | | | 4.650 | 4.929 | 5.210 | 5.476 | 5.749 | 0 | 26.014 | 26.014 | 3,07% |
| MINAGRI crop based research programmes | 1 | 1 | 1 | 1 | 1 | 2.500.000.000 | 2.500 | 2.650 | 2.801 | 2.944 | 3.091 |  | 13.986 | 13.986 | 1,65% |
| MINAGRI livestock based research programmes | 1 | 1 | 1 | 1 | 1 | 1.000.000.000 | 1.000 | 1.060 | 1.120 | 1.178 | 1.236 |  | 5.594 | 5.594 | 0,66% |
| MINAGRI agro-forestry based research programmes | 1 | 1 | 1 | 1 | 1 | 400.000.000 | 400 | 424 | 448 | 471 | 495 |  | 2.238 | 2.238 | 0,26% |
| MINAGRI value chain research | 3 | 3 | 3 | 3 | 3 | 250.000.000 | 750 | 795 | 840 | 883 | 927 |  | 4.196 | 4.196 | 0,49% |
| Sub-Program 2.2: Extension and Proximity Services for Producers | | | | | | | 2.494 | 4.838 | 6.464 | 7.662 | 8.336 | 0 | 29.793 | 29.793 | 3,51% |
| Development of National Extension Policy |  | 1 |  |  |  | 32.500.000 | 0 | 34 | 0 | 0 | 0 |  | 34 | 34 | 0,00% |
| Expansion of Farmer Field Schools | 12000 | 30.000 | 40.000 | 45.000 | 45.000 | 100.000 | 1.200 | 3.180 | 4.482 | 5.299 | 5.564 |  | 19.725 | 19.725 | 2,33% |
| Expansion and support to Farmer Promoters | 11877 | 12.627 | 13.377 | 14.127 | 14.837 | 50.000 | 594 | 669 | 749 | 832 | 917 |  | 3.761 | 3.761 | 0,44% |
| Expansion and support to Agricultural Committees | 7000 | 9.000 | 11.000 | 13.000 | 15.000 | 100.000 | 700 | 954 | 1.232 | 1.531 | 1.855 |  | 6.272 | 6.272 | 0,74% |
| Sub-Program 2.3: Farmer Cooperatives and Organisations | | | | | | | 758 | 851 | 950 | 1.052 | 1.113 | 0 | 4.724 | 4.724 | 0,56% |
| Expansion and support to farmer cooperatives | 2027 | 2.177 | 2.327 | 2.477 | 2.500 | 300.000 | 608 | 692 | 782 | 875 | 927 |  | 3.885 | 3.885 | 0,46% |
| Training and capacity building of farmer cooperatives | 500 | 500 | 500 | 500 | 500 | 300.000 | 150 | 159 | 168 | 177 | 185 |  | 839 | 839 | 0,10% |
| Program 3: Value Chain Development and Private Sector Investment | | | | | | | 42.299 | 47.533 | 52.366 | 60.568 | 65.567 | 142.617 | 125.716 | 268.333 | **31,65%** |

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|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in RWF) | ANNUAL COSTS (RWF Millions) | | | | | Total Costs (RWF Millions) | | | **in % of ASIP-2 Public Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Sub-Program 3.1: Creating an Environment to Attract Private Investment, Encourage Entrepreneurship and Facilitate Market  Access | | | | | | | 390 | 620 | 437 | 459 | 482 | 0 | 2.389 | 2.389 | 0,28% |
| Training of entrepreneurs | 1000 | 1.000 | 1.000 | 1.000 | 1.000 | 32.500 | 33 | 34 | 36 | 38 | 40 |  | 182 | 182 | 0,02% |
| Creation of a farm management unit to facilitate private sector development | 1 | 1 | 1 | 1 | 1 | 65.000.000 | 65 | 69 | 73 | 77 | 80 |  | 364 | 364 | 0,04% |
| Finalise the PPP law |  | 1 |  |  |  | 32.500.000 | 0 | 34 | 0 | 0 | 0 |  | 34 | 34 | 0,00% |
| Establish the Agriculture Investment Task Force | 1 | 1 | 1 | 1 | 1 | 32.500.000 | 33 | 34 | 36 | 38 | 40 |  | 182 | 182 | 0,02% |
| Develop an export certification programme with RBS | 1 | 1 | 1 | 1 | 1 | 32.500.000 | 33 | 34 | 36 | 38 | 40 |  | 182 | 182 | 0,02% |
| Develop a programme to protect organic certification | 1 | 1 | 1 | 1 | 1 | 32.500.000 | 33 | 34 | 36 | 38 | 40 |  | 182 | 182 | 0,02% |
| Improve SPS measures and train exporters | 1 | 1 | 1 | 1 | 1 | 32.500.000 | 33 | 34 | 36 | 38 | 40 |  | 182 | 182 | 0,02% |
| Increase airport cold storage space |  | 1 |  |  |  | 162.500.000 | 0 | 172 | 0 | 0 | 0 |  | 172 | 172 | 0,02% |
| Marketing and logistics studies | 5 | 5 | 5 | 5 | 5 | 32.500.000 | 163 | 172 | 182 | 191 | 201 |  | 909 | 909 | 0,11% |
| Sub-Program 3.2: Development of Priority Value Chains: Food Crops | | | | | | | 9.425 | 9.991 | 10.560 | 11.099 | 11.653 | 0 | 52.727 | 52.727 | 6,22% |
| Training of food crop entrepreneurs | 2500 | 2.500 | 2.500 | 2.500 | 2.500 | 65.000 | 163 | 172 | 182 | 191 | 201 |  | 909 | 909 | 0,11% |
| Banana market support and facilitation | 1 | 1 | 1 | 1 | 1 | 1.300.000.000 | 1.300 | 1.378 | 1.457 | 1.531 | 1.607 |  | 7.273 | 7.273 | 0,86% |
| Wheat market support and facilitation | 1 | 1 | 1 | 1 | 1 | 1.300.000.000 | 1.300 | 1.378 | 1.457 | 1.531 | 1.607 |  | 7.273 | 7.273 | 0,86% |
| Maize market support and facilitation | 1 | 1 | 1 | 1 | 1 | 1.300.000.000 | 1.300 | 1.378 | 1.457 | 1.531 | 1.607 |  | 7.273 | 7.273 | 0,86% |
| Rice market support and facilitation | 1 | 1 | 1 | 1 | 1 | 1.300.000.000 | 1.300 | 1.378 | 1.457 | 1.531 | 1.607 |  | 7.273 | 7.273 | 0,86% |
| Irish potato market support and facilitation | 1 | 1 | 1 | 1 | 1 | 1.300.000.000 | 1.300 | 1.378 | 1.457 | 1.531 | 1.607 |  | 7.273 | 7.273 | 0,86% |
| Cassava market support and facilitation | 1 | 1 | 1 | 1 | 1 | 1.300.000.000 | 1.300 | 1.378 | 1.457 | 1.531 | 1.607 |  | 7.273 | 7.273 | 0,86% |
| Beans market support and facilitation | 1 | 1 | 1 | 1 | 1 | 1.300.000.000 | 1.300 | 1.378 | 1.457 | 1.531 | 1.607 |  | 7.273 | 7.273 | 0,86% |

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|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in RWF) | ANNUAL COSTS (RWF Millions) | | | | | Total Costs (RWF Millions) | | | **in % of ASIP-2 Public Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Food crop production and marketing strategies | 5 | 5 | 5 | 5 | 5 | 32.500.000 | 163 | 172 | 182 | 191 | 201 |  | 909 | 909 | 0,11% |
| Sub-Program 3.3: Development of Priority Value Chains: Export Crops | | | | | | | 10.823 | 11.472 | 12.126 | 12.744 | 13.381 | 0 | 60.546 | 60.546 | 7,14% |
| Training of export crop entrepreneurs | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 65.000 | 260 | 276 | 291 | 306 | 321 |  | 1.455 | 1.455 | 0,17% |
| Coffee market support and facilitation | 1 | 1 | 1 | 1 | 1 | 3.250.000.000 | 3.250 | 3.445 | 3.641 | 3.827 | 4.018 |  | 18.182 | 18.182 | 2,14% |
| Tea market support and facilitation | 1 | 1 | 1 | 1 | 1 | 3.250.000.000 | 3.250 | 3.445 | 3.641 | 3.827 | 4.018 |  | 18.182 | 18.182 | 2,14% |
| Pyrethrum market support and facilitation | 1 | 1 | 1 | 1 | 1 | 325.000.000 | 325 | 345 | 364 | 383 | 402 |  | 1.818 | 1.818 | 0,21% |
| Horticulture and floriculture market support and facilitation | 1 | 1 | 1 | 1 | 1 | 3.250.000.000 | 3.250 | 3.445 | 3.641 | 3.827 | 4.018 |  | 18.182 | 18.182 | 2,14% |
| Sericulture market support and facilitation | 1 | 1 | 1 | 1 | 1 | 325.000.000 | 325 | 345 | 364 | 383 | 402 |  | 1.818 | 1.818 | 0,21% |
| Export crop production and marketing strategies | 5 | 5 | 5 | 5 | 5 | 32.500.000 | 163 | 172 | 182 | 191 | 201 |  | 909 | 909 | 0,11% |
| Sub-Program 3.4: Development of Priority Value Chains: Dairy and Meat | | | | | | | 780 | 827 | 874 | 918 | 964 | 0 | 4.364 | 4.364 | 0,51% |
| Training of dairy and meat entrepreneurs | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 65.000 | 98 | 103 | 109 | 115 | 121 |  | 545 | 545 | 0,06% |
| Dairy market support and facilitation | 1 | 1 | 1 | 1 | 1 | 260.000.000 | 260 | 276 | 291 | 306 | 321 |  | 1.455 | 1.455 | 0,17% |
| Meat market support and facilitation | 1 | 1 | 1 | 1 | 1 | 260.000.000 | 260 | 276 | 291 | 306 | 321 |  | 1.455 | 1.455 | 0,17% |
| Dairy and meat production and marketing strategies | 5 | 5 | 5 | 5 | 5 | 32.500.000 | 163 | 172 | 182 | 191 | 201 |  | 909 | 909 | 0,11% |
| Sub-Program 3.5: Development of Priority Value Chains: Fisheries | | | | | | | 163 | 172 | 182 | 191 | 201 | 0 | 909 | 909 | 0,11% |
| Training of fishery entrepreneurs | 500 | 500 | 500 | 500 | 500 | 65.000 | 33 | 34 | 36 | 38 | 40 |  | 182 | 182 | 0,02% |
| Fish market support and facilitation | 1 | 1 | 1 | 1 | 1 | 65.000.000 | 65 | 69 | 73 | 77 | 80 |  | 364 | 364 | 0,04% |
| Fish production and marketing strategies | 2 | 2 | 2 | 2 | 2 | 32.500.000 | 65 | 69 | 73 | 77 | 80 |  | 364 | 364 | 0,04% |
| Sub-Program: 3.6. Development of Priority Value Chains: Apiculture | | | | | | | 78 | 83 | 87 | 92 | 96 | 0 | 436 | 436 | 0,05% |

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|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in RWF) | ANNUAL COSTS (RWF Millions) | | | | | Total Costs (RWF Millions) | | | **in % of ASIP-2 Public Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Training of apiculture entrepreneurs | 200 | 200 | 200 | 200 | 200 | 65.000 | 13 | 14 | 15 | 15 | 16 |  | 73 | 73 | 0,01% |
| Honey market support and facilitation | 1 | 1 | 1 | 1 | 1 | 32.500.000 | 33 | 34 | 36 | 38 | 40 |  | 182 | 182 | 0,02% |
| Honey production and marketing strategies | 1 | 1 | 1 | 1 | 1 | 32.500.000 | 33 | 34 | 36 | 38 | 40 |  | 182 | 182 | 0,02% |
| Sub-Program 3.7: Agricultural Finance | | | | | | | 777 | 823 | 870 | 915 | 960 | 0 | 4.345 | 4.345 | 0,51% |
| Agricultural Cooperative Bank established | 1 | 1 | 1 | 1 | 1 | 108.170.398 | 108 | 115 | 121 | 127 | 134 |  | 605 | 605 | 0,07% |
| Creation of new SACCOs in new sectors | 10 | 10 | 10 | 10 | 10 | 32.500.000 | 325 | 345 | 364 | 383 | 402 |  | 1.818 | 1.818 | 0,21% |
| Improve access to agricultural finance and insurance | 1 | 1 | 1 | 1 | 1 | 93.506.622 | 94 | 99 | 105 | 110 | 116 |  | 523 | 523 | 0,06% |
| Catalytic fund established | 1 | 1 | 1 | 1 | 1 | 250.000.000 | 250 | 265 | 280 | 294 | 309 |  | 1.399 | 1.399 | 0,16% |
| Sub-Program 3.8: Market-oriented Infrastructure | | | | | | | 19.864 | 23.546 | 27.229 | 34.150 | 37.828 | 142.617 | 0 | 142.617 | 16,82% |
| Expanded storage facilities | 23.300 | 23.300 | 23.300 | 23.300 | 23.300 | 126.352 | 2.944 | 3.121 | 3.299 | 3.467 | 3.640 | 16.470 |  | 16.470 | 1,94% |
| Post harvest equipment distributed to farmers | 1 | 1 | 1 | 1 | 1 | 500.000.000 | 500 | 530 | 560 | 589 | 618 | 2.797 |  | 2.797 | 0,33% |
| Drying grounds constructed | 30 | 30 | 30 | 30 | 30 | 14.000.000 | 420 | 445 | 471 | 495 | 519 | 2.350 |  | 2.350 | 0,28% |
| Rural feeder roads constructed | 1.400 | 1.400 | 1.400 | 1.400 | 1.400 | 20.000.000 | 13.000 | 16.250 | 19.500 | 26.000 | 29.250 | 104.000 |  | 104.000 | 12,27% |
| Rural feeder roads maintained | 597 | 597 | 597 | 597 | 597 | 10.000.000 | 3.000 | 3.200 | 3.400 | 3.600 | 3.800 | 17.000 |  | 17.000 | 2,01% |
| Program 4: Institutional Development and Agricultural Cross-Cutting Issues | | | | | | | 12.240 | 13.698 | 14.734 | 15.830 | 17.023 | 0 | 73.526 | 73.526 | **8,67%** |
| Sub-Program 4.1: Institutional Capacity Building | | | | | | | 1.050 | 1.182 | 1.176 | 1.236 | 1.298 | 0 | 5.943 | 5.943 | 0,70% |
| Comprehensive human resource needs assessment and development plan |  | 1 |  |  |  | 32.500.000 | 0 | 34 | 0 | 0 | 0 |  | 34 | 34 | 0,00% |
| Approved capacity building action plan |  | 1 |  |  |  | 32.500.000 | 0 | 34 | 0 | 0 | 0 |  | 34 | 34 | 0,00% |
| Capacity of MINAGRI staff improved | 1 | 1 | 1 | 1 | 1 | 350.000.000 | 350 | 371 | 392 | 412 | 433 |  | 1.958 | 1.958 | 0,23% |

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|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in RWF) | ANNUAL COSTS (RWF Millions) | | | | | Total Costs (RWF Millions) | | | **in % of ASIP-2 Public Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Experts recruited and counterparts trained | 1 | 1 | 1 | 1 | 1 | 700.000.000 | 700 | 742 | 784 | 824 | 866 |  | 3.916 | 3.916 | 0,46% |
| Sub-Program 4.2: Decentralisation in Agriculture | | | | | | | 693 | 975 | 1.176 | 1.428 | 1.700 | 0 | 5.972 | 5.972 | 0,70% |
| Strategy and action plan for capacity development at a local level |  | 1 |  |  |  | 32.500.000 | 0 | 34 | 0 | 0 | 0 |  | 34 | 34 | 0,00% |
| All district staff trained according to the plan | 1 | 1 | 1 | 1 | 1 | 400.000.000 | 400 | 424 | 448 | 471 | 495 |  | 2.238 | 2.238 | 0,26% |
| Community Innovation Centres established | 9 | 15 | 20 | 25 | 30 | 32.500.000 | 293 | 517 | 728 | 957 | 1.206 |  | 3.700 | 3.700 | 0,44% |
| Sub-Program 4.3: Legal and Regulatory Framework | | | | | | | 65 | 207 | 255 | 230 | 241 | 0 | 997 | 997 | 0,12% |
| Policy reviews in the agriculture sector | 2 | 2 | 2 | 2 | 2 | 32.500.000 | 65 | 69 | 73 | 77 | 80 |  | 364 | 364 | 0,04% |
| Comprehensive national SPS policy, strategy and action plan |  |  | 1 |  |  | 32.500.000 | 0 | 0 | 36 | 0 | 0 |  | 36 | 36 | 0,00% |
| Registration system for agrochemicals and seeds |  | 1 | 1 | 1 | 1 | 65.000.000 | 0 | 69 | 73 | 77 | 80 |  | 299 | 299 | 0,04% |
| Border control system to regulate agricultural exports and imports |  | 1 | 1 | 1 | 1 | 65.000.000 | 0 | 69 | 73 | 77 | 80 |  | 299 | 299 | 0,04% |
| Sub-Program 4.4: Agricultural Communication, Statistical Systems, M&E and Management Information Systems | | | | | | | 910 | 965 | 1.020 | 1.072 | 1.125 | 0 | 5.091 | 5.091 | 0,60% |
| Agricultural information communicated to users | 1 | 1 | 1 | 1 | 1 | 65.000.000 | 65 | 69 | 73 | 77 | 80 |  | 364 | 364 | 0,04% |
| Publish regular agricultural surveys and statistics | 1 | 1 | 1 | 1 | 1 | 780.000.000 | 780 | 827 | 874 | 918 | 964 |  | 4.364 | 4.364 | 0,51% |
| Implement a strengthened M&E system | 1 | 1 | 1 | 1 | 1 | 65.000.000 | 65 | 69 | 73 | 77 | 80 |  | 364 | 364 | 0,04% |
| Sub-Program 4.5: Gender and Youth in Agriculture | | | | | | | 208 | 220 | 233 | 245 | 257 | 0 | 1.164 | 1.164 | 0,14% |
| MINAGRI programmes are gender sensitive | 1 | 1 | 1 | 1 | 1 | 143.000.000 | 143 | 152 | 160 | 168 | 177 |  | 800 | 800 | 0,09% |
| Young farmers trained in agricultural entrepreneurship | 2000 | 2.000 | 2.000 | 2.000 | 2.000 | 32.500 | 65 | 69 | 73 | 77 | 80 |  | 364 | 364 | 0,04% |
| Sub-Program 4.6: Environmental Mainstreaming in Agriculture | | | | | | | 75 | 80 | 84 | 88 | 93 | 0 | 420 | 420 | 0,05% |
| Train district environmentalists and agronomists | 100 | 100 | 100 | 100 | 100 | 100.000 | 10 | 11 | 11 | 12 | 12 |  | 56 | 56 | 0,01% |

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|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in RWF) | ANNUAL COSTS (RWF Millions) | | | | | Total Costs (RWF Millions) | | | **in % of ASIP-2 Public Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Strengthen MINAGRI environmental focal point | 1 | 1 | 1 | 1 | 1 | 65.000.000 | 65 | 69 | 73 | 77 | 80 |  | 364 | 364 | 0,04% |
| Sub-Program 4.7: Nutrition and Household Vulnerability | | | | | | | 9.240 | 10.070 | 10.790 | 11.531 | 12.309 | 0 | 53.940 | 53.940 | 6,36% |
| Finalise the Food and Nutrition Policy |  | 1 |  |  |  | 32.500.000 | 0 | 34 | 0 | 0 | 0 |  | 34 | 34 | 0,00% |
| Training in the use of kitchen gardens | 100000 | 100.000 | 100.000 | 100.000 | 100.000 | 65.000 | 6.500 | 6.890 | 7.283 | 7.654 | 8.037 |  | 36.364 | 36.364 | 4,29% |
| Increase One Cow uptake by poor families | 32153,4 | 32.153 | 32.153 | 32.153 | 32.153 | 65.000 | 2.090 | 2.215 | 2.342 | 2.461 | 2.584 |  | 11.692 | 11.692 | 1,38% |
| Increase One Cup of Milk uptake by poor schoolchildren | 100000 | 125.000 | 150.000 | 175.000 | 200.000 | 6.500 | 650 | 861 | 1.092 | 1.339 | 1.607 |  | 5.551 | 5.551 | 0,65% |
| Establish a food information system |  | 1 | 1 | 1 | 1 | 65.000.000 | 0 | 69 | 73 | 77 | 80 |  | 299 | 299 | 0,04% |
| **TOTAL** | | | | | | | **149.103** | **167.821** | **171.378** | **178.044** | **181.379** | **443.019** | **430.528** | **847.724** | **100,00%** |
| thereof: CAPITAL COSTS |  |  |  |  |  |  | 74.686 | 81.766 | 87.314 | 96.596 | 102.657 | 443.019 |  |  | 52,26% |
| thereof: RECURRENT COSTS |  |  |  |  |  |  | 74.417 | 86.055 | 84.063 | 81.448 | 78.721 |  | 404.705 |  | 47,74% |

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|  | **ANNUAL TARGETS (INCREASE)** | | | | | **Unit Cost (in USD)** | **ANNUAL COSTS (in USD Thousands)** | | | | | **Total Costs (in USD Thousands)** | | | **in % of ASIP-2 Public Costs** |
| **Project/Output (= Unit)** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **Capital** | **Recurrent** | **Total** |
| **Program 1: Agriculture and Animal Resource Intensification** | | | | | | | **133.326** | **141.426** | **131.122** | **121.434** | **112.650** | **430.167** | **209.791** | **639.957** | **52,74%** |
| Sub-Program 1.1: Soil Conservation and Land Husbandry | | | | | | | 20.519 | 21.852 | 22.424 | 22.874 | 23.311 | 105.982 | 4.998 | 110.980 | 9,15% |
| Progressive Terrace Construction | 50.474 | 50.474 | 50.474 | 50.474 | 50.474 | 50 | 2.524 | 2.562 | 2.629 | 2.682 | 2.733 | 13.131 |  | 13.131 | 1,08% |
| Progressive Terrace Maintenance | 0 | 50.474 | 50.474 | 50.474 | 50.474 | 3 | 0 | 128 | 131 | 134 | 137 |  | 530 | 530 | 0,04% |
| Radical Terrace Construction | 11.697 | 11.697 | 11.697 | 11.697 | 11.697 | 1.500 | 17.546 | 17.814 | 18.280 | 18.647 | 19.003 | 91.290 |  | 91.290 | 7,52% |
| Radical Terrace Maintenance | 0 | 11.697 | 11.697 | 11.697 | 11.697 | 75 | 0 | 891 | 914 | 932 | 950 |  | 3.687 | 3.687 | 0,30% |
| Assessment of effectiveness of land conservation infrastructure | 1 | 1 | 1 | 1 | 1 | 150.000 | 150 | 152 | 156 | 159 | 162 |  | 780 | 780 | 0,06% |
| Fertiliser recommendations for types of soils and crops | 1 | 1 | 1 | 1 | 1 | 50.000 | 50 | 51 | 52 | 53 | 54 | 260 |  | 260 | 0,02% |
| Decision support tool for soil erosion monitoring and control | 1 | 1 | 1 | 1 | 1 | 150.000 | 150 | 152 | 156 | 159 | 162 | 780 |  | 780 | 0,06% |
| Adapted agro-forestry tree species increased | 1 | 1 | 1 | 1 | 1 | 50.000 | 50 | 51 | 52 | 53 | 54 | 260 |  | 260 | 0,02% |
| Updated soil conservation and land husbandry policy and strategy | 1 | 1 | 1 | 1 | 1 | 50.000 | 50 | 51 | 52 | 53 | 54 | 260 |  | 260 | 0,02% |
| Sub-Program 1.2: Irrigation and Water Management | | | | | | | 56.280 | 59.958 | 61.630 | 62.707 | 63.904 | 286.429 | 18.050 | 304.478 | 25,09% |
| Approved National Irrigation Policy and Strategy | 0 | 1 | 0 | 0 | 0 | 50.000 | 0 | 51 | 0 | 0 | 0 |  | 51 | 51 | 0,00% |
| Approved National Irrigation Law | 0 | 0 | 1 | 0 | 0 | 50.000 | 0 | 0 | 52 | 0 | 0 |  | 52 | 52 | 0,00% |
| Established National Irrigation Board | 0 | 0 | 1 | 0 | 0 | 100.000 | 0 | 0 | 104 | 0 | 0 |  | 104 | 104 | 0,01% |
| Hillside Irrigation Construction | 2.160 | 2.160 | 2.160 | 2.160 | 2.160 | 10.000 | 21.600 | 21.931 | 22.505 | 22.956 | 23.394 | 112.386 |  | 112.386 | 9,26% |
| Hillside Irrigation Maintenance | 0 | 2.160 | 2.160 | 2.160 | 2.160 | 500 | 0 | 1.097 | 1.125 | 1.148 | 1.170 |  | 4.539 | 4.539 | 0,37% |
| Marshland Irrigation Construction | 2.700 | 2.700 | 2.700 | 2.700 | 2.700 | 12.000 | 32.400 | 32.897 | 33.757 | 34.434 | 35.092 | 168.579 |  | 168.579 | 13,89% |
| Marshland Irrigation Maintenance | 0 | 2.700 | 2.700 | 2.700 | 2.700 | 600 | 0 | 1.645 | 1.688 | 1.722 | 1.755 |  | 6.809 | 6.809 | 0,56% |
| Small-scale Irrigation Construction | 300 | 300 | 300 | 300 | 300 | 1.500 | 450 | 457 | 469 | 478 | 487 | 2.341 |  | 2.341 | 0,19% |

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|  | **ANNUAL TARGETS (INCREASE)** | | | | | **Unit Cost (in USD)** | **ANNUAL COSTS (in USD Thousands)** | | | | | **Total Costs (in USD Thousands)** | | | **in % of ASIP-2 Public Costs** |
| **Project/Output (= Unit)** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **Capital** | **Recurrent** | **Total** |
| Small-scale Irrigation Maintenance | 0 | 300 | 300 | 300 | 300 | 75 | 0 | 23 | 23 | 24 | 24 |  | 95 | 95 | 0,01% |
| Increased numbers of Irrigation Technicians | 3 | 3 | 3 | 3 | 3 | 10.000 | 30 | 30 | 31 | 32 | 32 |  | 156 | 156 | 0,01% |
| Increased hectares of irrigation schemes rehabilitated | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 600 | 600 | 609 | 625 | 638 | 650 | 3.122 |  | 3.122 | 0,26% |
| WUOs established and functional | 4 | 4 | 4 | 4 | 4 | 100.000 | 400 | 406 | 417 | 425 | 433 |  | 2.081 | 2.081 | 0,17% |
| Transferred schemes to rural communities | 16 | 16 | 16 | 16 | 16 | 50.000 | 800 | 812 | 834 | 850 | 866 |  | 4.162 | 4.162 | 0,34% |
| Sub-Program 1.3: Agricultural Mechanisation | | | | | | | 10.016 | 10.330 | 8.573 | 7.715 | 6.867 | 37.288 | 6.212 | 43.500 | 3,58% |
| Developed Agricultural Mechanisation Policy | 0 | 0 | 1 | 0 | 0 | 50.000 | 0 | 0 | 52 | 0 | 0 |  | 52 | 52 | 0,00% |
| Tractors purchased | 50 | 40 | 30 | 20 | 10 | 18.218 | 911 | 740 | 569 | 387 | 197 | 2.805 |  | 2.805 | 0,23% |
| Power Tillers purchased | 100 | 80 | 60 | 40 | 20 | 3.079 | 308 | 250 | 193 | 131 | 67 | 948 |  | 948 | 0,08% |
| Attachments purchased | 1.000 | 800 | 600 | 400 | 200 | 2.018 | 2.018 | 1.639 | 1.262 | 858 | 437 | 6.215 |  | 6.215 | 0,51% |
| Planting Machines purchased | 400 | 320 | 240 | 160 | 80 | 3.392 | 1.357 | 1.102 | 848 | 577 | 294 | 4.178 |  | 4.178 | 0,34% |
| Crop Treatment Machines purchased | 300 | 300 | 300 | 300 | 300 | 485 | 145 | 148 | 151 | 155 | 157 | 756 |  | 756 | 0,06% |
| Harvesters purchased | 200 | 200 | 200 | 200 | 200 | 13.027 | 2.605 | 2.645 | 2.714 | 2.769 | 2.822 | 13.556 |  | 13.556 | 1,12% |
| Post Harvesting Machines purchased | 150 | 150 | 150 | 150 | 150 | 1.298 | 195 | 198 | 203 | 207 | 211 | 1.013 |  | 1.013 | 0,08% |
| Agro-processing Machines purchased | 4 | 4 | 4 | 4 | 4 | 323.077 | 1.292 | 1.312 | 1.346 | 1.373 | 1.400 | 6.724 |  | 6.724 | 0,55% |
| Agricultural Machinery Maintenance | 1 | 1 | 1 | 1 | 1 | 1.153.846 | 1.154 | 1.172 | 1.202 | 1.226 | 1.250 |  | 6.004 | 6.004 | 0,49% |
| National Agricultural Mechanisation Centre established | 0 | 1 | 0 | 0 | 0 | 1.076.923 | 0 | 1.093 | 0 | 0 | 0 | 1.093 |  | 1.093 | 0,09% |
| Training farmers and technicians in mechanisation | 600 | 600 | 600 | 600 | 600 | 50 | 30 | 30 | 31 | 32 | 32 |  | 156 | 156 | 0,01% |
| Sub-Program 1.4: Inputs to Improve Soil Fertility and Management | | | | | | | 18.186 | 24.026 | 16.103 | 8.423 | 1.367 | 0 | 68.105 | 68.105 | 5,61% |
| Fertiliser policy in place | 0 | 1 | 0 | 0 | 0 | 50.000 | 0 | 51 | 0 | 0 | 0 |  | 51 | 51 | 0,00% |

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|  | **ANNUAL TARGETS (INCREASE)** | | | | | **Unit Cost (in USD)** | **ANNUAL COSTS (in USD Thousands)** | | | | | **Total Costs (in USD Thousands)** | | | **in % of ASIP-2 Public Costs** |
| **Project/Output (= Unit)** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **Capital** | **Recurrent** | **Total** |
| Fertiliser regulatory framework developed | 0 | 0 | 1 | 0 | 0 | 50.000 | 0 | 0 | 52 | 0 | 0 |  | 52 | 52 | 0,00% |
| Train fertiliser distributors and agro-dealers | 250 | 250 | 250 | 250 | 250 | 50 | 13 | 13 | 13 | 13 | 14 |  | 65 | 65 | 0,01% |
| Train farmers in fertiliser and input use | 25.000 | 25.000 | 25.000 | 25.000 | 25.000 | 50 | 1.250 | 1.269 | 1.302 | 1.328 | 1.354 |  | 6.504 | 6.504 | 0,54% |
| Farmers access smart subsidies for lime and fertiliser | 0 | 0 | 0 | 0 | 0 | 0 | 13.846 | 17.536 | 11.445 | 5.554 | 0 |  | 48.381 | 48.381 | 3,99% |
| Lime producers access subsidies | 0 | 0 | 0 | 0 | 0 | 0 | 3.077 | 5.158 | 3.290 | 1.527 | 0 |  | 13.052 | 13.052 | 1,08% |
| Sub-Program 1.5: Seed Development | | | | | | | 13.874 | 10.536 | 7.336 | 4.357 | 1.549 | 0 | 37.652 | 37.652 | 3,10% |
| Develop a seed policy, strategy and action plan | 0 | 1 | 0 | 0 | 0 | 50.000 | 0 | 51 | 0 | 0 | 0 |  | 51 | 51 | 0,00% |
| Train farmers to use improved seed | 25.000 | 25.000 | 25.000 | 25.000 | 25.000 | 50 | 1.250 | 1.269 | 1.302 | 1.328 | 1.354 |  | 6.504 | 6.504 | 0,54% |
| Government decreases seeds subsidy | 0 | 0 | 0 | 0 | 0 | 0 | 12.574 | 9.033 | 5.846 | 2.837 | 0 |  | 30.291 | 30.291 | 2,50% |
| Establish a Seeds Coordinating Unit | 1 | 1 | 1 | 1 | 1 | 50.000 | 50 | 51 | 52 | 53 | 54 |  | 260 | 260 | 0,02% |
| Employ additional seed inspectors | 0 | 8 | 8 | 8 | 8 | 10.000 | 0 | 81 | 83 | 85 | 87 |  | 336 | 336 | 0,03% |
| Establish the National Seeds Laboratory | 0 | 1 | 1 | 1 | 1 | 50.000 | 0 | 51 | 52 | 53 | 54 |  | 210 | 210 | 0,02% |
| Sub-Program 1.6. Livestock Development | | | | | | | 14.451 | 14.724 | 15.056 | 15.359 | 15.652 | 468 | 74.773 | 75.242 | 6,20% |
| Livestock policy developed | 0 | 1 | 0 | 0 | 0 | 50.000 | 0 | 51 | 0 | 0 | 0 |  | 51 | 51 | 0,00% |
| Milk production increased | 49.628 | 49.628 | 49.628 | 49.628 | 49.628 | 92 | 4.581 | 4.651 | 4.773 | 4.869 | 4.962 |  | 23.836 | 23.836 | 1,96% |
| Girinka Dairy Cow Programme | 42.159 | 42.159 | 42.159 | 42.159 | 42.159 | 123 | 5.189 | 5.268 | 5.406 | 5.515 | 5.620 |  | 26.998 | 26.998 | 2,22% |
| Meat production increased | 18.444 | 18.444 | 18.444 | 18.444 | 18.444 | 115 | 2.128 | 2.161 | 2.217 | 2.262 | 2.305 |  | 11.073 | 11.073 | 0,91% |
| Fish production increased | 18.120 | 18.120 | 18.120 | 18.120 | 18.120 | 115 | 2.091 | 2.123 | 2.178 | 2.222 | 2.264 |  | 10.878 | 10.878 | 0,90% |
| Honey production increased | 1.095 | 1.095 | 1.095 | 1.095 | 1.095 | 115 | 126 | 128 | 132 | 134 | 137 |  | 657 | 657 | 0,05% |
| Honey collection centres operational | 2 | 2 | 2 | 2 | 2 | 50.000 | 90 | 91 | 94 | 96 | 97 | 468 |  | 468 | 0,04% |

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|  | **ANNUAL TARGETS (INCREASE)** | | | | | **Unit Cost (in USD)** | **ANNUAL COSTS (in USD Thousands)** | | | | | **Total Costs (in USD Thousands)** | | | **in % of ASIP-2 Public Costs** |
| **Project/Output (= Unit)** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **Capital** | **Recurrent** | **Total** |
| Increase production of hides and skins | 325 | 325 | 325 | 325 | 325 | 757 | 246 | 250 | 256 | 262 | 267 |  | 1.281 | 1.281 | 0,11% |
| **Program 2: Research and Technology Transfer, Advisory Services and Professionalization of Farmers** | | | | | | | **12.157** | **15.647** | **18.060** | **19.701** | **20.482** | **0** | **86.046** | **86.046** | **7,09%** |
| Sub-Program 2.1: Research and Technology Transfer | | | | | | | 7.154 | 7.263 | 7.453 | 7.603 | 7.748 | 0 | 37.222 | 37.222 | 3,07% |
| MINAGRI crop based research programmes | 1 | 1 | 1 | 1 | 1 | 3.846.154 | 3.846 | 3.905 | 4.007 | 4.088 | 4.166 |  | 20.012 | 20.012 | 1,65% |
| MINAGRI livestock based research programmes | 1 | 1 | 1 | 1 | 1 | 1.538.462 | 1.538 | 1.562 | 1.603 | 1.635 | 1.666 |  | 8.005 | 8.005 | 0,66% |
| MINAGRI agro-forestry based research programmes | 1 | 1 | 1 | 1 | 1 | 615.385 | 615 | 625 | 641 | 654 | 667 |  | 3.202 | 3.202 | 0,26% |
| MINAGRI value chain research | 3 | 3 | 3 | 3 | 3 | 384.615 | 1.154 | 1.172 | 1.202 | 1.226 | 1.250 |  | 6.004 | 6.004 | 0,49% |
| Sub-Program 2.2: Extension and Proximity Services for Producers | | | | | | | 3.837 | 7.129 | 9.247 | 10.638 | 11.234 | 0 | 42.084 | 42.084 | 3,47% |
| Development of National Extension Policy | 0 | 1 | 0 | 0 | 0 | 50.000 | 0 | 51 | 0 | 0 | 0 |  | 51 | 51 | 0,00% |
| Expansion of Farmer Field Schools | 12.000 | 30.000 | 40.000 | 45.000 | 45.000 | 154 | 1.846 | 4.686 | 6.412 | 7.358 | 7.498 |  | 27.800 | 27.800 | 2,29% |
| Expansion and support to Farmer Promoters | 11.877 | 12.627 | 13.377 | 14.127 | 14.837 | 77 | 914 | 986 | 1.072 | 1.155 | 1.236 |  | 5.363 | 5.363 | 0,44% |
| Expansion and support to Agricultural Committees | 7.000 | 9.000 | 11.000 | 13.000 | 15.000 | 154 | 1.077 | 1.406 | 1.763 | 2.126 | 2.499 |  | 8.871 | 8.871 | 0,73% |
| Sub-Program 2.3: Farmer Cooperatives and Organisations | | | | | | | 1.166 | 1.254 | 1.359 | 1.460 | 1.500 | 0 | 6.740 | 6.740 | 0,56% |
| Expansion and support to farmer cooperatives | 2.027 | 2.177 | 2.327 | 2.477 | 2.500 | 462 | 936 | 1.020 | 1.119 | 1.215 | 1.250 |  | 5.539 | 5.539 | 0,46% |
| Training and capacity building of farmer cooperatives | 500 | 500 | 500 | 500 | 500 | 462 | 231 | 234 | 240 | 245 | 250 |  | 1.201 | 1.201 | 0,10% |
| **Program 3: Value Chain Development and Private Sector Investment** | | | | | | | **65.075** | **70.046** | **74.915** | **84.099** | **88.360** | **202.608** | **179.888** | **382.495** | **31,52%** |
| Sub-Program 3.1: Creating an Environment to Attract Private Investment, Encourage Entrepreneurship and Facilitate Market  Access | | | | | | | 600 | 914 | 625 | 638 | 650 | 0 | 3.426 | 3.426 | 0,28% |
| Training of entrepreneurs | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 50 | 50 | 51 | 52 | 53 | 54 |  | 260 | 260 | 0,02% |
| Creation of a farm management unit to facilitate private sector development | 1 | 1 | 1 | 1 | 1 | 100.000 | 100 | 102 | 104 | 106 | 108 |  | 520 | 520 | 0,04% |
| Finalise the PPP law | 0 | 1 | 0 | 0 | 0 | 50.000 | 0 | 51 | 0 | 0 | 0 |  | 51 | 51 | 0,00% |

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|  | **ANNUAL TARGETS (INCREASE)** | | | | | **Unit Cost (in USD)** | **ANNUAL COSTS (in USD Thousands)** | | | | | **Total Costs (in USD Thousands)** | | | **in % of ASIP-2 Public Costs** |
| **Project/Output (= Unit)** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **Capital** | **Recurrent** | **Total** |
| Establish the Agriculture Investment Task Force | 1 | 1 | 1 | 1 | 1 | 50.000 | 50 | 51 | 52 | 53 | 54 |  | 260 | 260 | 0,02% |
| Develop an export certification programme with RBS | 1 | 1 | 1 | 1 | 1 | 50.000 | 50 | 51 | 52 | 53 | 54 |  | 260 | 260 | 0,02% |
| Develop a programme to protect organic certification | 1 | 1 | 1 | 1 | 1 | 50.000 | 50 | 51 | 52 | 53 | 54 |  | 260 | 260 | 0,02% |
| Improve SPS measures and train exporters | 1 | 1 | 1 | 1 | 1 | 50.000 | 50 | 51 | 52 | 53 | 54 |  | 260 | 260 | 0,02% |
| Increase airport cold storage space | 0 | 1 | 0 | 0 | 0 | 250.000 | 0 | 254 | 0 | 0 | 0 |  | 254 | 254 | 0,02% |
| Marketing and logistics studies | 5 | 5 | 5 | 5 | 5 | 50.000 | 250 | 254 | 260 | 266 | 271 |  | 1.301 | 1.301 | 0,11% |
| Sub-Program 3.2: Development of Priority Value Chains: Food Crops | | | | | | | 14.500 | 14.722 | 15.107 | 15.410 | 15.705 | 0 | 75.444 | 75.444 | 6,22% |
| Training of food crop entrepreneurs | 2.500 | 2.500 | 2.500 | 2.500 | 2.500 | 100 | 250 | 254 | 260 | 266 | 271 |  | 1.301 | 1.301 | 0,11% |
| Banana market support and facilitation | 1 | 1 | 1 | 1 | 1 | 2.000.000 | 2.000 | 2.031 | 2.084 | 2.126 | 2.166 |  | 10.406 | 10.406 | 0,86% |
| Wheat market support and facilitation | 1 | 1 | 1 | 1 | 1 | 2.000.000 | 2.000 | 2.031 | 2.084 | 2.126 | 2.166 |  | 10.406 | 10.406 | 0,86% |
| Maize market support and facilitation | 1 | 1 | 1 | 1 | 1 | 2.000.000 | 2.000 | 2.031 | 2.084 | 2.126 | 2.166 |  | 10.406 | 10.406 | 0,86% |
| Rice market support and facilitation | 1 | 1 | 1 | 1 | 1 | 2.000.000 | 2.000 | 2.031 | 2.084 | 2.126 | 2.166 |  | 10.406 | 10.406 | 0,86% |
| Irish potato market support and facilitation | 1 | 1 | 1 | 1 | 1 | 2.000.000 | 2.000 | 2.031 | 2.084 | 2.126 | 2.166 |  | 10.406 | 10.406 | 0,86% |
| Cassava market support and facilitation | 1 | 1 | 1 | 1 | 1 | 2.000.000 | 2.000 | 2.031 | 2.084 | 2.126 | 2.166 |  | 10.406 | 10.406 | 0,86% |
| Beans market support and facilitation | 1 | 1 | 1 | 1 | 1 | 2.000.000 | 2.000 | 2.031 | 2.084 | 2.126 | 2.166 |  | 10.406 | 10.406 | 0,86% |
| Food crop production and marketing strategies | 5 | 5 | 5 | 5 | 5 | 50.000 | 250 | 254 | 260 | 266 | 271 |  | 1.301 | 1.301 | 0,11% |
| Sub-Program 3.3: Development of Priority Value Chains: Export Crops | | | | | | | 16.650 | 16.905 | 17.347 | 17.695 | 18.033 | 0 | 86.631 | 86.631 | 7,14% |
| Training of export crop entrepreneurs | 4.000 | 4.000 | 4.000 | 4.000 | 4.000 | 100 | 400 | 406 | 417 | 425 | 433 |  | 2.081 | 2.081 | 0,17% |
| Coffee market support and facilitation | 1 | 1 | 1 | 1 | 1 | 5.000.000 | 5.000 | 5.077 | 5.209 | 5.314 | 5.415 |  | 26.015 | 26.015 | 2,14% |
| Tea market support and facilitation | 1 | 1 | 1 | 1 | 1 | 5.000.000 | 5.000 | 5.077 | 5.209 | 5.314 | 5.415 |  | 26.015 | 26.015 | 2,14% |

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|  | **ANNUAL TARGETS (INCREASE)** | | | | | **Unit Cost (in USD)** | **ANNUAL COSTS (in USD Thousands)** | | | | | **Total Costs (in USD Thousands)** | | | **in % of ASIP-2 Public Costs** |
| **Project/Output (= Unit)** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **Capital** | **Recurrent** | **Total** |
| Pyrethrum market support and facilitation | 1 | 1 | 1 | 1 | 1 | 500.000 | 500 | 508 | 521 | 531 | 542 |  | 2.602 | 2.602 | 0,21% |
| Horticulture and floriculture market support and facilitation | 1 | 1 | 1 | 1 | 1 | 5.000.000 | 5.000 | 5.077 | 5.209 | 5.314 | 5.415 |  | 26.015 | 26.015 | 2,14% |
| Sericulture market support and facilitation | 1 | 1 | 1 | 1 | 1 | 500.000 | 500 | 508 | 521 | 531 | 542 |  | 2.602 | 2.602 | 0,21% |
| Export crop production and marketing strategies | 5 | 5 | 5 | 5 | 5 | 50.000 | 250 | 254 | 260 | 266 | 271 |  | 1.301 | 1.301 | 0,11% |
| Sub-Program 3.4: Development of Priority Value Chains: Dairy and Meat | | | | | | | 1.200 | 1.218 | 1.250 | 1.275 | 1.300 | 0 | 6.244 | 6.244 | 0,51% |
| Training of dairy and meat entrepreneurs | 1.500 | 1.500 | 1.500 | 1.500 | 1.500 | 100 | 150 | 152 | 156 | 159 | 162 |  | 780 | 780 | 0,06% |
| Dairy market support and facilitation | 1 | 1 | 1 | 1 | 1 | 400.000 | 400 | 406 | 417 | 425 | 433 |  | 2.081 | 2.081 | 0,17% |
| Meat market support and facilitation | 1 | 1 | 1 | 1 | 1 | 400.000 | 400 | 406 | 417 | 425 | 433 |  | 2.081 | 2.081 | 0,17% |
| Dairy and meat production and marketing strategies | 5 | 5 | 5 | 5 | 5 | 50.000 | 250 | 254 | 260 | 266 | 271 |  | 1.301 | 1.301 | 0,11% |
| Sub-Program 3.5: Development of Priority Value Chains: Fisheries | | | | | | | 250 | 254 | 260 | 266 | 271 | 0 | 1.301 | 1.301 | 0,11% |
| Training of fishery entrepreneurs | 500 | 500 | 500 | 500 | 500 | 100 | 50 | 51 | 52 | 53 | 54 |  | 260 | 260 | 0,02% |
| Fish market support and facilitation | 1 | 1 | 1 | 1 | 1 | 100.000 | 100 | 102 | 104 | 106 | 108 |  | 520 | 520 | 0,04% |
| Fish production and marketing strategies | 2 | 2 | 2 | 2 | 2 | 50.000 | 100 | 102 | 104 | 106 | 108 |  | 520 | 520 | 0,04% |
| Sub-Program: 3.6. Development of Priority Value Chains: Apiculture | | | | | | | 120 | 122 | 125 | 128 | 130 | 0 | 624 | 624 | 0,05% |
| Training of apiculture entrepreneurs | 200 | 200 | 200 | 200 | 200 | 100 | 20 | 20 | 21 | 21 | 22 |  | 104 | 104 | 0,01% |
| Honey market support and facilitation | 1 | 1 | 1 | 1 | 1 | 50.000 | 50 | 51 | 52 | 53 | 54 |  | 260 | 260 | 0,02% |
| Honey production and marketing strategies | 1 | 1 | 1 | 1 | 1 | 50.000 | 50 | 51 | 52 | 53 | 54 |  | 260 | 260 | 0,02% |
| Sub-Program 3.7: Agricultural Finance | | | | | | | 1.195 | 1.213 | 1.245 | 1.270 | 1.294 | 0 | 6.217 | 6.217 | 0,51% |
| Agricultural Cooperative Bank established | 1 | 1 | 1 | 1 | 1 | 166.416 | 166 | 169 | 173 | 177 | 180 |  | 866 | 866 | 0,07% |
| Creation of new SACCOs in new sectors | 10 | 10 | 10 | 10 | 10 | 50.000 | 500 | 508 | 521 | 531 | 542 |  | 2.602 | 2.602 | 0,21% |

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|  | **ANNUAL TARGETS (INCREASE)** | | | | | **Unit Cost (in USD)** | **ANNUAL COSTS (in USD Thousands)** | | | | | **Total Costs (in USD Thousands)** | | | **in % of ASIP-2 Public Costs** |
| **Project/Output (= Unit)** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **Capital** | **Recurrent** | **Total** |
| Improve access to agricultural finance and insurance | 1 | 1 | 1 | 1 | 1 | 143.856 | 144 | 146 | 150 | 153 | 156 |  | 748 | 748 | 0,06% |
| Catalytic fund established | 1 | 1 | 1 | 1 | 1 | 384.615 | 385 | 391 | 401 | 409 | 417 |  | 2.001 | 2.001 | 0,16% |
| Sub-Program 3.8: Market-oriented Infrastructure | | | | | | | 30.560 | 34.698 | 38.955 | 47.418 | 50.978 | 202.608 | 0 | 202.608 | 16,70% |
| Expanded storage facilities | 23.300 | 23.300 | 23.300 | 23.300 | 23.300 | 194 | 4.529 | 4.599 | 4.719 | 4.814 | 4.906 | 23.566 |  | 23.566 | 1,94% |
| Post harvest equipment distributed to farmers | 1 | 1 | 1 | 1 | 1 | 769.231 | 769 | 781 | 801 | 818 | 833 | 4.002 |  | 4.002 | 0,33% |
| Drying grounds constructed | 30 | 30 | 30 | 30 | 30 | 21.538 | 646 | 656 | 673 | 687 | 700 | 3.362 |  | 3.362 | 0,28% |
| Rural feeder roads constructed | 1.400 | 1.400 | 1.400 | 1.400 | 1.400 | 30.769 | 20.000 | 23.946 | 27.897 | 36.101 | 39.418 | 147.363 |  | 147.363 | 12,14% |
| Rural feeder roads maintained | 597 | 597 | 597 | 597 | 597 | 15.385 | 4.615 | 4.716 | 4.864 | 4.999 | 5.121 | 24.315 |  | 24.315 | 2,00% |
| **Program 4: Institutional Development and Agricultural Cross-Cutting Issues** | | | | | | | **18.831** | **20.186** | **21.079** | **21.980** | **22.941** | **0** | **105.018** | **105.018** | **8,65%** |
| Sub-Program 4.1: Institutional Capacity Building | | | | | | | 1.615 | 1.742 | 1.683 | 1.717 | 1.750 | 0 | 8.506 | 8.506 | 0,70% |
| Comprehensive human resource needs assessment and development plan | 0 | 1 | 0 | 0 | 0 | 50.000 | 0 | 51 | 0 | 0 | 0 |  | 51 | 51 | 0,00% |
| Approved capacity building action plan | 0 | 1 | 0 | 0 | 0 | 50.000 | 0 | 51 | 0 | 0 | 0 |  | 51 | 51 | 0,00% |
| Capacity of MINAGRI staff improved | 1 | 1 | 1 | 1 | 1 | 538.462 | 538 | 547 | 561 | 572 | 583 |  | 2.802 | 2.802 | 0,23% |
| Experts recruited and counterparts trained | 1 | 1 | 1 | 1 | 1 | 1.076.923 | 1.077 | 1.093 | 1.122 | 1.145 | 1.166 |  | 5.603 | 5.603 | 0,46% |
| Sub-Program 4.2: Decentralisation in Agriculture | | | | | | | 1.065 | 1.437 | 1.683 | 1.982 | 2.291 | 0 | 8.459 | 8.459 | 0,70% |
| Strategy and action plan for capacity development at a local level | 0 | 1 | 0 | 0 | 0 | 50.000 | 0 | 51 | 0 | 0 | 0 |  | 51 | 51 | 0,00% |
| All district staff trained according to the plan | 1 | 1 | 1 | 1 | 1 | 615.385 | 615 | 625 | 641 | 654 | 667 |  | 3.202 | 3.202 | 0,26% |
| Community Innovation Centres established | 9 | 15 | 20 | 25 | 30 | 50.000 | 450 | 761 | 1.042 | 1.328 | 1.625 |  | 5.206 | 5.206 | 0,43% |
| Sub-Program 4.3: Legal and Regulatory Framework | | | | | | | 100 | 305 | 365 | 319 | 325 | 0 | 1.413 | 1.413 | 0,12% |
| Policy reviews in the agriculture sector | 2 | 2 | 2 | 2 | 2 | 50.000 | 100 | 102 | 104 | 106 | 108 |  | 520 | 520 | 0,04% |

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|  | **ANNUAL TARGETS (INCREASE)** | | | | | **Unit Cost (in USD)** | **ANNUAL COSTS (in USD Thousands)** | | | | | **Total Costs (in USD Thousands)** | | | **in % of ASIP-2 Public Costs** |
| **Project/Output (= Unit)** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **Capital** | **Recurrent** | **Total** |
| Comprehensive national SPS policy, strategy and action plan | 0 | 0 | 1 | 0 | 0 | 50.000 | 0 | 0 | 52 | 0 | 0 |  | 52 | 52 | 0,00% |
| Registration system for agrochemicals and seeds | 0 | 1 | 1 | 1 | 1 | 100.000 | 0 | 102 | 104 | 106 | 108 |  | 420 | 420 | 0,03% |
| Border control system to regulate agricultural exports and imports | 0 | 1 | 1 | 1 | 1 | 100.000 | 0 | 102 | 104 | 106 | 108 |  | 420 | 420 | 0,03% |
| Sub-Program 4.4: Agricultural Communication, Statistical Systems, M&E and Management Information Systems | | | | | | | 1.400 | 1.421 | 1.459 | 1.488 | 1.516 | 0 | 7.284 | 7.284 | 0,60% |
| Agricultural information communicated to users | 1 | 1 | 1 | 1 | 1 | 100.000 | 100 | 102 | 104 | 106 | 108 |  | 520 | 520 | 0,04% |
| Publish regular agricultural surveys and statistics | 1 | 1 | 1 | 1 | 1 | 1.200.000 | 1.200 | 1.218 | 1.250 | 1.275 | 1.300 |  | 6.244 | 6.244 | 0,51% |
| Implement a strengthened M&E system | 1 | 1 | 1 | 1 | 1 | 100.000 | 100 | 102 | 104 | 106 | 108 |  | 520 | 520 | 0,04% |
| Sub-Program 4.5: Gender and Youth in Agriculture | | | | | | | 320 | 325 | 333 | 340 | 347 | 0 | 1.665 | 1.665 | 0,14% |
| MINAGRI programmes are gender sensitive | 1 | 1 | 1 | 1 | 1 | 220.000 | 220 | 223 | 229 | 234 | 238 |  | 1.145 | 1.145 | 0,09% |
| Young farmers trained in agricultural entrepreneurship | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 50 | 100 | 102 | 104 | 106 | 108 |  | 520 | 520 | 0,04% |
| Sub-Program 4.6: Environmental Mainstreaming in Agriculture | | | | | | | 115 | 117 | 120 | 123 | 125 | 0 | 600 | 600 | 0,05% |
| Train district environmentalists and agronomists | 100 | 100 | 100 | 100 | 100 | 154 | 15 | 16 | 16 | 16 | 17 |  | 80 | 80 | 0,01% |
| Strengthen MINAGRI environmental focal point | 1 | 1 | 1 | 1 | 1 | 100.000 | 100 | 102 | 104 | 106 | 108 |  | 520 | 520 | 0,04% |
| Sub-Program 4.7: Nutrition and Household Vulnerability | | | | | | | 14.215 | 14.839 | 15.436 | 16.011 | 16.588 | 0 | 77.089 | 77.089 | 6,35% |
| Finalise the Food and Nutrition Policy | 0 | 1 | 0 | 0 | 0 | 50.000 | 0 | 51 | 0 | 0 | 0 |  | 51 | 51 | 0,00% |
| Training in the use of kitchen gardens | 100.000 | 100.000 | 100.000 | 100.000 | 100.000 | 100 | 10.000 | 10.153 | 10.419 | 10.628 | 10.831 |  | 52.031 | 52.031 | 4,29% |
| Increase One Cow uptake by poor families | 32.153 | 32.153 | 32.153 | 32.153 | 32.153 | 100 | 3.215 | 3.265 | 3.350 | 3.417 | 3.482 |  | 16.730 | 16.730 | 1,38% |
| Increase One Cup of Milk uptake by poor schoolchildren | 100.000 | 125.000 | 150.000 | 175.000 | 200.000 | 10 | 1.000 | 1.269 | 1.563 | 1.860 | 2.166 |  | 7.858 | 7.858 | 0,65% |
| Establish a food information system | 0 | 1 | 1 | 1 | 1 | 100.000 | 0 | 102 | 104 | 106 | 108 |  | 420 | 420 | 0,03% |

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|  | **ANNUAL TARGETS (INCREASE)** | | | | | **Unit Cost (in USD)** | **ANNUAL COSTS (in USD Thousands)** | | | | | **Total Costs (in USD Thousands)** | | | **in % of ASIP-2 Public Costs** |
| **Project/Output (= Unit)** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **2013/14** | **2014/15** | **2015/16** | **2016/17** | **2017/18** | **Capital** | **Recurrent** | **Total** |
| **TOTAL** |  |  |  |  |  |  | **229.389** | **247.305** | **245.175** | **247.215** | **244.433** | **632.775** | **580.742** | **1.213.517** | **100,00%O** |
| thereof: CAPITAL COSTS |  |  |  |  |  |  | 114.901 | 120.492 | 124.913 | 134.124 | 138.345 | 632.775 |  |  | 52,14% |
| thereof: RECURRENT COSTS |  |  |  |  |  |  | 114.488 | 126.813 | 120.262 | 113.091 | 106.088 |  | 580.742 |  | 47,86% |

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|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in RWF) | ANNUAL COSTS (RWF Millions) | | | | | Total Costs (RWF Millions) | | | **in % of ASIP-2 Private Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Program 1: Agriculture and Animal Resource Intensification | | | | | | | 9.329 | 11.306 | 10.869 | 11.018 | 11.569 | 51.611 | 0 | 51.611 | **13,82%** |
| Sub-Program 1.1: Soil Conservation and Land Husbandry | | | | | | | 0 | 146 | 0 | 0 | 0 | 146 | 0 | 146 | 0,04% |
| Rehabilitation and equipping of soil and plant testing laboratories |  | 1 |  |  |  | 137.800.000 | 0 | 146 | 0 | 0 | 0 | 146 |  | 146 | 0,04% |
| Sub-Program 1.2: Irrigation and Water Management | | | | | | | 4.134 | 4.601 | 4.863 | 5.111 | 5.367 | 21.597 | 0 | 21.597 | 5,78% |
| Hillside Irrigation Construction | 240 | 240 | 240 | 240 | 240 | 6.890.000 | 1.654 | 1.753 | 1.853 | 1.947 | 2.045 | 9.251 |  | 9.251 | 2,48% |
| Hillside Irrigation Maintenance |  | 240 | 240 | 240 | 240 | 344.500 | 0 | 88 | 93 | 97 | 102 | 380 |  | 380 | 0,10% |
| Marshland Irrigation Construction | 300 | 300 | 300 | 300 | 300 | 8.268.000 | 2.480 | 2.629 | 2.779 | 2.921 | 3.067 | 11.396 |  | 11.396 | 3,05% |
| Marshland Irrigation Maintenance |  | 300 | 300 | 300 | 300 | 413.400 | 0 | 131 | 139 | 146 | 153 | 570 |  | 570 | 0,15% |
| Sub-Program 1.3: Agricultural Mechanisation | | | | | | | 2.480 | 3.725 | 2.779 | 2.921 | 3.067 | 14.972 | 0 | 14.972 | 4,01% |
| Establishment of Machinery Repair Workshops | 12 | 12 | 12 | 12 | 12 | 137.800.000 | 1.654 | 1.753 | 1.853 | 1.947 | 2.045 | 9.251 |  | 9.251 | 2,48% |
| Establishment of local distribution selling point of farm equipment | 12 | 12 | 12 | 12 | 12 | 68.900.000 | 827 | 876 | 926 | 974 | 1.022 | 4.625 |  | 4.625 | 1,24% |
| Power tiller assembly plant | 1 | 1 |  |  |  | 1.033.500.000 | 0 | 1.096 | 0 | 0 | 0 | 1.096 |  | 1.096 | 0,29% |
| Sub-Program 1.4: Inputs to Improve Soil Fertility and Management | | | | | | | 413 | 438 | 849 | 487 | 511 | 2.699 | 0 | 2.699 | 0,72% |
| Establish additional fertiliser storage capacity | 6 | 6 | 6 | 6 | 6 | 68.900.000 | 413 | 438 | 463 | 487 | 511 | 2.313 |  | 2.313 | 0,62% |
| Establish a fertiliser blending plant | 0 |  | 1 |  |  | 344.500.000 | 0 | 0 | 386 | 0 | 0 | 386 |  | 386 | 0,10% |
| Sub-Program 1.5: Seed Development | | | | | | | 138 | 146 | 0 | 0 | 0 | 284 | 0 | 284 | 0,08% |
| Establish a seed production and processing plant | 1 | 1 |  |  |  | 137.800.000 | 138 | 146 | 0 | 0 | 0 | 284 |  | 284 | 0,08% |
| Sub-Program 1.6. Livestock Development | | | | | | | 2.163 | 2.249 | 2.378 | 2.499 | 2.624 | 11.913 | 0 | 11.913 | 3,19% |
| Feedlots installed and operational | 5 | 5 | 5 | 5 | 5 | 137.800.000 | 689 | 701 | 741 | 779 | 818 | 3.728 |  | 3.728 | 1,00% |
| Fingerling production centres installed | 1 | 1 | 1 | 1 | 1 | 137.800.000 | 138 | 146 | 154 | 162 | 170 | 771 |  | 771 | 0,21% |

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|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in RWF) | ANNUAL COSTS (RWF Millions) | | | | | Total Costs (RWF Millions) | | | **in % of ASIP-2 Private Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Hatcheries installed and operational | 5 | 5 | 5 | 5 | 5 | 68.900.000 | 345 | 351 | 371 | 389 | 409 | 1.864 |  | 1.864 | 0,50% |
| MCCs built equipped and renovated | 12 | 12 | 12 | 12 | 12 | 82.680.000 | 992 | 1.052 | 1.112 | 1.168 | 1.227 | 5.551 |  | 5.551 | 1,49% |
| Program 2: Research and Technology Transfer, Advisory Services and Professionalization of Farmers | | | | | | | 9.240 | 9.794 | 10.353 | 10.881 | 11.425 | 0 | 51.692 | 51.692 | **13,84%** |
| Sub-Program 2.1: Research and Technology Transfer | | | | | | | 5.000 | 5.300 | 5.602 | 5.888 | 6.182 | 0 | 27.972 | 27.972 | 7,49% |
| Research collaboration with the private sector (PPP) | 1 | 1 | 1 | 1 | 1 | 5.000.000.000 | 5.000 | 5.300 | 5.602 | 5.888 | 6.182 |  | 27.972 | 27.972 | 7,49% |
| Sub-Program 2.2: Extension and Proximity Services for Producers | | | | | | | 4.240 | 4.494 | 4.751 | 4.993 | 5.243 | 0 | 23.720 | 23.720 | 6,35% |
| Provision of extension services for high value crops | 1 | 1 | 1 | 1 | 1 | 4.240.000.000 | 4.240 | 4.494 | 4.751 | 4.993 | 5.243 |  | 23.720 | 23.720 | 6,35% |
| Program 3: Value Chain Development and Private Sector Investment | | | | | | | 32.377 | 54.115 | 55.618 | 73.713 | 59.695 | 270.218 | 0 | 270.218 | **72,34%** |
| Sub-Program 3.2: Development of Priority Value Chains: Food Crops | | | | | | | 1.272 | 2.079 | 5.491 | 9.911 | 2.621 | 21.374 | 0 | 21.374 | 5,72% |
| Upgrade of maize milling capacity | 1 | 1 | 1 |  |  | 1.272.000.000 | 1.272 | 1.348 | 1.425 | 0 | 0 | 4.045 |  | 4.045 | 1,08% |
| Rice milling plant |  |  | 1 |  |  | 607.941.217 | 0 | 0 | 681 | 0 | 0 | 681 |  | 681 | 0,18% |
| Establishment of cassava plantations |  | 1 | 1 | 1 |  | 265.000.000 | 0 | 281 | 297 | 312 | 0 | 890 |  | 890 | 0,24% |
| Cassava processing plants |  |  | 1 | 1 |  | 2.120.000.000 | 0 | 0 | 2.375 | 2.496 | 0 | 4.872 |  | 4.872 | 1,30% |
| Establishment of banana plantations |  | 1 | 1 | 1 |  | 106.000.000 | 0 | 112 | 119 | 125 | 0 | 356 |  | 356 | 0,10% |
| Banana wine processing plant |  |  | 1 |  |  | 530.000.000 | 0 | 0 | 594 | 0 | 0 | 594 |  | 594 | 0,16% |
| Beans processing and canning |  |  |  | 1 |  | 5.925.400.000 | 0 | 0 | 0 | 6.978 | 0 | 6.978 |  | 6.978 | 1,87% |
| Soybean processing |  |  |  |  | 1 | 2.120.000.000 | 0 | 0 | 0 | 0 | 2.621 | 2.621 |  | 2.621 | 0,70% |
| Irish potato plant established |  | 1 |  |  |  | 318.000.000 | 0 | 337 | 0 | 0 | 0 | 337 |  | 337 | 0,09% |
| Sub-Program 3.3: Development of Priority Value Chains: Export Crops | | | | | | | 21.406 | 41.755 | 34.833 | 45.403 | 45.082 | 183.179 | 0 | 183.179 | 49,04% |
| Establishment of coffee plantations | 1 | 1 | 1 | 1 | 1 | 5.300.000.000 | 5.300 | 5.618 | 5.938 | 6.241 | 6.553 | 24.350 |  | 24.350 | 6,52% |

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|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in RWF) | ANNUAL COSTS (RWF Millions) | | | | | Total Costs (RWF Millions) | | | **in % of ASIP-2 Private Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Coffee hulling plant |  | 1 |  |  |  | 1.060.000.000 | 0 | 1.124 | 0 | 0 | 0 | 1.124 |  | 1.124 | 0,30% |
| Coffee washing stations | 4 | 4 | 4 | 4 | 4 | 636.000.000 | 2.544 | 2.697 | 2.850 | 2.996 | 3.146 | 14.232 |  | 14.232 | 3,81% |
| Coffee roasting plants | 2 | 2 | 2 | 2 | 2 | 636.000.000 | 1.272 | 1.348 | 1.425 | 1.498 | 1.573 | 7.116 |  | 7.116 | 1,91% |
| Coffee PPP projects (PPP) | 1 | 1 | 1 | 1 | 1 | 2.000.000.000 | 2.000 | 2.120 | 2.241 | 2.355 | 2.473 | 11.189 |  | 11.189 | 3,00% |
| Expansion of tea estates | 1 | 1 | 1 | 1 | 1 | 5.300.000.000 | 5.300 | 5.618 | 5.938 | 6.241 | 6.553 | 29.650 |  | 29.650 | 7,94% |
| Establishment of tea estates and factories |  | 1 | 1 | 1 | 1 | 5.300.000.000 | 0 | 5.618 | 5.938 | 6.241 | 6.553 | 24.350 |  | 24.350 | 6,52% |
| Tea bag processing |  |  |  | 1 | 1 | 2.120.000.000 | 0 | 0 | 0 | 2.496 | 2.621 | 5.118 |  | 5.118 | 1,37% |
| Tea PPP projects (PPP) | 1 | 1 | 1 | 1 | 1 | 2.000.000.000 | 2.000 | 2.120 | 2.241 | 2.355 | 2.473 | 11.189 |  | 11.189 | 3,00% |
| Floriculture estates |  | 50 | 150 | 200 | 250 | 477.000 | 0 | 25 | 80 | 112 | 147 | 365 |  | 365 | 0,10% |
| Horticulture estates | 200 | 500 | 2.000 | 2.000 | 2.000 | 477.000 | 95 | 253 | 1.069 | 1.123 | 1.180 | 3.720 |  | 3.720 | 1,00% |
| Horticulture PPP projects (PPP) | 1 | 1 | 1 | 1 | 1 | 1.000.000.000 | 1.000 | 1.060 | 1.120 | 1.178 | 1.236 | 5.594 |  | 5.594 | 1,50% |
| Essential oils production |  | 50 | 100 | 150 | 150 | 477.000 | 0 | 25 | 53 | 84 | 88 | 251 |  | 251 | 0,07% |
| Macadamia nuts |  | 1 |  |  |  | 5.300.000.000 | 0 | 5.618 | 0 | 0 | 0 | 5.618 |  | 5.618 | 1,50% |
| Sericulture production |  |  |  |  | 1 | 2.120.000.000 | 0 | 0 | 0 | 0 | 2.621 | 2.621 |  | 2.621 | 0,70% |
| Establishment of an avocado estate |  |  |  | 1 |  | 5.300.000.000 | 0 | 0 | 0 | 6.241 | 0 | 6.241 |  | 6.241 | 1,67% |
| Sugar plantation and mill |  |  |  | 1 |  | 5.300.000.000 | 0 | 0 | 0 | 6.241 | 0 | 6.241 |  | 6.241 | 1,67% |
| Stevia processing |  |  |  |  | 1 | 2.120.000.000 | 0 | 0 | 0 | 0 | 2.621 | 2.621 |  | 2.621 | 0,70% |
| Fruit juice processing plant |  | 1 |  |  |  | 2.650.000.000 | 0 | 2.809 | 0 | 0 | 0 | 2.809 |  | 2.809 | 0,75% |
| Pineapple processing plant |  |  |  |  | 1 | 4.240.000.000 | 0 | 0 | 0 | 0 | 5.243 | 5.243 |  | 5.243 | 1,40% |
| Expansion of chilli production |  |  | 1 |  |  | 2.650.000.000 | 0 | 0 | 2.969 | 0 | 0 | 2.969 |  | 2.969 | 0,79% |

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|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in RWF) | ANNUAL COSTS (RWF Millions) | | | | | Total Costs (RWF Millions) | | | **in % of ASIP-2 Private Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Expansion of passion fruit production |  |  | 1 |  |  | 2.650.000.000 | 0 | 0 | 2.969 | 0 | 0 | 2.969 |  | 2.969 | 0,79% |
| Expansion of pyrethrum production |  | 1 |  |  |  | 2.650.000.000 | 0 | 2.809 | 0 | 0 | 0 | 2.809 |  | 2.809 | 0,75% |
| Gishari Flower Park | 0,5 | 1 |  |  |  | 1.669.500.000 | 835 | 1.770 | 0 | 0 | 0 | 2.604 |  | 2.604 | 0,70% |
| Kigali Wholesale Market | 1 | 1 |  |  |  | 1.060.000.000 | 1.060 | 1.124 | 0 | 0 | 0 | 2.184 |  | 2.184 | 0,58% |
| Sub-Program 3.4: Development of Priority Value Chains: Dairy and Meat | | | | | | | 1.060 | 1.124 | 3.921 | 8.226 | 1.311 | 15.641 | 0 | 15.641 | 4,19% |
| Animal feeds plant established |  |  | 1 |  |  | 2.650.000.000 | 0 | 0 | 2.801 | 0 | 0 | 2.801 |  | 2.801 | 0,75% |
| Establishment of modern meat processing plants | 1 | 1 | 1 | 1 | 1 | 530.000.000 | 530 | 562 | 560 | 624 | 655 | 2.931 |  | 2.931 | 0,78% |
| Establishment of modern tanneries | 1 | 1 | 1 | 1 | 1 | 530.000.000 | 530 | 562 | 560 | 624 | 655 | 2.931 |  | 2.931 | 0,78% |
| Dairy processing plant |  |  |  | 1 |  | 5.925.400.000 | 0 | 0 | 0 | 6.978 | 0 | 6.978 |  | 6.978 | 1,87% |
| Sub-Program 3.5: Development of Priority Value Chains: Fisheries | | | | | | | 0 | 0 | 2.241 | 0 | 0 | 2.241 | 0 | 2.241 | 0,60% |
| Fish farming |  |  | 1 |  |  | 2.120.000.000 | 0 | 0 | 2.241 | 0 | 0 | 2.241 |  | 2.241 | 0,60% |
| Sub-Program: 3.6. Development of Priority Value Chains: Apiculture | | | | | | | 689 | 730 | 728 | 811 | 852 | 3.811 | 0 | 3.811 | 1,02% |
| Honey production | 1 | 1 | 1 | 1 | 1 | 689.000.000 | 689 | 730 | 728 | 811 | 852 | 3.811 |  | 3.811 | 1,02% |
| Sub-Program 3.8: Market-oriented Infrastructure | | | | | | | 7.950 | 8.427 | 8.403 | 9.362 | 9.830 | 43.971 | 0 | 43.971 | 11,77% |
| Expanded storage and post-harvest facilities | 25000 | 25.000 | 25.000 | 25.000 | 25.000 | 318.000 | 7.950 | 8.427 | 8.403 | 9.362 | 9.830 | 43.971 |  | 43.971 | 11,77% |
| **TOTAL** |  |  |  |  |  |  | **50.946** | **75.215** | **76.840** | **95.611** | **82.689** | **321.828** | **51.692** | **373.521** | **100,00%** |
| thereof: CAPITAL COSTS |  |  |  |  |  |  | 41.706 | 65.420 | 66.487 | 84.731 | 71.264 | 329.609 |  |  | 88,24% |
| thereof: RECURRENT COSTS |  |  |  |  |  |  | 9.240 | 9.794 | 10.353 | 10.881 | 11.425 |  | 51.692 |  | 13,84% |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in USD) | ANNUAL COSTS (in USD Thousands) | | | | | Total Costs (in USD Thousands) | | | **in % of ASIP-2 Private Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| **Program 1: Agriculture and Animal Resource Intensification** | | | | | | | **14.352** | **16.660** | **15.550** | **15.299** | **15.591** | **77.452** | **0** | **77.452** | **14,25%** |
| Sub-Program 1.1: Soil Conservation and Land Husbandry | | | | | | | 0 | 215 | 0 | 0 | 0 | 215 | 0 | 215 | 0,04% |
| Rehabilitation and equipping of soil and plant testing laboratories (PPP) | 0 | 1 | 0 | 0 | 0 | 212.000 | 0 | 215 | 0 | 0 | 0 | 215 |  | 215 | 0,04% |
| Sub-Program 1.2: Irrigation and Water Management | | | | | | | 6.360 | 6.780 | 6.958 | 7.097 | 7.233 | 34.428 | 0 | 34.428 | 6,34% |
| Hillside Irrigation Construction (PPP) | 240 | 240 | 240 | 240 | 240 | 10.600 | 2.544 | 2.583 | 2.651 | 2.704 | 2.755 | 13.237 |  | 13.237 | 2,44% |
| Hillside Irrigation Maintenance (PPP) | 0 | 240 | 240 | 240 | 240 | 530 | 0 | 129 | 133 | 135 | 138 | 535 |  | 535 | 0,10% |
| Marshland Irrigation Construction (PPP) | 300 | 300 | 300 | 300 | 300 | 12.720 | 3.816 | 3.874 | 3.976 | 4.056 | 4.133 | 19.855 |  | 19.855 | 3,65% |
| Marshland Irrigation Maintenance (PPP) | 0 | 300 | 300 | 300 | 300 | 636 | 0 | 194 | 199 | 203 | 207 | 802 |  | 802 | 0,15% |
| Sub-Program 1.3: Agricultural Mechanisation | | | | | | | 3.816 | 5.489 | 3.976 | 4.056 | 4.133 | 21.469 | 0 | 21.469 | 3,95% |
| Establishment of Machinery Repair Workshops | 12 | 12 | 12 | 12 | 12 | 212.000 | 2.544 | 2.583 | 2.651 | 2.704 | 2.755 | 13.237 |  | 13.237 | 2,44% |
| Establishment of local distribution selling point of farm equipment | 12 | 12 | 12 | 12 | 12 | 106.000 | 1.272 | 1.291 | 1.325 | 1.352 | 1.378 | 6.618 |  | 6.618 | 1,22% |
| Power tiller assembly plant (PPP) | 1 | 1 | 0 | 0 | 0 | 1.590.000 | 0 | 1.614 | 0 | 0 | 0 | 1.614 |  | 1.614 | 0,30% |
| Sub-Program 1.4: Inputs to Improve Soil Fertility and Management | | | | | | | 636 | 646 | 1.215 | 676 | 689 | 3.861 | 0 | 3.861 | 0,71% |
| Establish additional fertiliser storage capacity | 6 | 6 | 6 | 6 | 6 | 106.000 | 636 | 646 | 663 | 676 | 689 | 3.309 |  | 3.309 | 0,61% |
| Establish a fertiliser blending plant | 0 | 0 | 1 | 0 | 0 | 530.000 | 0 | 0 | 552 | 0 | 0 | 552 |  | 552 | 0,10% |
| Sub-Program 1.5: Seed Development | | | | | | | 212 | 215 | 0 | 0 | 0 | 427 | 0 | 427 | 0,08% |
| Establish a seed production and processing plant | 1 | 1 | 0 | 0 | 0 | 212.000 | 212 | 215 | 0 | 0 | 0 | 427 |  | 427 | 0,08% |
| Sub-Program 1.6. Livestock Development | | | | | | | 3.328 | 3.315 | 3.402 | 3.470 | 3.536 | 17.051 | 0 | 17.051 | 3,14% |
| Feedlots installed and operational | 5 | 5 | 5 | 5 | 5 | 212.000 | 1.060 | 1.033 | 1.060 | 1.081 | 1.102 | 5.337 |  | 5.337 | 0,98% |
| Fingerling production centres installed | 1 | 1 | 1 | 1 | 1 | 212.000 | 212 | 215 | 221 | 225 | 230 | 1.103 |  | 1.103 | 0,20% |
| Hatcheries installed and operational | 5 | 5 | 5 | 5 | 5 | 106.000 | 530 | 517 | 530 | 541 | 551 | 2.669 |  | 2.669 | 0,49% |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in USD) | ANNUAL COSTS (in USD Thousands) | | | | | Total Costs (in USD Thousands) | | | **in % of ASIP-2 Private Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| MCCs built equipped and renovated (PPP) | 12 | 12 | 12 | 12 | 12 | 127.200 | 1.526 | 1.550 | 1.590 | 1.622 | 1.653 | 7.942 |  | 7.942 | 1,46% |
| **Program 2: Research and Technology Transfer, Advisory Services and Professionalization of Farmers** | | | | | | | **14.215** | **14.433** | **14.811** | **15.108** | **15.396** | **0** | **73.964** | **73.964** | **13,61%** |
| Sub-Program 2.1: Research and Technology Transfer | | | | | | | 7.692 | 7.810 | 8.014 | 8.175 | 8.331 | 0 | 40.024 | 40.024 | 7,37% |
| Research collaboration with the private sector (PPP) | 1 | 1 | 1 | 1 | 1 |  | 7.692 | 7.810 | 8.014 | 8.175 | 8.331 |  | 40.024 | 40.024 | 7,37% |
| Sub-Program 2.2: Extension and Proximity Services for Producers | | | | | | | 6.523 | 6.623 | 6.796 | 6.933 | 7.065 | 0 | 33.940 | 33.940 | 6,25% |
| Provision of extension services for high value crops | 1 | 1 | 1 | 1 | 1 | 6.523.077 | 6.523 | 6.623 | 6.796 | 6.933 | 7.065 |  | 33.940 | 33.940 | 6,25% |
| **Program 3: Value Chain Development and Private Sector Investment** | | | | | | | **49.811** | **79.745** | **79.568** | **102.350** | **80.447** | **391.921** | **0** | **391.921** | **72,13%** |
| Sub-Program 3.2: Development of Priority Value Chains: Food Crops | | | | | | | 1.957 | 3.063 | 7.856 | 13.761 | 3.532 | 30.169 | 0 | 30.169 | 5,55% |
| Upgrade of maize milling capacity | 1 | 1 | 1 |  |  | 1.956.923 | 1.957 | 1.987 | 2.039 | 0 | 0 | 5.983 |  | 5.983 | 1,10% |
| Rice milling plant | 0 |  | 1 |  |  | 935.294 | 0 | 0 | 974 | 0 | 0 | 974 |  | 974 | 0,18% |
| Establishment of cassava plantations | 0 | 1 | 1 | 1 |  | 407.692 | 0 | 414 | 425 | 433 | 0 | 1.272 |  | 1.272 | 0,23% |
| Cassava processing plants | 0 |  | 1 | 1 |  | 3.261.538 | 0 | 0 | 3.398 | 3.466 | 0 | 6.864 |  | 6.864 | 1,26% |
| Establishment of banana plantations | 0 | 1 | 1 | 1 |  | 163.077 | 0 | 166 | 170 | 173 | 0 | 509 |  | 509 | 0,09% |
| Banana wine processing plant | 0 |  | 1 |  |  | 815.385 | 0 | 0 | 850 | 0 | 0 | 850 |  | 850 | 0,16% |
| Beans processing and canning | 0 |  |  | 1 |  | 9.116.000 | 0 | 0 | 0 | 9.688 | 0 | 9.688 |  | 9.688 | 1,78% |
| Soybean processing | 0 |  |  |  | 1 | 3.261.538 | 0 | 0 | 0 | 0 | 3.532 | 3.532 |  | 3.532 | 0,65% |
| Irish potato plant established | 0 | 1 |  |  |  | 489.231 | 0 | 497 | 0 | 0 | 0 | 497 |  | 497 | 0,09% |
| Sub-Program 3.3: Development of Priority Value Chains: Export Crops | | | | | | | 32.933 | 61.531 | 49.833 | 63.042 | 60.754 | 268.093 | 0 | 268.093 | 49,34% |
| Establishment of coffee plantations | 1 | 1 | 1 | 1 | 1 | 8.153.846 | 8.154 | 8.279 | 8.495 | 8.666 | 8.831 | 42.425 |  | 42.425 | 7,81% |
| Coffee hulling plant | 0 | 1 |  |  |  | 1.630.769 | 0 | 1.656 | 0 | 0 | 0 | 1.656 |  | 1.656 | 0,30% |
| Coffee washing stations | 4 | 4 | 4 | 4 | 4 | 978.462 | 3.914 | 3.974 | 4.078 | 4.160 | 4.239 | 20.364 |  | 20.364 | 3,75% |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in USD) | ANNUAL COSTS (in USD Thousands) | | | | | Total Costs (in USD Thousands) | | | **in % of ASIP-2 Private Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Coffee roasting plants | 2 | 2 | 2 | 2 | 2 | 978.462 | 1.957 | 1.987 | 2.039 | 2.080 | 2.119 | 10.182 |  | 10.182 | 1,87% |
| Coffee PPP projects (PPP) | 1 | 1 | 1 | 1 | 1 | 3.076.923 | 3.077 | 3.124 | 3.206 | 3.270 | 3.333 | 16.009 |  | 16.009 | 2,95% |
| Expansion of tea estates | 1 | 1 | 1 | 1 | 1 | 8.153.846 | 8.154 | 8.279 | 8.495 | 8.666 | 8.831 | 42.425 |  | 42.425 | 7,81% |
| Establishment of tea estates and factories | 0 | 1 | 1 | 1 | 1 | 8.153.846 | 0 | 8.279 | 8.495 | 8.666 | 8.831 | 34.271 |  | 34.271 | 6,31% |
| Tea bag processing | 0 |  |  | 1 | 1 | 3.261.538 | 0 | 0 | 0 | 3.466 | 3.532 | 6.999 |  | 6.999 | 1,29% |
| Tea PPP projects (PPP) | 1 | 1 | 1 | 1 | 1 | 3.076.923 | 3.077 | 3.124 | 3.206 | 3.270 | 3.333 | 16.009 |  | 16.009 | 2,95% |
| Floriculture estates | 0 | 50 | 150 | 200 | 250 | 734 | 0 | 37 | 115 | 156 | 199 | 507 |  | 507 | 0,09% |
| Horticulture estates | 200 | 500 | 2.000 | 2.000 | 2.000 | 734 | 147 | 373 | 1.529 | 1.560 | 1.590 | 5.198 |  | 5.198 | 0,96% |
| Horticulture PPP projects (PPP) | 1 | 1 | 1 | 1 | 1 | 1.538.462 | 1.538 | 1.562 | 1.603 | 1.635 | 1.666 | 8.005 |  | 8.005 | 1,47% |
| Essential oils production | 0 | 50 | 100 | 150 | 150 | 734 | 0 | 37 | 76 | 117 | 119 | 350 |  | 350 | 0,06% |
| Macadamia nuts | 0 | 1 |  |  |  | 8.153.846 | 0 | 8.279 | 0 | 0 | 0 | 8.279 |  | 8.279 | 1,52% |
| Sericulture production | 0 |  |  |  | 1 | 3.261.538 | 0 | 0 | 0 | 0 | 3.532 | 3.532 |  | 3.532 | 0,65% |
| Establishment of an avocado estate | 0 |  |  | 1 |  | 8.153.846 | 0 | 0 | 0 | 8.666 | 0 | 8.666 |  | 8.666 | 1,59% |
| Sugar plantation and mill | 0 |  |  | 1 |  | 8.153.846 | 0 | 0 | 0 | 8.666 | 0 | 8.666 |  | 8.666 | 1,59% |
| Stevia processing | 0 |  |  |  | 1 | 3.261.538 | 0 | 0 | 0 | 0 | 3.532 | 3.532 |  | 3.532 | 0,65% |
| Fruit juice processing plant | 0 | 1 |  |  |  | 4.076.923 | 0 | 4.139 | 0 | 0 | 0 | 4.139 |  | 4.139 | 0,76% |
| Pineapple processing plant | 0 |  |  |  | 1 | 6.523.077 | 0 | 0 | 0 | 0 | 7.065 | 7.065 |  | 7.065 | 1,30% |
| Expansion of chilli production | 0 |  | 1 |  |  | 4.076.923 | 0 | 0 | 4.248 | 0 | 0 | 4.248 |  | 4.248 | 0,78% |
| Expansion of passion fruit production | 0 |  | 1 |  |  | 4.076.923 | 0 | 0 | 4.248 | 0 | 0 | 4.248 |  | 4.248 | 0,78% |
| Expansion of pyrethrum production | 0 | 1 |  |  |  | 4.076.923 | 0 | 4.139 | 0 | 0 | 0 | 4.139 |  | 4.139 | 0,76% |
| Gishari Flower Park (PPP) | 0,5 | 1 |  |  |  | 2.568.462 | 1.284 | 2.608 | 0 | 0 | 0 | 3.892 |  | 3.892 | 0,72% |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in USD) | ANNUAL COSTS (in USD Thousands) | | | | | Total Costs (in USD Thousands) | | | **in % of ASIP-2 Private Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| Kigali Wholesale Market (PPP) | 1 | 1 |  |  |  | 1.630.769 | 1.631 | 1.656 | 0 | 0 | 0 | 3.287 |  | 3.287 | 0,60% |
| Sub-Program 3.4: Development of Priority Value Chains: Dairy and Meat | | | | | | | 1.631 | 1.656 | 5.610 | 11.421 | 1.766 | 22.084 | 0 | 22.084 | 4,06% |
| Animal feeds plant established | 0 | 0 | 1 | 0 | 0 | 4.076.923 | 0 | 0 | 4.007 | 0 | 0 | 4.007 |  | 4.007 | 0,74% |
| Establishment of modern meat processing plants (PPP) | 1 | 1 | 1 | 1 | 1 | 815.385 | 815 | 828 | 801 | 867 | 883 | 4.194 |  | 4.194 | 0,77% |
| Establishment of modern tanneries (PPP) | 1 | 1 | 1 | 1 | 1 | 815.385 | 815 | 828 | 801 | 867 | 883 | 4.194 |  | 4.194 | 0,77% |
| Dairy processing plant | 0 | 0 | 0 | 1 | 0 | 9.116.000 | 0 | 0 | 0 | 9.688 | 0 | 9.688 |  | 9.688 | 1,78% |
| Sub-Program 3.5: Development of Priority Value Chains: Fisheries | | | | | | | 0 | 0 | 3.206 | 0 | 0 | 3.206 | 0 | 3.206 | 0,59% |
| Fish farming | 0 | 0 | 1 | 0 | 0 | 3.261.538 | 0 | 0 | 3.206 | 0 | 0 | 3.206 |  | 3.206 | 0,59% |
| Sub-Program: 3.6. Development of Priority Value Chains: Apiculture | | | | | | | 1.060 | 1.076 | 1.042 | 1.127 | 1.148 | 5.453 | 0 | 5.453 | 1,00% |
| Honey production | 1 | 1 | 1 | 1 | 1 | 1.060.000 | 1.060 | 1.076 | 1.042 | 1.127 | 1.148 | 5.453 |  | 5.453 | 1,00% |
| Sub-Program 3.8: Market-oriented Infrastructure | | | | | | | 12.231 | 12.418 | 12.022 | 12.999 | 13.247 | 62.916 | 0 | 62.916 | 11,58% |
| Expanded storage and post-harvest facilities | 25000 | 25.000 | 25.000 | 25.000 | 25.000 | 489 | 12.231 | 12.418 | 12.022 | 12.999 | 13.247 | 62.916 |  | 62.916 | 11,58% |
| **TOTAL** |  |  |  |  |  |  | **78.379** | **110.838** | **109.928** | **132.757** | **111.434** | **469.373** | **73.964** | **543.336** | **100,00%** |
| thereof: CAPITAL COSTS |  |  |  |  |  |  | 64.163 | 96.405 | 95.118 | 117.649 | 96.038 | 469.373 |  |  | 86,39% |
| thereof: RECURRENT COSTS |  |  |  |  |  |  | 14.215 | 14.433 | 14.811 | 15.108 | 15.396 |  | 73.964 |  | 13,61% |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ANNUAL TARGETS (INCREASE) | | | | | Unit Cost (in USD) | ANNUAL COSTS (in USD Thousands) | | | | | Total Costs (in USD Thousands) | | | **in % of ASIP-2 PPP Costs** |
| Project/Output (= Unit) | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 | Capital | Recurrent | Total |
| **Program 1: Agriculture and Animal Resource Intensification** | | | | | | | **7.886** | **10.160** | **8.548** | **8.719** | **8.886** | **44.200** | **0** | **44.200** | **0** |
| Sub-Program 1.1: Soil Conservation and Land Husbandry | | | | | | | 0 | 215 | 0 | 0 | 0 | 215 | 0 | 215 | 0,15% |
| Rehabilitation and equipping of soil and plant testing laboratories (PPP) | 0 | 1 | 0 | 0 | 0 | 212.000 | 0 | 215 | 0 | 0 | 0 | 215 |  | 215 | 0,15% |
| Sub-Program 1.2: Irrigation and Water Management | | | | | | | 6.360 | 6.780 | 6.958 | 7.097 | 7.233 | 34.428 | 0 | 34.428 | 24,62% |
| Hillside Irrigation Construction (PPP) | 240 | 240 | 240 | 240 | 240 | 10.600 | 2.544 | 2.583 | 2.651 | 2.704 | 2.755 | 13.237 |  | 13.237 | 9,47% |
| Hillside Irrigation Maintenance (PPP) | 0 | 240 | 240 | 240 | 240 | 530 | 0 | 129 | 133 | 135 | 138 | 535 |  | 535 | 0,38% |
| Marshland Irrigation Construction (PPP) | 300 | 300 | 300 | 300 | 300 | 12.720 | 3.816 | 3.874 | 3.976 | 4.056 | 4.133 | 19.855 |  | 19.855 | 14,20% |
| Marshland Irrigation Maintenance (PPP) | 0 | 300 | 300 | 300 | 300 | 636 | 0 | 194 | 199 | 203 | 207 | 802 |  | 802 | 0,57% |
| Sub-Program 1.3: Agricultural Mechanisation | | | | | | | 0 | 1.614 | 0 | 0 | 0 | 1.614 | 0 | 1.614 | 1,15% |
| Power tiller assembly plant (PPP) | 1 | 1 | 0 | 0 | 0 | 1.590.000 | 0 | 1.614 | 0 | 0 | 0 | 1.614 |  | 1.614 | 1,15% |
| Sub-Program 1.6. Livestock Development | | | | | | | 1.526 | 1.550 | 1.590 | 1.622 | 1.653 | 7.942 | 0 | 7.942 | 5,68% |
| MCCs built equipped and renovated (PPP) | 12 | 12 | 12 | 12 | 12 | 127.200 | 1.526 | 1.550 | 1.590 | 1.622 | 1.653 | 7.942 |  | 7.942 | 5,68% |
| **Program 2: Research and Technology Transfer, Advisory Services and Professionalization of Farmers** | | | | | | | **7.692** | **7.810** | **8.014** | **8.175** | **8.331** | **0** | **40.024** | **40.024** | **28,63%** |
| Sub-Program 2.1: Research and Technology Transfer | | | | | | | 7.692 | 7.810 | 8.014 | 8.175 | 8.331 | 0 | 40.024 | 40.024 | 28,63% |
| Research collaboration with the private sector (PPP) | 1 | 1 | 1 | 1 | 1 |  | 7.692 | 7.810 | 8.014 | 8.175 | 8.331 |  | 40.024 | 40.024 | 28,63% |
| **Program 3: Value Chain Development and Private Sector Investment** | | | | | | | **12.238** | **13.730** | **9.617** | **9.908** | **10.098** | **55.591** | **0** | **55.591** | **0** |
| Sub-Program 3.3: Development of Priority Value Chains: Export Crops | | | | | | | 10.607 | 12.074 | 8.014 | 8.175 | 8.331 | 47.202 | 0 | 47.202 | 33,76% |
| Coffee PPP projects (PPP) | 1 | 1 | 1 | 1 | 1 | 3.076.923 | 3.077 | 3.124 | 3.206 | 3.270 | 3.333 | 16.009 |  | 16.009 | 11,45% |
| Tea PPP projects (PPP) | 1 | 1 | 1 | 1 | 1 | 3.076.923 | 3.077 | 3.124 | 3.206 | 3.270 | 3.333 | 16.009 |  | 16.009 | 11,45% |
| Horticulture PPP projects (PPP) | 1 | 1 | 1 | 1 | 1 | 1.538.462 | 1.538 | 1.562 | 1.603 | 1.635 | 1.666 | 8.005 |  | 8.005 | 5,73% |
| Gishari Flower Park (PPP) | 0,5 | 1 |  |  |  | 2.568.462 | 1.284 | 2.608 | 0 | 0 | 0 | 3.892 |  | 3.892 | 2,78% |
| Kigali Wholesale Market (PPP) | 1 | 1 |  |  |  | 1.630.769 | 1.631 | 1.656 | 0 | 0 | 0 | 3.287 |  | 3.287 | 2,35% |
| Sub-Program 3.4: Development of Priority Value Chains: Dairy and Meat | | | | | | | 1.631 | 1.656 | 1.603 | 1.733 | 1.766 | 8.389 | 0 | 8.389 | 6,00% |
| Establishment of modern meat processing plants (PPP) | 1 | 1 | 1 | 1 | 1 | 815.385 | 815 | 828 | 801 | 867 | 883 | 4.194 |  | 4.194 | 3,00% |
| Establishment of modern tanneries (PPP) | 1 | 1 | 1 | 1 | 1 | 815.385 | 815 | 828 | 801 | 867 | 883 | 4.194 |  | 4.194 | 3,00% |
| **TOTAL** |  |  |  |  |  |  | **27.817** | **31.699** | **26.180** | **26.803** | **27.315** | **99.791** | **40.024** | **139.814** | **100,00%** |

90

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Monitoring of Domestic and Foreign PUBLIC Investments/Financing during the ASIP-2 period** | Domestic Investment | | | | | Foreign Investment | | |  |
| Private Domestic:  Credit | Private Domestic:  Private Equity | Public Domestic:  GoR expenditure | Farmer investments/ contributions\* | Total Domestic Investment | Public Foreign:  Sector Support/P4R | Public Foreign:  Project Support | Total Foreign Investment | **TOTAL** |
| Subsidies - Fertilizer |  |  |  |  | 0 |  |  | 0 | **0** |
| Subsidies - Seeds |  |  |  |  | 0 |  |  | 0 | **0** |
| Subsidies - Small-scale Irrigation |  |  |  |  | 0 |  |  | 0 | **0** |
| Subsidies - "One Cow", "One Cup", "Nutrition Gardens" |  |  |  |  | 0 |  |  | 0 | **0** |
| Subsidies - Other (e.g. mechanization, post-harvest) |  |  |  |  | 0 |  |  | 0 | **0** |
| Terracing - Radical |  |  |  |  | 0 |  |  | 0 | **0** |
| Terracing - Progressive |  |  |  |  | 0 |  |  | 0 | **0** |
| Irrigation - Marshland |  |  |  |  | 0 |  |  | 0 | **0** |
| Irrigation - Hillside |  |  |  |  | 0 |  |  | 0 | **0** |
| Irrigation - Small-scale |  |  |  |  | 0 |  |  | 0 | **0** |
| Agriculture research |  |  |  |  | 0 |  |  | 0 | **0** |
| Support to TWIGIRE (extension) |  |  |  |  | 0 |  |  | 0 | **0** |
| Training of agriculture cooperatives |  |  |  |  | 0 |  |  | 0 | **0** |
| Agricultural Mechanization |  |  |  |  | 0 |  |  | 0 | **0** |
| Feeder Roads - Rehabilitation |  |  |  |  | 0 |  |  | 0 | **0** |
| Feeder Roads - Maintenance |  |  |  |  | 0 |  |  | 0 | **0** |
| Food crop value chains - Storage |  |  |  |  | 0 |  |  | 0 | **0** |
| Food crop value chains - Processing |  |  |  |  | 0 |  |  | 0 | **0** |
| Food crop value chains - Market facilitation |  |  |  |  | 0 |  |  | 0 | **0** |
| Export crop value chains - Plantation |  |  |  |  | 0 |  |  | 0 | **0** |
| Export crop value chains - Processing |  |  |  |  | 0 |  |  | 0 | **0** |
| Export crop value chains - Market facilitation |  |  |  |  | 0 |  |  | 0 | **0** |
| Dairy, meat, fish and honey value chains |  |  |  |  | 0 |  |  | 0 | **0** |
| Homestead gardening |  |  |  |  | 0 |  |  | 0 | **0** |
| Training of staff (MINAGRI, RAB, NAEB) |  |  |  |  | 0 |  |  | 0 | **0** |
| Training of staff (District and Sectors) |  |  |  |  | 0 |  |  | 0 | **0** |
| **TOTAL** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

\* Note: The corresponding assessment methodology will be developed during Fiscal Year 2014/15

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Monitoring of Domestic and Foreign PRIVATE**  **Investments/Financing during the ASIP-2 period** | Domestic Investment | | | | Foreign Investment | | | |  |
| Private Domestic:  Credit | Private Domestic:  Private Equity | PPP Contributions | Total Domestic Investment | Private Foreign: FDI | PPP Contributions | Impact / Social Investment | Total Foreign Investment | **TOTAL** |
| Irrigation infrastructure |  |  |  | 0 |  |  |  | 0 | **0** |
| Agricultural mechanization (assembly, workshops) |  |  |  | 0 |  |  |  | 0 | **0** |
| Input (fertilzer, seeds) supply chain |  |  |  | 0 |  |  |  | 0 | **0** |
| Extension services, Training |  |  |  | 0 |  |  |  | 0 | **0** |
| Food crops (without processing) |  |  |  | 0 |  |  |  | 0 | **0** |
| Food crops processing |  |  |  | 0 |  |  |  | 0 | **0** |
| Export crops (without processing) |  |  |  | 0 |  |  |  | 0 | **0** |
| Export crops processing |  |  |  | 0 |  |  |  | 0 | **0** |
| Livestock value chains (meat, dairy, fish, honey) |  |  |  | 0 |  |  |  | 0 | **0** |
| Market infrastructure |  |  |  | 0 |  |  |  | 0 | **0** |
| **TOTAL** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

**Annex 4-A: Net FINANCIAL Benefit by Year (calculation based on ASIP-2 public costs)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **RWF billion** | **Irrigated Hillside Areas** | **Non-irrigated Hillside Areas** | **Marshland Areas** | **Drying Floors** | **Storage Facilities** | **Feeder Roads** | **Employment** | **Total Financial Net Benefits** |
| 2014 | (20) | (48) | (29) | (0) | (4) | (22) | - | (122) |
| 2015 | (20) | (50) | (30) | 1 | (3) | (25) | 0 | (127) |
| 2016 | (19) | (34) | (26) | 1 | (3) | (25) | 0 | (105) |
| 2017 | (15) | (12) | (20) | 2 | (2) | (27) | 1 | (73) |
| 2018 | (8) | 18 | (12) | 2 | (2) | (23) | 1 | (23) |
| 2019 | 14 | 60 | 19 | 3 | 2 | 15 | 2 | 115 |
| 2020 | 19 | 65 | 19 | 3 | 2 | 15 | 2 | 125 |
| 2021 | 22 | 66 | 19 | 3 | 2 | 15 | 2 | 130 |
| 2022 | 22 | 68 | 19 | 3 | 2 | 15 | 2 | 131 |
| 2023 | 22 | 70 | 19 | 3 | 2 | 15 | 2 | 134 |
| 2024 | 28 | 158 | 19 | 3 | 2 | 15 | 2 | 227 |
| 2025 | 22 | 73 | 19 | 3 | 2 | 15 | 2 | 136 |
| 2026 | 22 | 74 | 19 | 3 | 2 | 15 | 2 | 137 |
| 2027 | 22 | 75 | 19 | 3 | 2 | 15 | 2 | 137 |
| 2028 | 21 | 76 | 19 | 3 | 2 | 15 | 2 | 138 |
| 2029 | 21 | 77 | 19 | 3 | 2 | 15 | 2 | 139 |
| 2030 | 23 | 82 | 19 | 3 | 2 | 15 | 2 | 145 |
| 2031 | 23 | 83 | 19 | 3 | 2 | 15 | 2 | 147 |
| 2032 | 23 | 85 | 19 | 3 | 2 | 15 | 2 | 149 |
| 2033 | 23 | 87 | 19 | 3 | 2 | 15 | 2 | 151 |
| 2034 | 28 | 168 | 19 | 3 | 2 | 15 | 2 | 238 |
| 2035 | 23 | 89 | 19 | 3 | 2 | 15 | 2 | 153 |
| 2036 | 23 | 90 | 19 | 3 | 2 | 15 | 2 | 153 |
| 2037 | 22 | 90 | 19 | 3 | 2 | 15 | 2 | 153 |
| 2038 | 22 | 91 | 19 | 3 | 2 | 15 | 2 | 154 |
| **Financial Net Benefits (average/year)**  **Financial NPV (12%) Financial IRR** | | | | | | | | **102** |
| **257** |
| **19%** |

Note: (1) Amounts are shown in constant RWF 2014 amounts (i.e. no inflation is included).

(2) Net benefits from feeder roads and employment only include incremental benefits from crop production.

(3) Net Benefits (average/year) are not discounted. Financial Net Present Value is calculated using a discount rate of 12% over a period of 25 years.

(4) Rounding errors may occur.

**Annex 4-B: Net ECONOMIC Benefit by Year (calculation based on ASIP-2 public costs)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **RWF billion** | **Irrigated Hillside Areas** | **Non-irrigated Hillside Areas** | **Marshland Areas** | **Drying Floors** | **Storage Facilities** | **Feeder Roads** | **Employment** | **Total Direct Net Benefits** | **Carbon Sequestration** | **Total Economic Net Benefits** |
| 2014 | (18) | (43) | (26) | (0) | (4) | (19) | - | (110) | - | (110) |
| 2015 | (18) | (45) | (27) | 0 | (3) | (22) | 0 | (115) | 0 | (115) |
| 2016 | (17) | (31) | (24) | 1 | (3) | (23) | 0 | (97) | 0 | (96) |
| 2017 | (13) | (12) | (19) | 1 | (3) | (24) | 1 | (70) | 1 | (69) |
| 2018 | (7) | 13 | (13) | 1 | (3) | (21) | 1 | (28) | 2 | (27) |
| 2019 | 13 | 49 | 13 | 2 | 1 | 12 | 2 | 92 | 2 | 94 |
| 2020 | 18 | 53 | 13 | 2 | 1 | 12 | 2 | 101 | 5 | 106 |
| 2021 | 20 | 55 | 13 | 2 | 1 | 12 | 2 | 105 | 5 | 110 |
| 2022 | 20 | 56 | 13 | 2 | 1 | 12 | 2 | 107 | 5 | 112 |
| 2023 | 20 | 58 | 13 | 2 | 1 | 12 | 2 | 109 | 5 | 114 |
| 2024 | 25 | 137 | 13 | 2 | 1 | 12 | 2 | 193 | 5 | 198 |
| 2025 | 20 | 61 | 13 | 2 | 1 | 12 | 2 | 111 | 5 | 116 |
| 2026 | 20 | 61 | 13 | 2 | 1 | 12 | 2 | 112 | 5 | 117 |
| 2027 | 20 | 62 | 13 | 2 | 1 | 12 | 2 | 112 | 5 | 117 |
| 2028 | 19 | 63 | 13 | 2 | 1 | 12 | 2 | 113 | 5 | 118 |
| 2029 | 19 | 64 | 13 | 2 | 1 | 12 | 2 | 114 | 5 | 119 |
| 2030 | 21 | 68 | 13 | 2 | 1 | 12 | 2 | 119 | 5 | 125 |
| 2031 | 21 | 70 | 13 | 2 | 1 | 12 | 2 | 121 | 5 | 126 |
| 2032 | 21 | 71 | 13 | 2 | 1 | 12 | 2 | 122 | 5 | 128 |
| 2033 | 21 | 73 | 13 | 2 | 1 | 12 | 2 | 124 | 5 | 129 |
| 2034 | 26 | 147 | 13 | 2 | 1 | 12 | 2 | 203 | 5 | 208 |
| 2035 | 21 | 75 | 13 | 2 | 1 | 12 | 2 | 126 | 5 | 131 |
| 2036 | 20 | 76 | 13 | 2 | 1 | 12 | 2 | 126 | 5 | 132 |
| 2037 | 20 | 76 | 13 | 2 | 1 | 12 | 2 | 127 | 5 | 132 |
| 2038 | 20 | 77 | 13 | 2 | 1 | 12 | 2 | 127 | 5 | 133 |
| **Economic Net Benefits (average/year)**  **Economic NPV (12%)**  **Economic IRR** | | | | | | | | **82** | **4** | **86** |
| **176** | **22** | **198** |
| **17%** |  | **18%** |

Note: (1) Amounts are shown in constant RWF 2014 amounts (i.e. no inflation is included).

1. Financial prices are converted to economic prices using adjustment factors
2. Net benefits from feeder roads and employment only include incremental benefits from crop production.
3. Net Benefits (average/year) are not discounted. Financial Net Present Value is calculated using a discount rate of 12% over a period of 25 years.
4. Rounding errors may occur.

1. National Institute of Statistics of Rwanda (March 2014). Gross Domestic Product - 2013. GDP for 2013 was estimated as RWF 4,819 billion of which 33% is value added by the agriculture sector. [↑](#footnote-ref-2)
2. Note that, employment generation from new post-harvest infrastructures will be included in the final analysis. [↑](#footnote-ref-3)