G.S. PAPER III – ECONOMIC DEVELOPMENT

INCLUSIVE GROWTH

Contents

1.1 Introduction

The agenda of inclusivity and sustainability has become the focus of policy framework both at national and international level. The approach of development through "including" the general mass is directed towards **a broad based growth**, shared growth, and pro-poor growth. This is the central idea of the inclusive growth i.e. sharing of fruits of socio-economic development with all sections of the society. Elimination of the extreme forms of poverty and participation of the people is encouraged through the idea of inclusive growth.

Approach paper of Eleventh five year plan of govt. of India has laid down the vision and strategies for inclusive growth. The vision underlines the target of the plan as **not just faster growth but also inclusive growth.** The inclusion inter alia means the ***equality of opportunity for all***. The vision also enumerated the following factors which are interrelated components of the IG:

- Poverty Reduction
- Employment Generation
- Access to essential services
- Equality of opportunity
- Skill building
- Good governance
- Women empowerment

The concept and definition of the IG is not formally illustrated in the paper or anywhere in the govt. There have been some attempts to frame the subject matter related to IG. Economic Survey (2007-2008), for instance, presents some conceptual background of Inclusive Growth. International agencies like UNDP and World Bank have elaborated the understanding of IG. In-fact, the terms like inclusive growth, sustainability, good governance etc. are made popular by the international organizations. The parameters of IG are considered differently by different governments, organizations etc. UNDP's definition of the IG underlines production and income as the components of IG:

*"IG is the **process and the outcome** where all groups of **people have participated** in the organization of growth and have **benefited equitably** from it. Thus inclusive growth*

represents an equation – with organization on the lefthand side and benefits on the right-hand side."

World Bank defines the IG as follows:

***"Inclusive Growth** refers both to **the pace and pattern of growth**, which are interlinked and must be addressed together."*

Thus, in broad sense, IG means the inclusion of all sections of society in the process of economic development and sharing of its benefit. Therefore, IG is not only an outcome or end but a process or a mean in itself.

1.2 Theoretical Perspective

The IG is not formally defined in Indian Economic Planning literatures. It still lacks a sound theoretical background. The present planning adopts a hit and trial approach towards IG. On one side it leads to increase in economic growth rate and exclusion of the targeted beneficiary on other side. The term "inclusion" is ambiguous in Indian context; inclusion may be through impacting the majority of populace or by increasing the reach to select group of individuals or regions which are excluded. Therefore, crystal clarity in understanding the rubrics of IG through a conceptual and theoretical background is required.

1.2.1 Trickle down

Trickle down theory argues that the benefits of growth would automatically trickle done to bottom. The theory also asserts that the trickle down is a process that must be left to its natural pace and path; and forcing it down nay be unproductive. The trickle down approach has failed in its desired effects in the socio-economic development of India. Re-distributive policy is suggested to be a part of inclusive growth development programs. On other side, trickle down theory in economics explains supply side of the economic growth. According to the theory, the top income earners should be taxed less, so that investment in the market in encouraged; and goods and prices can be made available to the consumers at low prices. In this way, trickle down theory assumes the top-to-bottom approach in economic development.

1.2.2 Welfare Economics

Welfare economics is the branch of economics that examines the resource allocation and the policy in terms of societal or individual costs or benefits. One of the objectives of welfare economics it to help society better decisions that maximize its wellbeing. By adopting the welfare economics approach, the following issues with respect to IG can be addressed:

1) Allocation of the resource as per the economic efficiency.
2) The equality of welfare gains.
3) Viability and desirability of the policy framework.
4) Effect of the resource allocation on select target beneficiaries.

The thrust of welfare economics is on efficiency and distribution. Therefore, the welfare economics considers the system, standards and regulatory institutional mechanism as important elements of the IG policy framework.

1.2.3 Bottom-up approach

Bottom-up approach encourages participation of people in the development process. Decentralization, local-self government and rural development are some of the common practices under bottom-up approach. Rural governance attempts to establish whether decentralization of governance is effective for achieving inclusive and pro-poor growth. The inefficiencies in the flow of essential services hinder people's access to opportunity and benefit of economic growth. Hence, 'bottom-up' approach is suggested where greater decentralization is expected to give preferences to the target population. In order to achieve a long-term sustainable economic growth, inclusive growth is required to be fuelled from the bottom-up instead of enforcing it from top to bottom.

1.2.4 Public Relation Approach to IG

The vision of Public Relation Approach to IG is to build up People's Participation and ensure People's Partnership in Developmental process. Mobilization and integration of masses by way of effective communication, motivation strategies and human resource management are some of the strategies under the approach. Public relation approach

tends to find out the socio-psychological factors that motivate or de-motivate people's participation in the inclusive growth process. State merely acts as a catalyst and provides a platform. Encouraging micro-level entrepreneurship in agro-industries is one of the examples of the Public Relation Approach.

1.3 Dimensions of IG

These are the pillars of the building block of IG, or in simple terms, these are the ideals on which IG is based. Without these ideals, the IG remains superfluous in its merit.

1.3.1 Equality

Equality of opportunity in terms of access to markets, resources, and unbiased regulatory environment are the ends to mean of equality. In-equalities exist in various manners which are social inequalities, rural-urban divide, regional disparities, digital divide etc. To realize the IG in its ultimate form, equality is the most fundamental criteria. IG and equality impact each other. Without equality, IG can't be achieved and lack of IG may lead to in-equality in real or perceived forms. Thus, IG and equality are mutually reinforcing. In contemporary economic environment, gender equality has become a basic element of IG. Gender inequality is a pervasive problem in Indian social set-up which has adverse effect on women. Although Indian economy has progressed, the equality has retrograded at all levels whether social or economic. An OECD report has identified that inequality in India has been continuously rising which has posed policy challenges in promotion of inclusiveness.

1.3.2 Good Governance

In simple words, governance means the regulatory, monitoring or controlling process which facilitates the devilry of the government services. Good governance results in effectiveness and efficiency, it upholds justice in the rule of law, and accountability and it encourages popular participation, consensus, and equality. Tenth plan defines governance in following way"

"Governance relates to the management of all such processes that, in any society, define the environment which permits and enables individuals to raise their capability levels, on

one hand, and provide opportunities to realise their potential and enlarge the set of available choices, on the other"

Good governance is an integrated effort of state, civil society and citizens. Governance here means not only state intervention; it is the responsibly of general mass and civil service organizations (CSOs). Good governance is the core of essential public services. It is the mechanism for integrating IG, public administration and accountability towards envisaged outcome; for example, problems in poor health infrastructure may be an impediment to IG and can often be traced back to poor governance of the Ministry of Health and Family Welfare. So, good governance provides a common platform for all actors and adapts to sustain the socio-economic transformation which is a pre-requisite of IG. As stated, governance is not only the forte of state; private governance has also a remarkable role to play in taking the IG ahead. The term, **private governance** here means the role of non-state actors in maintaining supply and demand equilibrium in market. Private governance also highlights the role of private sector in meeting the demand of capital, resource and skills required for IG.

1.3.3 Decentralization

A National Council of Applied Economic Research (NCAER) argues that the decentralization hampers inclusive growth. Empowering local self governing institutions is one of the delivery mechanisms of the IG. 73rd and 74th amendments of the constitutions are innovation in the field of Indian Polity. Centre and state govt. have to empower the PRIs to make them enabler of IG. In this regard, the eleventh plan has devised a **Devolution Index** to be called **PRI-Empowerment Index.** Without decentralization, it is a daunting task to implement the IG based policies. Therefore, govt. has to devolve, delegate and decentralize the administration. Decentralization is a bottom-up approach. Decentralization of rural governance is critical for achieving IG. The present level of decentralization, institutional structure is inadequate. In inadequacy of decentralization can be reduced by democratizing the institutions of local self government, adopting measures of fiscal decentralization i.e. by providing sufficient financial resources. Apart from that the following are the deficiencies in decentralization that limit the IG potential:

1. Lack of finance, proper institutions and delegation of roles and responsibilities.
2. Divergence in central and state approaches in programs and welfare schemes.
3. Incoherence in organization at national and state level.
4. Poor accountability, transparency and monitoring mechanism.

1.3.4 Accountability and Transparency

Accountability is answerability towards performance of service delivery. It sets in the responsibility towards the assigned tasks in terms of results and outcome. Accountability is specified both in vertically and horizontally. The former refers to the departmental hierarch in a govt. institutions and the latter refers to the autonomous agencies for check and balances on govt. activities e.g. CAG, PMO etc. Transparency is necessary for efficient delivery of essential public services; it acts as an enabler for citizens in accessing information on demand which helps them in reinstating their claims on government endowments and entitlements meant for them. Lack of accountability and transparency has earmarked the governance in India with red-tapism, bureaucracy and corruption. Govt. has put efforts in multifarious manners to curb the menace. Citizen Charter, Right To Information, Central Vigilance Commission etc. are revolutionary efforts, inasmuch the poor monitoring of their implementation has put a constraint of the efficacy of such ideas.

1.3.5 Sustainability

In long term, it has been identified that, there has been a gross mismatch between the outcomes of the Indian Economic Planning for IG with respect to environment. Although, Indian economy has witnessed a rapid growth, there has been a decline in the environment and standard of living of the poor. In the issues related to IG as discussed ahead, it has been elaborated that Liberalization, Privatization and Globalization (LPG) has put a sheer pressure on the environment and created a rural-urban divide. Sustainability and IG can't be achieved in isolation and they supplement each other. Without adopting a sustainable practice in IG, the implementation of IG policies isbound to falter. Sustainability is required at the following levels when charting out the policy framework for IG:

1.3.5.1 Financial Sustainability: The IG programs and projects of the govt. should be financially viable. It may be noticed that excess of subsidy and lack of outcome orientation is causing a problem of increasing fiscal deficit.

1.3.5.2 Social Sustainability: Social sustainability means the need to maintain and sustain specific structure and culture. This type of problem is typically prevalent in tribal areas where the development programs for economic growth come in conflict with the cultural sentiments of the tribal population.

1.3.5.3 Environment Sustainability: In long-term, the environment standards must not be jeopardized while in pursuit of IG. By excess use of fertilizer is a die hard need of the moment, at the same time it has lead to is unique problem of depletion of soil productivity and technology fatigue.

1.4 Models of Inclusive Growth

IG is not the sole responsibility of the state. The goals of IG can be realized if state and non-state actors work in tandem. There are some of the models of IG which are currently adopted by the govt, private agencies and non-govt organizations. Some of the models are discussed below:

1.4.1 Financial Inclusion

Deptt. of Financial Services, Ministry of Finance has taken an initiative to extend financial services to the large hitherto un-served population of the country to unlock its growth potential. Financial inclusion means to include the un-banked populace into formal banking system by providing financial services at very low cost. **Rangarajan committee** has defined the financial inclusion in following manner:

"The process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections and low income groups at an affordable cost."

The ministry therefore strives towards a **more inclusive growth** by making credit/capital available to the poor and disadvantaged section. Expansion of banking infrastructure, opening new braches, zero-frills bank accounts , banking correspondents(BCs) (use of services of intermediaries in providing financial and banking services through the use of Business Facilitators (BFs) and Business Correspondents (BCs), setting up of ultra small

branches etc. are a few of the modalities under financial inclusion strategies of the govt. Swabhiman scheme is the running scheme under financial inclusion agenda through which banks have provided banking facilities to over 75,000 habitations having population in excess of 2000 using various models and technologies including branchless banking through Business Correspondents Agents (BCAs). The Business Correspondent models **("Branch-Free Banking")** besides schemes like Swabhiman have the potential to realize the financial inclusion in India in true sense of the term.

1.4. 2 Inclusive Marketing

Market is instrumental in creating means and ends for inclusive growth. By proper marketing of various schemes for IG can be vital in challenging the issues associated with it. Inclusive marketing is required at all levels i.e. G2G, G2C, G2B, B2B or B2C etc. IEC (Information, education and communication) can be adopted by the government for inclusive marketing. While corporate social responsibility i.e. CSR can be one of the methods adopted by the private and public sector corporate e.g. ITC's e-choupal wherein ITC (a private sector company) has taken an initiative for farmers through technological and financial assistance. If IG is seen as an end of inclusive marketing as a mean, then it becomes apparent that inclusive marketing is dedicated to add values to the livelihood of the poor, not merely treating them as a consumer of product and services. The disadvantaged sections of the society face the challenge of making both ends meet. Difficulty in accessing the markets, welfare schemes make them more vulnerable. Therefore, Inclusive marketing is a mode of integrating the have-nots to the mainframe of development process.

14.3 Corporate Social Responsibility (CSR)

CSR has a prominent role in complementing the quest for IG. The private sector has been playing a vital role in promoting IG and contributing with various initiatives. CSR has now become a part of the corporate policy of the Indian industries. This may be because govt. has provided the financial incentives to the industries which are contributing at least 2% of their profit towards CSR. Future Group, which runs the famous retail stores by the brand Big Bazaar have CSR a component of their company policy as the group affirms

that CSR is at the heart of their ethos:

"At Future Group, corporate social responsibility, inclusive growth and sustainability are at the core of our strategy and business practices. This reflects in our commitment to the community, environment and to every stakeholder in building a stronger foundation for our long-term, sustainable growth."

Hindustan Uniliver's **Project Shakti** wherein woman groups are employed as distribution channels , **Nanhi Kali**, a CSR project by Mahindra and Mahindra to sponsor the education of an underprivileged girl child are some other examples of CSR as a mean of IG. Negative repercussions of CSR must also be closely observed. CSR some how has become a tool of Corporate Social Opportunity (CSO) for the private sector whose ultimate motive is profit.

1.5 Strategies for Implementation

Strategies for the implementation of IG are many. In most cases, developing a strategy is not a problem, but implementation and monitoring. Below mentioned are some flagship approaches towards implanting IG policies:

1.5.1 Resource Allocation

Without proper resource utilization, the issues of poverty, equity and development can not be addressed. Equitable sharing of the resources is one of the most important means to implement the inclusive growth based policy framework. The allocation of resources should be made in a way to benefit the general mass in short and long term. This may be through proper availability of consumer goods, facilitating access of people, opening avenues of employment and enhancing standards of livelihood. Public distribution system (PDS) is a classic example of reinforcing IG through proper resource allocation. PDS should be re-structured. It is important for food security. Govt. is re-working on the food security bill; poverty line is one of the criteria of resource allocation.

1.5.2 Employment Generation

Employment is the most vital of all strategies of inclusive growth. At the same time, employment generation is a real challenge to the govt. This is because of India is

witnessing a **demographic transition** and burden of demographic dividend. Albeit, the latest consensus has showed that the population of India is decreasing but the population of young people entering the labour force is continuously increasing. A research study carried under the aegis of Planning Commission shows that employment in total in general and in nonagricultural sectors in particular has not been growing. Unemployment growth in recent years has been accompanied by growth in **casualization and informalization.** National Commission on Enterprises for the Unorganized Sector headed by **Arjun Sengupta** recommended several measures to resolve this problem of informalization in the employment.

Organized and un-organized employment in major sectors (million)

Major Sectors	Total Employment	Un-organized employment	Organized Employment
Agriculture	244.85(100%)	242.11(99%)	2.74(1%)
Manufacturing	50.74(100%)	34.71(69%)	16.03(31%)
Non-Manufacturing	48.28(100%)	30.38(63%)	17.90(37%)
Services	116.34(100%)	80.17(69%)	36.17(31%)
Total	450.22(100%)	387.38(84%)	72.84(16%)

Source: National Sample Survey Organization(NSSO)

A transition of increasing employment from unorganized to organized sector is an indication of socio-economic development. How-ever the condition of employment is contrary to this transition. Indian economy is marked by the disguised employment as a large chunk of the man force is employed in agriculture sector where the very low marginal productivity. The table above shows the similar trend. Employment in manufacturing, non manufacturing, and services is roughly one-third and large share of unorganized employment in the agricultural sector. For a sustaining inclusive growth, government is required to develop policy framework for employment generation as a top priority. MNREGS is a successful attempt in this regard. Poverty alleviation schemes through resource distribution may be panacea for short term but in long term employment generation is the only way out. This is because resource distribution through subsidization enlarges fiscal deficit and burden on exchequer while employment is productive in its tendency.

1.5.3 Skill Building and Capacity Development

Skill deficit is a major impediment in IG. Government has created a framework for entrepreneurship development. Employment generation may not fulfill the rising employment demand due to large share of the population lying in the informal sector. Skill and capacity development are therefore cornerstone. Indian govt. has set a target of providing skills to 500 million people by 2022. Key agencies involved are National Skill Development Council, National Council of Vocational Training and Directorate General of Employment and Training, other govt. and non-govt. agencies, business chambers etc. The govt. has also launched a skill development initiative scheme; Modular Employable Schemes (MES) and Vocational Training Provider (VTP) are examples of such initiatives by the govt. Besides, the govt in eleventh plan has also proposed to build a '**Virtual Skill Development Resource Network'**, with a facility for trainees at 50000 Skill Development Centers, through information technology and communication intervention. A National Skills Inventory is also created which is a database for **'Skills Deficiency Mapping'** for employment by providing a common platform for information exchange between employers and employment seekers.

1.5.4 Agriculture

Agriculture is the central pillar of inclusive growth. It provides employment to unskilled workforce and sustenance to the population. Average annual growth rate of agriculture and allied sector was 3.6% during XI Plan against 2.5% and 2.4% in IX and X plans respectively. Although the rate has increased but at the same time rural distress, farmers' suicides and debt have also increased. Inflation, vulnerability to world commodity prices, regional disparities have been newly emerging challenges. The policy framework of the govt. is in-adequate. There is a gross miss-match on both supply side and demand side. Land issues, Subsidies and lack of investments, Land and Water management, Technology, Credit, Diversification and Marketing, Institutional set-up and prices are chronicle problem. Five factors which the govt. needs to work out and that may unblock the agriculture growth potential are: public investment, private investment, technology, diversification and fertilizer. Agriculture can be a mean to economic growth if the efforts are target oriented. Agriculture growth rate above 4% and investment in agriculture must

be around 15%-20% of the GDP. Equitable sharing of the benefits of agriculture growth between various levels of the population pyramid is much needed. Environment friendly practices can provide the sustainability. In addition to the targets, govt. must check excess of subsidies. Subsidies over a limit are burden on exchequer and it leads to the degradation of environment. The choice of right technology is also a leading concern in Indian agriculture. Genetic Modified crops are widely debated and existing technology is showing a characteristic phenomenon called **"technology fatigue"** i.e. technology applied to the agriculture has failed to increase the agricultural productivity. Diversification of the land between farmers and between different crops has limited the growth prospect of agriculture. Small farmers are not able to make the most of increasing agriculture productivity. Crops like wheat and rice are most grown due to less risk in these commodities. Crops diversification is not practiced in Indian agriculture at a broad level because of lack of proper infrastructure.

1.6 Issues related to IG

Various issues are involved when it comes to IG. Some issues are quite basic which lack clarity in vision; some are related to the lack of willingness while others may be due to the constraints which can be overcome in short term. Some key issues associated with IG are following:

1.6.1 Growth vs. Development

Over a period since economic reforms, India's economic growth has witnessed a mixed effect on the real development. GDP is considered the key parameter of economic growth. In reality, the increasing GDP growth rate has not trickled down to the bottom of pyramid. A research study carried by Indira Gandhi Institute of Development Research, an autonomous think-tank under Reserve Bank of India find out that economic growth has *"**trickled down**" in both rural and urban areas; **it has not been in favour of the poor**. In urban areas, growth has been "**anti-poor.**"* BPL and poor of the poor still remains marginalized. Such issues are quite fundamental in nature as they depict the lack of clarity in the vision and strategy of the policy. It is time, to put the IG as the central agenda of the economic growth.

1.6.2 Defining Poor

Who are poor and who should be the beneficiaries of the welfare schemes? Without a proper criterion of poverty, proper policy framework for inclusive growth can not be developed. Efforts have been put taking calorie values, wages etc. as criteria of defining poverty line. The lacuna of poverty definition also impacts the other associated areas such as employment schemes and subsidies for the poor. All this have repercussions on inclusive growth. Govt. is gung-ho on the observation the reducing rate of poverty which has come down to the level of 35% but the inequality has increased at the same time.

1.6.3 Fiscal Deficit

Development schemes run by the govt. have created a dilemma of expanding fiscal deficit. India's current fiscal deficit situation has limited the prospect of development schemes. India has significantly **high debt to GDP ratio**, balance of trade (negative) and current account deficit (CAD). Last year's estimates were: fiscal deficit: 5.2% of GDP; CAD: USD 92 bn; stimulus package: Rs. 1.84 lakh crore (3% of GDP). The govt. has set a target of reducing fiscal deficit to the level of 3 per cent by 2016-17. Fiscal deficit also creates the problem of inflation which in turn makes the poor even more vulnerable. Increasing CAD is comparatively more detrimental to IG than fiscal deficit.

1.6.4 Ill-effects of LPG

Liberalization, privatization and globalization of Indian economy has ushered the poor to vulnerability and irony. Liberalization and privatization have particularly suited to the Indian private corporate, elites and rich. Globalization has created a question of existence in-front of small and medium enterprises (SMEs). Have a look at the plight of the women employed in the cotton fields of northern India. Now, India's share of textile industries in world trade is remarkably low. All this have limited the growth potential and created the problem of unemployment. The malfunctioning of LPG in Indian scenario has surmounted new issues viz. gender inequality and threat to women empowerment.

1.6.5 Social-injustice

Govt. is gung-ho on their efforts of reducing the poverty rate; even the UN's MDG report

affirms that India's poverty rate is expected to fall to 22% by 2015 from 51% in 1990. At the same time, there are other chronicle issues which have magnified over a period e.g. child malnutrition. A Hunger and Malnutrition Survey 2011 revealed something shocking; in the 100 focus districts with the poorest child development indicators, over 40 per cent of children were underweight and almost 60 per cent stunted. Citing the report, the PM lamented: the problem of malnutrition a matter of national shame. Rich have become richer and poor have become poorer, marginalized are even more ignored, also, poverty has concentrated more in backward classes, minority, SCs and STs.

1.6.6 Infrastructure

Infrastructure is fundamental to the economic and inclusive growth. In budgetary allocations, Infrastructure is assigned the highest expenditure. Major proportion of this allocation goes to large projects such as power generation, freight corridors, and airports etc while rural infrastructure is immensely neglected. In many areas, the lack of proper infrastructure is acute. Major thrust of the infrastructural development of the govt. has been from view of industrial development. Agriculture, for an instance, has always lacked the focus. Infrastructure to support and facilitate backward linkages in agriculture e.g. cold storage houses, processing facilities, rural transport is need of the hour. Apart from that, the rural-urban divide in infrastructure development has become prominent. For a case in point, Eleventh plan recognizes that: *It is an **irony** that the phenomenal growth in the telecom sector has also created a **digital divide** in terms of mobile and land line connections and Internet and broadband connections **between urban and rural India.*** The plan also highlights the dearth of rural electrification and observes that rural electrification an important instrument to bring about **inclusive growth** by making electricity available to farmers and in rural areas. 7.8 crore rural households still remains un-electrified.

1.6.7 Low Technology and Innovation

Indian economy is suffering from a technology-lag vis-a-vis developed economies and other industrialized economies. Poor rate of technology and innovation creates a burden on capital and resource base. India's agricultural productivity is far below to that of

developed countries. Agriculture is mainstay of the economic growth and a source to unskilled work-force employment. The rapid technological development in primary activities such as agriculture creates a question of economic duality in front of the policy makers of the country. This means, if a high rate of technology is adopted in primary sector industry, then it may lead to high rate of unemployment, but at the same time, without technological progress, the productivity would be less to sustain the pressure on the economy. Considering this, there is an immediate requirement of technologies such as green technology, environmentally friendly technologies and renewable energy technology etc. so that the pressure on natural resources may be overcome. Policy makers have to address the economic duality judiciously. Apart from that, the innovation per se is required to be a harbinger of IG which is broad sense is termed as **inclusive innovation.** Inclusive innovation means the creation and absorption of product and services relevant to the poor. In this case, SMEs , MSMEs and grass root innovation enabling agencies such as National Innovation Foundation can play a decisive role. Finance, competency and infrastructure are the foundation for inclusive innovation and enabler for IG.

1.7 Policy Approaches for Inclusive Growth

As far as the policy framework is concerned, the govt. lacks a suitable policy vis-a-vis IG. Nonetheless, the govt. has experimented with various models of IG. According to World Bank's review of India's Development Policy, IG policy implementation is facing a *dilemma of improving the delivery of core public services, and maintaining rapid growth while spreading the benefits of this growth more widely.* The strategy for the inclusive growth per se needs to be an integrating strategy comprising state, market, civil societies and common man. Since independence, the govt. has practiced various types of policy measures, a few are discussed ahead:

1.7.1 Growth oriented policy

India's economic planning started with growth oriented policy. First plan (1951-56) was started with an objective of **rapid and balanced growth**. The second plan (1956-61) also put a thrust on rapid growth of industrialization. More recent, twelfth five year plan (2007-12) has blended economic growth with inclusion with an objective of **Faster,**

Sustainable and More Inclusive Growth. Arvind Virmani, ex-chief economic advisor to govt. of India has divided the policy approaches for economic growth in following phases:

Phase 1: 1950-1 to 1979-80 (two sub-phases: 1950 50-65 to 1966-79)

Phase 2: 1980-81 to 1993-94 (change in policy regime, reform initiation and structural adjustment in the economic policy.)

Phase 3: 1994-5 to onwards (Statistical significant growth break (1994-5) and rising growth trend)

The rate of economic growth has increased with time, particularly in phase 3, which is a result of radical reforms during 1990s. However, it has failed to emphasize inclusive growth by creating more jobs for low and semi-skilled workers. Growth is not equally shared and in many parts of the country, people still remain poor and disadvantaged in significant proportion.

1.7.2 Direct intervention

The direct intervention is facilitating the IG though legislation, regulation, credit facilitation and providing livelihood security are the forms of direct intervention by the govt. Now, the orientation of administrative machinery is transformed from regulator to facilitator. Govt. direct intervention from the perspective of IG now be seen in making available the requisite social investment, establishing independent regulatory institutional mechanism, drafting incentive based policy and encouraging entrepreneurial innovation. Safety nets or anti-poverty measures are the some other ways of direct intervention of the govt. towards IG.

1.7.3 Capacity Building

Skill development is basically capacity development. However, capacity development is not only limited to skill building or entrepreneurial innovation. Capacity development through training of rural development functionaries is also a mean of capacity building. Now, creating job and market demand is not the only criteria of capacity development. Increasing efficiency, effectiveness, accountability and transparency are also considered

the areas under capacity building initiatives of the govt. For example, if the objective of Deptt. of Rural Development is enhancing the livelihood security of households in rural areas though MNREGA then capacity building for enhancing effectiveness of Gram Sabha is one of the modalities to achieve the objective.

1.7.4 Welfare schemes

Food subsidies, public distribution of essential commodities, nutrition programs, financial support though micro finance are examples of the ways in which welfare schemes are implemented. For different types of beneficiaries (women, Children, BPL etc.) central and state govt. have come with the customized welfare schemes. The approach in welfare schemes is to benefit the beneficiaries through optimal allocation of resources and access to essential services. Integrated Child Development Scheme is a type of welfare scheme with children and women as beneficiaries. It is India's flagship scheme for the nutritional and developmental needs of children.

1.7.5 Public Participation

Without public participation at different level of governance, IG remains a distant dream. Govt. is encouraging the public participation in multifarious ways towards which the common man must show an affirmative and pro-active response. SHGs promotion is a typical example of public participation for IG. Govt. can provide the supporting platform for citizen centric services, the responsibility to deliver still is of the common man. SHGs support and promotion programs have yielded good results in South Indian states, Kerala and Andrapradesh particularly. Kerala govt. supported ***Kudumbasree*** programme have been successful in women empowerment and reducing poverty. Similar initiative of Andhra Pradesh namely **'Indira Kranti Pathakam'** is showing a good progress in social mobilization, gender empowerment and rural poverty reduction.

Lastly, policy intervention takes place both at micro and macro level. Improving fiscal discipline, trade liberalization, promoting Foreign Direct Investment, privatization, deregulation, tax reforms, labour laws, social safety nets, public expenditure etc. are important for macro policy measures while at the micro level, reducing inequality in income, improving public/social infrastructure, healthcare, education, access to essential

services, accountability and transparency, women empowerment, role of civil society organizations, etc are instrument of micro policy which needs to be re-worked.

1.8 Summary

As discussed at the outset, the approach paper for 11th Five Year Plan acknowledges that the economic growth has failed to be inclusive enough. The failure is a question of willingness, not of capacity. There is no dearth of capacity to achieve the goals of IG but willingness and shortsightedness. With a lot of enthusiasm, policies are framed; proper mechanism of implementation, monitoring and accountability is the central issue of all policies directed towards IG. Strategies should be easy to implement and productive e.g. the employment generation should be made productive and result oriented. When it comes to the BPL or the poorest of the poor, the productivity should be outcome based and not target oriented because the targeted mass under the inclusive growth is disadvantaged and unskilled mass. SME's and MSME's are labour intensive industries. Due to LPG, their share in employment has decreased. Govt. must look for change in labour laws at domestic level and trade laws at international level to safeguard the domestic interests. The onus of IG must be shared by all channel partners state, civil society organization (CSOs) and citizens e.g. CSOs can work in tandem with the PRIs in rural areas to make the social development schemes more efficient. Finally, there is a lack of convergence in policy. The policy framework has to be transformed giving primacy to the common man.

1.9 Questions

1.9.1 Discuss Financial Inclusion as a mean to Inclusive Growth? Identify the associated issues also.

1.9.2 In Indian Economy, Inclusive Growth is a utopian dream. Comment.

1.9.3 Explain the role of Ministry of Agriculture in accelerating Agriculture Development for Inclusive growth, strategic issues and policy option.

References

1. Chapter 1: Inclusive Growth: Vision and Strategy, Eleventh Plan Approach Paper, Planning Commission of India.
2. What is Inclusive Growth? World Bank, 2009.
3. India: Development Policy Review; World Bank.
4. India: Sustaining High and Inclusive Growth, OECD Policy Series, 2012.
5. An overview on Financial Inclusion, Deptt. of Financial Services, Ministry of Finance.
6. Hunger and Malnutrition Survey 2011.
7. Growth and Deprivation in India: What Does Recent Data Say?; Sripad Motiram and Karthikeya Naraparaju , Indira Gandhi Institute of Development Research (IGIDR), Feb 2013
8. P.R.Approach in Inclusive Growth : The Need for a Paradigm Shift; *Umakanta Mohapatra,* PRO to Chief Secretary, Odisha., Odisha Review 2012.
9. Achieving Inclusive Growth: The Challenge of a New Era; Duvvuri Subbarao, Governor,RBI
10. Joblessness and Informalization: Challenges to Inclusive Growth in India, Institute of Applied Manpower Research ,Planning Commission, Government of India

G.S. PAPER III – ECONOMIC DEVELOPMENT

GOVERNMENT BUDGETING

TABLE OF CONTENTS

1 Evolution of Budgeting

Budgeting is the process of estimating the availability of resources and then allocating them to various activities of an organization according to a pre-determined priority. In most cases, approval of a budget also means the approval to various spending units to utilize the allocated resources.

1.1 The Line Item Budget

- In the early nineteenth century, government budgeting in most countries was characterized by weak accounting procedures, adhocism, little central control and poor monitoring and evaluation.
- In the late nineteenth century, line-item budgeting was introduced in some countries. Indeed line item budgeting which is the most common form of budgeting in a large number of countries and suffers from several drawbacks was a major reform initiative then. The line item budget is defined as *"the budget in which the individual financial statement items are grouped by cost centers or departments .It shows the comparison between the financial data for the past accounting or budgeting periods and estimated figures for the current or a future period"*
- In a line-item system, expenditures for the budgeted period are listed according to objects of expenditure, or "line-items." These line items include detailed ceilings on the amount a unit would spend on salaries, travelling allowances, office expenses, etc. The focus is on ensuring that the agencies or units do not exceed the ceilings prescribed. A central authority or the Ministry of Finance keeps a watch on the spending of various units to ensure that the ceilings are not violated.
- The line item budget approach is easy to understand and implement. It also facilitates centralized control and fixing of authority and responsibility of the spending units. Its major disadvantage is that it does not provide enough information to the top levels about the activities and achievements of individual units.
- The weaknesses of the line item budgeting were sought to be remedied by introducing certain reforms. Performance budgeting was the first such reform.

1.2 Performance Budgeting

Unlike the traditional line item budget, a performance budget reflects the goal/objectives of the organization and spells out performance targets. These targets are sought to be achieved through a strategy(s). Unit costs are associated with the strategy and allocations are accordingly made for achievement of the objectives. A Performance Budget gives an indication of how the funds spent are expected to give outputs and ultimately the outcomes. However, performance budgeting has a limitation - it is not easy to arrive at standard unit costs especially in social programmes which require a multi-pronged approach.

1.3 Zero-based Budgeting

The concept of zero-based budgeting was introduced in the 1970s. As the name suggests, every budgeting cycle starts from scratch. Unlike the earlier systems where only incremental changes were made in the allocation, under zero-based budgeting every activity is evaluated each time a budget is made and only if it is established that the activity is necessary, are funds allocated to it. The basic purpose of ZBB is phasing out of programmes/activities which do not have relevance anymore. However, because of the efforts involved in

preparing a zero-based budget and institutional resistance related to personnel issues, no government ever implemented a full zero-based budget, but in modified forms the basic principles of ZBB are often used.

1.4 Programme Budgeting and Performance Budgeting

- Programme budgeting in the shape of planning, programming and budgeting system (PPBS) was introduced in the US Federal Government in the mid-1960s. Its core themes had much in common with earlier strands of performance budgeting.
- Programme budgeting aimed at a system in which expenditure would be planned and controlled by the objective. The basic building block of the system was classification of expenditure into programmes, which meant objective-oriented classification so that programmes with common objectives are considered together.
- PPBS went much beyond the core elements of programme budgeting and was much more than the budgeting system. It aimed at an integrated expenditure management system, in which systematic policy and expenditure planning would be developed and closely integrated with the budget. Thus, it was too ambitious in scope. Neither was adequate preparation time given nor was a stage-by-stage approach adopted. Therefore, this attempt to introduce PPBS in the federal government in USA did not succeed, although the concept of performance budgeting and programme budgeting endured.

- Many governments today use the "programme budgeting" label for their performance budgeting system. As pointed out by Marc Robertson, the contemporary influence of the basic programme budgeting idea is much wider than the continuing use of the label. It is defined in terms of its core elements as mentioned above. Programme budgeting is an element of many contemporary budgeting systems which aim at linking funding and results.

  "The extent of ongoing influence of programme budgeting is partly obscured by a wide variety of terminology used today to refer to programme such as "outcomes" or output groups (Australia) and 'Requests for Resource' (UK)"

- Programme budgeting by itself may not bring the outcome orientation. It is also difficult to make performance targets as part of the budget formulation process unless managers at various levels get involved in the budgeting process, involving prioritization of activities and resource allocation on that basis.

2 The Union of India's Budget

The annual statement of the outlays and tax revenues of the government of India together with the laws and regulations that approve and support those outlays and tax revenues make up the union budget. The union budget has two purposes:

1. To finance the activities of the union government
2. To achieve macroeconomic objectives.

The use of the union budget to achieve macroeconomic objectives such as employment, sustained economic growth, and price level stability is called fiscal policy.

2.1 The Institutions and Laws

The Government is not free to tax, borrow and spend money the way it likes. Since there is a limit to the resources the State can mobilize, the need for proper budgeting arises. Every item of expenditure has to be well thought out and the total outlay worked out for a specific period. Also, there must be the sanction of the people behind all these financial proposals, expressed clearly through their chosen representatives.

It is in this context that the Budget of the Government of India is presented before both the Houses of Parliament every year. The Budget contains the **financial statements** of the government embodying the **estimated receipts and expenditure** for one financial year, which at present commences on the 1st of April every year. In other words, it is a proposal of how much money is to be spent on what and how much of it will be contributed by whom or raised from where during the coming year. The Budget gives estimates for the ensuing year and offers an opportunity to the government to review and explain its financial and economic policy and programmes besides enabling the Parliament to discuss and criticize it.

The essential features of the financial procedure followed in India are laid down in the Constitution which ensures the supremacy of the Lok Sabha in financial matters. Constitution provides that no tax shall be levied or collected except by authority of Parliament and that the President shall, in respect of every financial year, cause to be laid before both Houses, the **Annual Financial Statement**.

- **Annual Financial Statement (AFS)**
  - provided under Article 112
  - shows estimated receipts and expenditure of the Government of India for the following year, estimates as well as revised estimates for the current year as also expenditure for the previous year
  - The receipts and disbursements are shown under the three parts, in which Government Accounts are kept viz. (i) Consolidated Fund (ii) Contingency Fund and (iii) Public Account.
  - Under the Constitution, Annual Financial Statement distinguishes expenditure on revenue account from other expenditure. Government Budget, therefore, comprises Revenue Budget and Capital Budget. The estimates of receipts and expenditure included in the Annual Financial Statement are for the expenditure net of refunds and recoveries, as will be reflected in the accounts.

The Constitution provides for a **Consolidated Fund of India** to which all revenues received by way of loans, advances etc. are credited. The expenditures are embodied in the Budget as:

- The sums required to meet the items of expenditure described by the Constitution as those charged on the Consolidated Fund of India
- The sums required to meet other expenditures proposed to be made from the Consolidated Fund of India.

Expenditures contained in the first category can be discussed in both the Houses but are not submitted to vote of either House. In other words, they constitute the non-votable part of the Budget. The expenditures charged on the Consolidated Fund of India include:

- The emoluments and allowances of the President
- The salaries and allowances of the Chairman, Deputy Chairman of the Rajya Sabha and the Speaker and the Deputy Speaker of the Lok Sabha
- The salary and other allowances payable to the judges of the Supreme Court
- Any other expenditure declared by the Constitution or by Parliament by law to be so charged

The expenditure falling in the second category are presented in the form of Demands for Grants to the Lok Sabha and are voted by this House. The Lok Sabha has the right to assent or to refuse any such demand or reduce the demand specified therein. No such demand shall be made except on the recommendation of the President. Since these demands are meant to fulfill the programmes and policies of the government, if any demand as a whole is voted down, it tantamounts to a defeat of the government.

The significance of the Consolidated Fund, the Contingency Fund and the Public Account as well as the distinguishing features of Revenue and Capital Budget are given briefly below.

- The existence of the Consolidated Fund of India (CFI) flows from Article 266 of the Constitution. All revenues received by Government, loans raised by it, and also its receipts from recoveries of loans granted by it form the Consolidated Fund. All expenditure of Government is incurred from the Consolidated Fund of India and no amount can be drawn from the Consolidated Fund without authorization from Parliament.

- Article 267 of the Constitution authorizes the Contingency Fund of India which is an imprest placed at the disposal of the President of India to facilitate Government to meet urgent unforeseen expenditure pending authorization from Parliament. Parliamentary approval for such unforeseen expenditure is obtained, post-facto, and an equivalent amount is drawn from the Consolidated Fund to recoup the Contingency Fund. The corpus of the Contingency Fund as authorized by Parliament presently stands at 50 crore.

- Moneys held by Government in Trust as in the case of Provident Funds, Small Savings collections, income of Government set apart for expenditure on specific objects like road development, primary education, Reserve/Special Funds etc. are kept in the Public Account. Public Account funds do not belong to Government and have to be finally paid back to the persons and authorities who deposited them. Parliamentary authorisation for such payments is, therefore, not required, except where amounts are withdrawn from the Consolidated Fund with the approval of Parliament and kept in the Public Account for expenditure on specific objects, in which case, the actual expenditure on the specific object is again submitted for vote of Parliament for drawal from the Public Account for incurring expenditure on the specific object.

- Revenue Budget consists of the revenue receipts of Government (tax revenues and other revenues) and the expenditure met from these revenues. Tax revenues comprise proceeds of taxes and other duties levied by the Union. The estimates of revenue receipts shown in the Annual Financial Statement take into account the effect of various taxation proposals made in the Finance Bill. Other receipts of Government mainly consist of interest and dividend on investments made by Government, fees, and other receipts for services rendered by Government. Revenue expenditure is for the normal running of Government departments and various services, interest payments on debt, subsidies, etc. Broadly, the expenditure which does not result in creation of assets for Government of India is treated as revenue expenditure. All grants given to State Governments/Union Territories and other parties are also treated as revenue expenditure even though some of the grants may be used for creation of assets.

- Capital Budget consists capital receipts and capital payments. The capital receipts are loans raised by Government from public, called market loans, borrowings by Government from Reserve Bank and other parties through sale of Treasury Bills, loans received from foreign Governments and bodies, disinvestment receipts and recoveries of loans from State and Union Territory Governments and other parties. Capital payments consist of capital expenditure on acquisition of assets like land, buildings, machinery, equipment, as also investments in shares, etc., and loans and advances granted by Central Government to State and Union Territory Governments, Government companies, Corporations and other parties.

2.2 Stages

The procedure adopted in the Parliament while dealing with financial matters, specifically the Budget, involves many stages:

2.2.1 Presentation of Budget

The Budget is presented in two parts, namely, the **Railway Budget**, pertaining to railway finance and the **General Budget**. The primary idea behind presenting a separate Budget for the railways is to secure stability for the estimates by providing for an assured contribution by the railways and also to introduce flexibility in the administration of the railway finance.

The Budget is presented with a 'Budget Speech' which is in two parts: Part A contains 'a general economic survey' of the country and Part B 'the taxation proposals' for the ensuing financial year.

The Rules of Procedure and Conduct of Business in the **Lok Sabha** for Financial Legislation are as follows:

- The **Annual Financial Statement** or the **Statement of the Estimated Receipts and Expenditure** of the Government of India in respect of each financial year (also called '**the Budget**') is presented to the House on such day as the President may direct.

- The Budget is presented to the House in such form as the Finance Minister may, after considering the suggestions, if any, of the Estimates Committee, settle.

- There shall be no discussion of the Budget on the day on which it is presented to the House.

- **DEMANDS FOR GRANTS**
    - **Article 113** of the Constitution mandates that the estimates of expenditure from the Consolidated Fund of India included in the Annual Financial Statement and required to be voted by the Lok Sabha are submitted in the form of Demands for Grants.
    - The Demands for Grants are presented to the Lok Sabha along with the Annual Financial Statement.
    - Generally, **separate demands** are made for the grants proposed for each Ministry.
    - Each demand contains first a statement of the **total grant proposed** and then a statement of the **detailed estimate** under each grant divided into items.
    - Demands are required to be made in the form of a **motion** but in practice, they are assumed to have been moved and are proposed by the Chair to save the time of the House.

- **General discussion on Budget**
    - Subsequently, on a day appointed by the Speaker, the House is at liberty to discuss the Budget as a whole or any question of principle involved therein, but no motion is moved nor is the Budget submitted to the vote of the House.
    - The Finance Minister has a general right of reply at the end of the discussion.
    - The Speaker may, if he thinks fit, prescribe a time limit for speeches.

- **Voting of demands for grants**
    - Motions may be moved to reduce any demand for grant.
    - No amendments to motions to reduce any demand for grant are permissible.

- **Cut motions**

  A motion may be moved to reduce the amount of a demand in any of the following ways:-
    - '**that the amount of the demand be reduced to Re.1/-**' representing disapproval of the policy underlying the demand. Such a motion shall be known as '**Disapproval of Policy Cut**'. A member giving notice of such a motion has to indicate in precise terms the particulars of the policy which he proposes to discuss. The discussion is confined to the specific point or points mentioned in the notice and it is open to members to advocate an alternative policy;
    - '**that the amount of the demand be reduced by a specified amount**' representing the economy that can be effected. Such specified amount may be either a lump sum reduction in the demand or omission or reduction of an item in the demand. The motion shall be known as '**Economy Cut**'. The notice has indicate briefly and precisely the particular matter on which discussion is sought to be raised and speeches shall be confined to the discussion as to how economy can be effected;

- '**that the amount of the demand be reduced by Rs.100/-**' in order to ventilate a specific grievance which is within the sphere of the responsibility of the Government of India. Such a motion shall be known as '**Token Cut**' and the discussion thereon is confined to the particular grievance specified in the motion.

For the sake of convenience, usually the main motion for demand and the Cut Motion relating to it are put and discussed together in the House. Cut Motion, thus is a device to initiate the discussion on demand for grants. After discussion, first the cut motions are disposed off and thereafter, the demands for grants are put to vote of the House. Cut Motions are generally moved by members from the opposition, and if carried, amount to a vote of censure against the government.

- **Speaker to decide admissibility**
  - The Speaker decides whether a cut motion is admissible or not under the rules and may disallow any cut motion when in his opinion it is an abuse of the right of moving cut motions or is calculated to obstruct or prejudicially affect the procedure of the House or is in contravention of the rules.

- **Notice of cut motions**
  - If notice of a motion to reduce any demand for grant has not been given one day previous to the day on which the demand is under consideration, any member may object to the moving of the motion. Such an objection generally prevails, unless the Speaker allows the motion to be made.

- **Vote on Account**
  - A motion for vote on account states the total sum required and the various amounts needed for each Ministry and Department.
  - Amendments may be moved for the reduction of the grant.
  - Discussion of a general character may be allowed on the motion or any amendments.

However, the details of the grant are not discussed further than is necessary to develop the general points.

  - In other respects, a motion for vote on account is dealt in the same way as if it were a demand for grant.

- **Supplementary etc. grants and votes of credit**
  - Supplementary, additional, excess and exceptional grants and votes of credit are regulated by the same procedure as is applicable in the case of demands for grants

.

- **Token grant**
  - When funds to meet proposed expenditure on a new service can be made available by reappropriation, a demand for the grant of a token sum may be submitted to the vote of the House. If the House assents to the demand, funds may be made available.

- **APPROPRIATION BILL**

Under the Constitution, no money can be withdrawn from the Consolidated Fund of India without enactment of law by the Parliament. In pursuance of this, a Bill incorporating all the demands for Grants voted by the Lok Sabha, along with the expenditure charged on the Consolidated Fund, is introduced in the Lok Sabha. This Bill is known as the Appropriation Bill. The Bill, as the name suggests, intends to give legal authority to the government to appropriate the expenditure from and out of the Consolidated Fund.

Procedure regarding Appropriation Bill

- The procedure in regard to the passage of an Appropriation Bill is the same as for any other Bill, generally with only those modifications that the Speaker may consider necessary.
- The debate on an Appropriation Bill, however, is restricted to those matters which have not already been raised while the relevant demands for grants were under consideration.
- No amendments can be proposed.

After the Bill is passed by the Lok Sabha, the Speaker certifies it as a Money Bill and transmits it to the Rajya Sabha. The latter House has no power to amend or reject the Bill, but has to give its concurrence. The bill, thereafter, is presented to the President for his assent.

- **FINANCE BILL**

At the time of presentation of the Annual Financial Statement before Parliament, a Finance Bill is also presented in fulfillment of the requirement of Article 110 (1)(a) of the Constitution, detailing the imposition, abolition, remission, alteration or regulation of taxes proposed in the Budget. A Finance Bill is a Money Bill as defined in Article 110 of the Constitution. It is accompanied by a Memorandum explaining the provisions included in it.

Procedure regarding Finance Bill

- In this rule "Finance Bill" means the Bill ordinarily introduced in each year to give effect to the financial proposals of the Government of India for the next following financial year and includes a Bill to give effect to supplementary financial proposals for any period.
- At any time after the introduction in the House of a Finance Bill, the Speaker may allot a day, for the completion of all or any of the stages involved in the passage of the Bill by the House. Thereafter, the Speaker, at the specified hour on the allotted day, forthwith puts every question necessary to dispose of all the outstanding matters in connection with the stages for which the day has been allotted:

3 Weaknesses in the Budgetary Process

3.1 WEAKNESSES IN RESOURCE ALLOCATION AND USE

Many of the weaknesses in budgeting reflect the failure to address linkages between the various functions of budgeting. The following factors contribute to budget systems and processes that create a disabling environment for performance in the public sector, both by commission and by omission:

- Almost exclusive focus on inputs, with performance judged largely in terms of spending no more, or less, than appropriated in the budget;
- Input focus takes a short-term approach to budget decision making; failure to adequately take account of longer-term costs (potential and real), and biases in the choice of policy instruments (e.g., between capital and current spending and between spending, doing, and regulation) because of the short-term horizon;
- A bottom-up approach to budgeting that means that even if the ultimate stance of fiscal policy was appropriate (and increasingly after 1973 it was not) game playing by both line and central agencies led to high transaction costs to squeeze the bottom-up bids into the appropriate fiscal policy box;
- A tendency to budget in real terms, leading either to pressure on aggregate spending where inflation is significant (which was often validated through supplementary appropriations) or arbitrary cuts during budget execution with adverse consequences at the agency level;
- Cabinet decision making focused on distributing the gains from fiscal drag across new spending proposals;
- Cabinet and/or central agencies extensively involved in micro-decision making on all aspects of funding for ongoing policy;
- Last minute, across-the-board cuts, including during budget execution;
- Weak decision making and last-minute cuts cause unpredictability of funding for existing government policy; this is highlighted to the centre by central budget agencies on the alert to identify and rake back “fortuitous savings;”
- Strong incentives to spend everything in the budget early in the year and as quickly as possible, since the current year’s spending is the starting point for the annual budget haggle and the fear of across-the-board cuts during execution;
- Existing policy itself (as opposed to its funding) subject to very little scrutiny from one year to the next. (This and previous point epitomize the worst dimension of incremental budgeting);
- Poor linkages between policy and resources at the centre, between the center and line agencies, and within line agencies because of incremental budgeting;
- A lack of clarity as to purpose and task and therefore poor information on the performance of policies, programmes and services, and their cost because of poor linkages;
- The linking together (in association with the point above) within government departments of policy advising, regulation, service delivery and funding and an aversion to user charging; and
- Overall, few incentives to improve the performance of resources provided.

3.2 Specific Weaknesses in the Indian Budgetary System and Implementation

- *Unrealistic budget estimates*
- *Delay in implementation of projects*
- *Skewed expenditure pattern* with a major portion getting spent in the last quarter of the financial year, especially in the last month.
- *Inadequate adherence to the multi-year perspective and missing 'line of sight' between plan and budget*
- *No correlation between expenditure and actual implementation*
- *Ad hoc project announcements*
- Emphasis on compliance with procedures rather than on outcomes.
- Irrational plan / non-plan distinction leads to inefficiency in resource utilization.

3.3 Budgetary Reforms

Attempts are continuously being made to overcome as many of the shortcomings as possible. A good example is the trend in OECD countries. The common elements of the budgetary reforms in OECD member countries are:

3.3.1 Medium Term Budget Frameworks

Medium-term budget frameworks form the basis for achieving fiscal consolidation. They need to clearly state the government's medium term fiscal objectives in terms of high-level targets such as the level of aggregate revenue, expenditure, deficit/surplus, and debt. They then need to operationalise these high-level targets by establishing hard budget constraints for individual ministries and programmes over a number of years.

3.3.2 Prudent Economic Assumptions

Deviations from the forecast of the key economic assumption underlying the budget are the government's key fiscal risk. There is no single factor more responsible for "derailing" fiscal consolidation programmes than the use of incorrect economic assumptions. Great care must be taken in making them and all key economic assumptions should be disclosed explicitly. Sensitivity analysis should be made of what impact changes in the key economic assumptions would have on the budget. Furthermore, a comparison should be made between the economic assumptions used in the budget and what private sector forecasters are applying for the same time period where practicable. The establishment of an independent body to recommend the economic assumptions to be used in the budget may be considered as well. All this serves to place safeguards against the use of unrealistic, or "optimistic," economic assumptions.

3.3.3 Top-Down Budgeting Techniques

Budgeting has traditionally operated on a bottom-up principle. This means that all agencies and all ministries send requests for funding to the finance ministry. These requests greatly exceed what they realistically believe they will get. Budgeting then consists of the Finance Ministry negotiating with these

ministries and agencies until some common point is found. This bottom-up system has several disadvantages to it. First, it is very time consuming and

it is essentially a game; all participants know that the initial requests are not realistic. Second, this process has an inherent bias for increasing expenditures; all new programmes, or expansion of existing programs, are financed by new requests; there was no system for reallocation within spending ministries and there were no pre-set spending limits. Third, it was difficult to reflect political priorities in this system as it was a bottom-up exercise with the budget "emerging" at the end of this process. This manner of budgeting is now being abandoned and replaced with a new top-down approach to budget formulation. This has been of great assistance in achieving fiscal consolidation.

The starting point for the new system is for the government to make a binding political decision as to the total level of expenditures and to divide them among individual spending ministries. This decision is made possible by the medium-term expenditure frameworks which contain baseline expenditure information, i.e. what the budget would look like if no new policy decisions were made. The political decision is whether to increase expenditures for a high-priority area, for example education, and to reduce expenditures, for example defence programs. Only the largest and most significant programmes reach this level of political reallocation. The key point is that each ministry has a pre-set limit on how much it can spend.

3.3.4 Relaxing Central Input Controls

This is based on the simple premise that the heads of individual agencies are in the best position to choose the most efficient mix of inputs to carry out the agency's activities. The end-result is that an agency can produce the same services at less cost, or more services at the same cost. This greatly facilitates fiscal consolidation strategies by mitigating their effects on services.

Relaxing central input controls operates at three levels. First, the consolidation of various budget lines into a single appropriation for all operating costs (salaries, travel, supplies, etc.). Second, the decentralization of the personnel management function. Third, the decentralisation of other common service provisions, notably accommodations (buildings). The can be seen as the public sector's version of "deregulation."

3.3.5 An Increased Focus on Results

An increased focus on results is a direct quid pro quo for relaxing input controls as described above. Accountability in the public sector has traditionally been based on compliance with rules and procedures. It didn't matter what you did as long as you observed the rules. Now, when the public sector is deregulated, a new results-based system is needed to hold managers accountable. This is a fundamental change: holding managers accountable for what they do, not how they do it.

3.3.6 Budget Transparency

The budget is the principal policy document of government, where the government's policy objectives are reconciled and implemented in concrete terms. Budget transparency – openness about policy intentions, formulation and implementation – is therefore at the core of good governance agenda. If we take a look at fiscal transparency in concrete terms, we can say that it has three essential elements:

- The first is the release of budget data. The systematic and timely release of all relevant fiscal information is what we typically associate with budget transparency. It is an absolute pre-requisite, but it is not enough.
- The second element is an effective role for the legislature. It must be able to scrutinize the budget reports and independently review them. It must be able to debate and influence budget policy and be in a position to effectively hold the government to account. This is both in terms of the constitutional role of the legislature and the level of resources that the legislature has at its disposal.
- The third element is an effective role for civil society, through the media and nongovernmental organisations. Citizens, directly or through these vehicles, must be in a position to influence budget policy and must be in a position to hold the government to account. In many ways, it is a similar role to that of the legislature albeit only indirectly.

3.3.7 Modern Financial Management Practices

The modernisation of financial management within governments made great advances during the past ten years. The sheer scale of government means that such improvements had a material effect on fiscal outcomes. These include the introduction of accruals, capital charges, carry-overs of unused appropriations, and interest-bearing accounts.

4 Key Features of Budget 2013-2014

4.1 State of the Economy and Challenges Ahead

- Getting back to potential growth rate of 8 percent is the challenge facing the country
- Slowdown in Indian economy has to be seen in the context of slowing global economic growth from 3.9 per cent in 2011 to 3.2 per cent in 2012.
- However, no reason for gloom or pessimism. Of the large countries of the world only China and Indonesia growing faster than India in 2012-13. In 2013-14, only China projected to grow faster than India.
- Between 2004 and 2008, and again in 2009-10 and 2010-11 the growth rate was over 8 per cent and crossed 9 per cent in four of those six years.
- 11th Plan period had average growth rate of 8 percent, highest during any Plan period, entirely under the UPA Government.
- High growth rate can again be achieved through cooperation.
- 'Higher growth leading to inclusive and sustainable development' to be the *mool mantra.*
- Government believes in inclusive development with emphasis on improving human development indicators specially of women, the scheduled castes, the scheduled tribes, the minorities and some backward classes. This Budget to be a testimony to that commitment.

4.2 Fiscal Deficit, Current Account Deficit and Inflation

- The purpose of Budget to create economic space and find resources to achieve the objective of inclusive development.
- Dr Vijay Kelkar Committee made its recommendations to Government in September 2012. A new fiscal consolidation path with fiscal deficit at 5.3 per cent of GDP this year and 4.8 per cent of GDP in 2013-14 announced by the Government.
- Foreign investment in an imperative in view of the high current account deficit (CAD). FII, FDI and ECB three main source of CAD Financing. Foreign investment that is consistant with our economic objectives to be encouraged.
- Development must be economically and ecologically sustainable and democratically legitimate.
- Battle against inflation must be fought on all fronts. Efforts in the past few months have brought down headline WPI inflation to about 7 per cent and core inflation to about 4.2 percent.
- Food inflation is worrying but all possible steps to be taken to augment the supply side to meet the growing demand for food items.
- Government expenditure has both good and bad consequences and trick is to find the correct level of Government expenditure.
- Faced with huge fiscal deficit, Government expenditure rationalised in 2012-13. Some economic space retrieved. Space to be used to further Government's socioeconomic objectives.

4.3 The Plan and Budgetary Allocations

- Revised Estimates (RE) of the expenditure in 2012-13 at 96 per cent of the Budget Estimates (BE) due to slowdown and austerity measures.
- During 2013-14, BE of total expenditure of ` 16,65,297 crore and of Plan Expenditure at ` 5,55,322 crore.
- Plan Expenditure in 2013-14 to grow at 29.4 per cent over Revised Estimates for
- the current year.
- All flagship programmes fully and adequately funded and sufficient funds provided to each Ministry or Department consistent with their capacity to spend funds.
- Budget for 2013-14 to have one overarching goal of creating opportunities for our youth to acquire education and skills that will get them decent jobs or self employment.

References:

- Introduction to the Constitution of India by D.D. Basu
- Our Parliament by Subhash Kashyap
- http://indiabudget.nic.in/budget.asp
- 2nd ARC Report - Strengthening Financial Management Systems

(B)

G. S. PAPER-III: ECONOMIC DEVELOPMENT

- **Agricultural Marketing: Issues and Related Constraints**
- **Agricultural Transportation: Issues and Related Constraints**
- **e-Agriculture : e-Technology in The Aid of Farmers**

Agricultural Marketing: Issues and Related Constraints

Contents

Introduction

The term agricultural marketing is composed of two words -agriculture and marketing. Agriculture, in the broadest sense means activities aimed at the use of natural rural resources for human welfare, and marketing connotes a series of activities involved in moving the goods from the point of production to the point of consumption. Specification, the subject of agricultural marketing includes marketing functions, agencies, channels, efficiency and cost, price spread and market integration, producer's surplus etc. The agricultural marketing system is a link between the farm and the non-farm sectors.

In India Agriculture was practiced formerly on a subsistence basis; the villages were self sufficient, people exchanged their goods, and services within the village on a barter basis. With the development of means of transport and storage facilities, agriculture has become commercial in character; the farmer grows those crops that fetch a better price. Marketing of agricultural produce is considered as an integral part of agriculture, since an agriculturist is encouraged to make more investment and to increase production. Thus there is an increasing awareness that it is not enough to produce a crop or animal product; it must be marketed as well.

Agricultural marketing involves in its simplest form the buying and selling of agricultural produce. But, in modem times, marketing of agricultural produce is different from that of olden days. In modem marketing, agricultural produce has to undergo a series of transfers or exchanges from one hand to another before it finally reaches the consumer.

The National Commission on Agriculture defined agricultural marketing as a process which starts with a decision to produce a saleable farm commodity and it involves all aspects of market structure of system, both functional and institutional, based on technical and economic considerations and includes pre and post- harvest operations, assembling, grading, storage, transportation and distribution. The Indian council of Agricultural Research defined involvement of three important functions, namely (a) assembling (concentration) (b) preparation for consumption (processing) and (c) distribution.

Characteristics of Agricultural Product

Agricultural products differ in nature and contents from industrial goods in the following respects.

- Agricultural products tend to be bulky and their weight and volume are great for their value in comparison with many industrial goods.
- The demand on storage and transport facilities is heavier, and more specialized in case of agricultural products than in the case of manufactured commodities.
- Agricultural commodities are comparatively more perishable than industrial goods. Although some crops such as rice and paddy retain their quality for long time, most of the farm products are perishable and cannot remain long on the way to the final consumer without suffering loss and deterioration in quality.
- There are certain agricultural products such as mangoes and grapes which are available only in their seasons but this condition of seasonal availability is not found in the case of industrial goods.
- Agricultural produce is to be found scattered over a vast geographical area and as such its collection poses a serious problem. But such is not condition in the case of industrial goods.
- There are various kinds and varieties in farm produce and so it is difficult to grade them.
- The farmers especially in countries like India have low holding-back. Therefore he has to sell his produce immediately after the harvest at whatever price he can fetch because of his pressing needs.
- Finally, both demand and supply of agricultural products are inelastic. A bumper crop, without any minimum guaranteed support price from the government may spell disaster for the farmer. Similarly the farmer may not really be in a position to take advantage of shortages or deficit crop. These benefits may pass on only to the middleman.

Importance and Objectives of Agricultural Marketing

The farmer has realized the importance of adopting new techniques of production and is making efforts for more income and higher standards of living. As a consequence, the cropping pattern is no longer dictated by what he needs for his own personal consumption but what is responsive to the market in terms of prices received by him. While the trade is much organized the farmers are not Farmer is not conversant with the complexities of the marketing system which is becoming more and more complicated. The cultivator is handicapped by several disabilities as a seller. He sells his produce at an unfavourable place, time and price.

The objectives of an efficient marketing system are:

- To enable the primary producers to get the best possible returns,
- To provide facilities for lifting all produce, the farmers are willing, to sell at an incentive price,
- To reduce the price difference between the primary producer and ultimate consumer, and
- To make available all products of farm origin to consumers at reasonable price without impairing on the quality of the produce.

Facilities Needed for Farmer in Marketing

In order to have best advantage in marketing of his agricultural produce the farmer should enjoy certain basic facilities.

- He should have proper facilities for storing his goods.
- He should have holding capacity, in the sense, that he should be able to wait for times when he could get better prices for his produce and not dispose of his stocks immediately after the harvest when the prices are very low.
- He should have adequate and cheap transport facilities which could enable him to take his surplus produce to the mandi rather than dispose it of in the village itself to the village money-lender-cum-merchant at low prices.

- He should have clear information regarding the market conditions as well as about the ruling prices, otherwise may be cheated. There should be organized and regulated markets where the farmer will not be cheated by the "dalals" and "arhatiyas".
- The number of intermediaries should be as small as possible, so that the middleman's profits are reduced. This increases the returns to the farmers.

Methods of Sale and Marketing Agencies

The marketing of agricultural produce is generally transacted in one of the following ways.

- **Under cover or the Hatta System:** - Under this system, the sale is effected by twisting or clasping the fingers of the sellers agent under cover of a cloth. The cultivator is not taken into confidence until the final bid is cleared.
- **Open auction syste:** - Under this system the agent invites bids for the produce and to the highest bidder the produce is sold.
- **Dara system:-** Another related system is to keep the heaps of grains of different quantities and sell them at fiat rates without indulging in weightment etc.
- **Moghum sale:-** Under this system, sale is based on the verbal understanding between buyers and sellers and without mentioning the rate as it is understood that the buyers will pay the prevailing rate.
- **Private agreement:** - The seller may invite offers for his produce and may sell to one who might have offered the highest price for the produce.
- **Government purchase:** - The government agencies lay down fixed prices for different qualities of agriculture commodities. The sale is affected after a gradual processing for gradation and proper weightment. This practice is also followed in co-operative and regulated markets.
- **Marketing agencies:-** The various agencies engaged in the marketing of agricultural produce can be classified into two categories, viz., (i) government and quasi private agencies like the co-operative societies and (ii) private agencies. A chain of middlemen may be found operating both in Government and private agencies.

Existing Systems of Agricultural Marketing in India

The existing systems of agricultural marketing in India are as briefly described here: -

- **Sale to moneylenders and traders:-** A considerable part of the total produce is sold by the farmers to the village traders and moneylenders. According to an estimate 85% of wheat, 75% of oil seeds in U.P., 90% of jute in West Bengal and 60% of wheat, 70% of oil seeds and 35% of cotton in Punjab are sold by the farmers in the villages themselves. Often the money lenders act as a commission agent of the wholesale trader.
- **Hats and shanties:-** Hats are village markets often held once or twice a week, while shanties are also village markets held at longer intervals or on special occasions. The agents of the wholesale merchants, operating in different mandies also visit these markets. Most of "hats" are very poorly equipped, are uncovered and lack storage, drainage, and other facilities. It is important to observe that only small and marginal farmers sell their produce in such markets. The big farmers with large surplus go to the larger wholesale markets.
- **Mandies or wholesale markets:-** One wholesale market often serves a number of villages and is generally located in a city. In such mandies, business is carried on by arhatiyas. The farmers sell their produce to these arhatiyas with the help of brokers, who are generally the agents of arhatiyas. Because of the malpractices of these middlemen, problems of transporting the produce from villages to mandies, the small and marginal farmers are hesitant of coming to these mandies. The arhatiyas of these mandies sell off the produce to the retail merchants. However, paddy, cotton and oilseeds are sold off to the mills for processing. The marketing system for sugarcane is different. The farmers sell their produce directly to the sugar mills.
- **Co-operative marketing:-** To improve the efficiency of the agricultural marketing and to save farmers from the exploitation and malpractices of middlemen, emphasis has been laid on the development of co-operative marketing societies. Such societies are formed by farmers to take advantage of collective bargaining. A marketing society collects surplus from it members and sell it in the mandi collectively. This improves the bargaining power of the members and they are able to obtain a better price for the produce. In addition to the sale of produce, these societies also serve the members in a number of other ways.

Ideal Marketing System

The ideal marketing system is one that maximizes the long run welfare of society. To do this, it must be physically efficient, otherwise the same output could be produced with fewer resources, and it must be electively efficient, otherwise a change in allocation could increase the total welfare and where income distribution is not a consideration.

For maximum physical efficiency, such basic physical functions as transportation, storage, and processing should be carried on in such a way so as to achieve the highest output per unit of cost incurred on them. Similarly an ideal marketing system must allocate agricultural products in time, space and form to intermediaries and consumers in such proportions and at such prices as to ensure that no other allocation would make consumers better off. To achieve this condition, prices throughout the marketing system must be efficient and must at the same time be equal to the marginal costs of production and marginal consumer utility.

The following characteristics should exist in a good marketing system.

- There should not be any government interference in free and market transactions. The method of intervention include, restrictions on food grain movements, restrictions on the quantity to be processed, or on the construction of processing plant, price supports, rationing, price ceiling, entry of persons in the trade, etc. When these conditions are violated, the inefficiency in the market system creeps in and commodities pass into the black market. They are not then easily available at the fair prices.
- The marketing system should operate on the basis of the independent, but systematic and orderly, decisions of the millions of the individual consumer and producers whose lives are affected by it.
- The marketing system should be capable of developing into an intricate and far-flung marketing system in view of the rapid development of the urban industrial economy.
- The marketing system should bring demand and supply together and should establish equilibrium between the two.
- The marketing system should be able to generate employment by ensuring the development of processing industries and convincing the people to consume more processed foods, consistent with their tastes, habits and income levels.

Principles of Scientific Marketing for Farmers

The tendency among the farmers to market their produce has been increasing. Production is complete only when the produce is marketed at a price remunerative to the farmer. Increasing specialization in production of higher marketable/ marketed surplus of the produce and alternative channels of marketing has increased the importance of the marketing activity for the farmers. However, marketing activity should be guided by certain basic principles which are briefly explained. The farmers can gain more if they follow the following principles of scientific marketing: -

- **Always bring the produce for sale after cleaning it: -** Impurities, when present, lower the price offered by the traders-buyers in the market. The fall in price is more than the extent of impurity present in the produce would warrant. Clean produce attracts more buyers.
- **Sell different qualities of products separately: -** The produce of different varieties should be marketed separately. It has been observed that when different varieties of products are marketed separately, the farmers get a higher price because of the buyer's preference for specific varieties.
- **Sell the produce after grading it: -** Graded produce is sold off quickly. The additional income generated by the adoption of grading and standardization is more than the cost incurred in the process of grading and standardization. This shows that there is an incentive for the farmers for the production of good quality products.
- **Keep abreast of market information: -** Price information helps him to take decisions about when and where to sell the produce, so that a better price may be obtained.
- **Carry bags/packs of standard weights: -** Farmers should weigh their produce and fill each bag with a fixed quantity. Majority of the farmers do not weigh their produce before taking it for sale and suffer loss by way of a possible malpractice in weighing, or they may have to make excess payments in transit (octroi, transport costs, etc.).
- **Avoid immediate post-harvest sales:-** The prices of the produce touch the lowest level in the peak marketing season. Farmers can get better prices by availing of warehouses facilities existing in their areas. Farmers can meet their cash needs by pledging the warehouse receipt to nationalized banks.

- **Patronize co-operative marketing societies:-** Farmers can get better prices by sales through a cooperative and marketing society and can avoid the possibility of being cheated. The cost of marketing particularly the transportation cost for farmers having a small quantity of marketable surplus is minimized, for transportation is arranged co-operatively by the society and the profit earned by the society is shared among its members.
- **Sell the produce in regulated markets:-** The farmers should take their produce for sale to the nearly regulated markets rather than sell them in village or unregulated markets. In regulated markets marketing charges are on very few items. They get the sales slips in the regulated markets, which show the quantity of the produce marketed and the amount of charges deducted from the values of the produce. Sales slips protect farmers against the malpractices of deliberate erroneous accounting or unauthorized deductions.

Impact of Globalization: Contract Marketing

The macro level changes due to the New Economic Policy have had a direct impact in the field of agricultural marketing. So the impact of globalization has been highlighted here. As a result of globalization substantial investments in new ventures are being made by national as well as international corporations. A number of foreign companies are slated to enter the Indian market through collaborations with the well known Indian companies like Eagle Agro-farms, Maxworth Orchards, etc. It is clear that the wholesaler in the fresh products market as well as the processor will prefer contract marketing tie-ups with the farmers for sourcing his supply requirements.

The concept of contract farming is not new to India. Several years back, contract marketing was successfully tried in respect of "Hima peas". 'MARKFED' of Punjab also operated a scheme of contract marketing for green peas, Agrecotec proposes to setup country-wide retail network of shops for fresh fruit vegetable marketing. Direct marketing to consumer is already being done by the Mother Dairy through its outlets in Delhi. The successful integration of production and marketing under Apni mandi scheme in Punjab and the marketing managements of 'FRESH' in Hyderabad are clear signs that contract marketing is going to be increasingly resorted to in the years to come. “Pepsi Foods" also an another example of contract farming of potatoes and tomatoes. Under this farming farmers will be producing specific varieties or qualities tailored to meet the requirements of the processor or the fresh produce market.

The potential benefits of the contract marketing are:-

- Producers can reduce the market risk,
- Post harvest losses can be reduced,
- Technology can be transferred to the producers,
- Contract serve as a security for increased access to credit by both producers and processors,
- Contract may create a greater sense of common interest among the producers and induce greater involvement in group activities etc.

Common problems may be: -

- Volatility in market price,
- There is risk that the processors may manipulate the quality standards,
- Coordination problems may be there regarding delivery of inputs or produce,
- Processors may lack the competence or capacity to deliver the require technical assistance,
- Producers may become tied to a contract relationship by virtue of debt, specialization, or the disappearance of other markets and may be unable to adjust their production activities to changing conditions etc.

Many of these problems of contract farming will not arise where goodwill and credibility exist between the farmers and the concerned company.

Government Measures to Improve Agricultural Marketing

Government of India has adopted a number of measures to improve agricultural marketing, the important ones being - establishment of regulated markets, construction of warehouses, provision for grading, and standardization of produce, Standardization of weight and measures, daily broadcasting of market prices of agricultural crops on All India Radio, improvement of transport facilities, etc. These are as briefly described here : -

- **Marketing surveys: -** In the first place the government has undertaken marketing surveys of various

goods and has published these surveys. These surveys have brought out the various problems connected with the marketing of goods and have made suggestions for their removal.

- **Rural Godown Scheme: -** The scheme of Rural Godowns has been formulated for creation of scientific storage capacity with allied facilities in rural areas by encouraging private and cooperative sector to invest in the creation of storage infrastructure in the country. The eligible promoters for construction of rural godowns are individual farmers, group of farmers/ growers, partnership/ proprietary firms, NGO, companies, corporations, cooperatives, Agricultural Produce Marketing Committees, Marketing Boards and Agro Processing Corporations. Godowns built under the scheme should be structurally sound on account of engineering considerations and functionally suitable to store the agricultural produce. The general conditions for scientific construction will be as follows:
  - The construction of godown should be as per Central Public Works Department/State Public Works Department specifications or any other standard specifications laid down in this behalf.
  - The godown should be properly ventilated, should have well fitted doors, windows and ventilators and should be waterproof (control of moisture from floor, walls and roof etc.)
  - The godown structure should have protection from rodents.
  - The godown should have protection from birds (windows / ventilators with jali).
  - The openings of godown such as doors, windows etc. should be designed in such a manner that the godown can be sealed for effective fumigation etc.
  - The godown complex should have an easy approach road, pucca internal roads, proper drainage, arrangements for effective control against fire and theft and also have arrangements for easy loading and unloading of stocks.
- **Grading and Standardization: -** The government has done much to grade and standardize many agricultural goods. Under the Agricultural Produce (Grading and Marketing) Act the Government has set up grading stations for commodities like ghee, flour, eggs, etc. The graded goods are stamped with the seal of the Agricultural Marketing Department -AGMARK. The "Agmark" goods have a wider market and command better prices.
- **Marketing Research & Information Network: -** This Central Sector Scheme was sanctioned by the Ministry Of Agriculture in March, 2000. The objective of the scheme is to establish a nationwide information network for speedy collection and dissemination of market data for its efficient and timely utilization; to ensure flow of regular and reliable data to the producers, traders and consumers to derive maximum advantage out of their sales and purchases, and to increase efficiency in marketing by effective improvement in the existing market information system.The AGMARKNET portal is continuously being enriched with other information related to agricultural marketing for the benefit of farmers and other market users.
- **AgmarkNet: -** Agricultural Marketing 'AgmarkNet' is a unique live portal on agricultural commodities anywhere in the world, technically supported by a high capacity Central server and the programming capabilities of the NIC and the data is fed into the system in a decentralized mode through the voluntary cooperation of mandi staff. This is acceptable since the aim of the network is to keep farmers and other market functionaries informed of price and market related information. The portal is in public domain and anybody can access information from the portal as per their requirement. The portal is becoming popular as the information related to different aspects of marketing. The market information from the portal is being broadcasted by various Television News Channels and published in News Papers for benefits of farmers and other stakeholders. Efforts are also being made for dissemination of market information in association with other service providers like IKSL, NOKIA and IIT, Kanpur (BSNL Telecom Center of Excellence)etc. through SMS and voice mode to the farmers and other beneficiaries.
- **National Agricultural Market Atlas (NAMA): -** National Agricultural Market Atlas (NAMA) is an offshoot of the AGMARKNET with an additional component of spatial data. It provides GIS web interface to visualize the daily market scenario on National Map. Overlaying the above information with the Road/Rail network makes it more meaningful and strengthens the decisions taken by the planner as well as the farmer. It provides details about market functionaries, market infrastructure, etc. in the form of map. The geographical distribution of the markets in conjunction with market parameters will be of immense help both the monitoring authorities and the farming community.
- **CCS National Institute Of Agricultural Marketing, Jaipur: -** The National Institute of Agricultural Marketing (NIAM) is a premier National level Institute set up by the Government of India in August 1988 to offer specialized Training, Research, Education and Consultancy in the field of Agricultural Marketing.

NIAM has been involved in collecting market based data for the project of National Agricultural Marketing Atlas (NAMA) from different states by providing training, creating database of various markets. The data has been collected with the co-operation of Officers and Staff of State Agricultural Marketing Boards, Directorate of Agricultural Marketing, Department of Agriculture, Department of Horticulture of various States.

- **Terminal Market Complexes: -** To encourage private sector investment in agriculture, the Union ministry of agriculture is setting up terminal market complexes (TMCs), which are reducing wastage of farm produce and thereby boosting supply. It provides facilities such as cleaning, sorting, packing, storage, cold chain and transportation. It encourages participation of private enterprises which are selected as promoters in the TMC project through competitive bidding and are eligible for subsidy. Private enterprise can be any individual or consortium, while producers' association can be farmer societies, registered NGOs, etc and the TMC project are being implemented as a separate company to be registered under the Companies Act, 1956.
- **Organization of Regulated Markets: -** Regulated markets have been organized with a view to protect the farmers from the malpractices of sellers and brokers. The management of such markets is done by a market committee which has nominees of the State Government, local bodies, arhatiyas, brokers and farmers. Thus all interests are represented on the committee. These committees are appointed by the Government for a specified period of time. Important functions performed by the committees can be summarized as follows.
    - Fixation of charges for weighing, brokerages etc.,
    - Prevention of unauthorized deductions, underhand dealings, and wrong practices by the arhatiyas,
    - Enforcing the use of standardized weights,
    - Providing up to date and reliable market information to the farmers, and
    - Settling of disputes among the parties arising out of market operations.
- **Central Warehousing Corporation: -** The Central Warehousing Corporation was set up in 1957 with the purpose of constructing and running godowns and warehouses for the storage of agricultural produce. The states has set-up the State Warehousing Corporations with the same purpose. At present the Food Corporation is constructing its own network of godowns in different parts of the country.
- **Directorate of Marketing and Inspection: -** The directorate was set up by the Government of India to co-ordinate the agricultural marketing of various agencies and to advise the Central and State Governments on the problems of agricultural marketing. Activities of this directorate includes the following:-
    - Promotion of grading and standardization of agricultural and allied commodities;
    - Statutory regulation of markets and market practices;
    - Training of personnel;
    - Market extension;
    - Market research, survey and planning and
    - Administration of old storage order, 1980 and meat food products order, 1973.
- **Government Purchases and Fixation of Support Prices:-** In addition to the measures mentioned above, the Government also announces minimum support price for various agricultural commodities from time to time in a bid to ensure fair returns to the farmers. These prices are fixed in accordance with the recommendations of the Agricultural, Price Commission. If the prices start falling below the declared level (say, as a result of glut in the market), the Government agencies like the Food Corporation of India intervene in the market to make direct purchase from the farmers at the support prices. These purchases are sold off by the Government at reasonable price through the public distribution system.

Problems in Agricultural Marketing

Indian system of agricultural marketing suffers from a number of defects. As a consequence, the Indian farmer is deprived of a fair price for his produce. The main defects of the agricultural marketing system are discussed here:-

- **Improper warehouses: -** There is an absence of proper warehousing facilities in the villages. Therefore, the farmer is compelled to store his products in pits, mud-vessels, "Kutcha" storehouses, etc. These unscientific methods of storing lead to considerable wastage. Approximately 1.5% of the produce gets rotten and becomes unfit for human consumption. Due to this reason supply in the village market

increases substantially and the farmers are not able to get a fair price for their produce. The setting up of Central Warehousing Corporation and State Warehousing Corporation has improved the situation to some extent.

- **Lack of grading and standardization: -** Different varieties of agricultural produce are still not graded properly. The practice usually prevalent is the one known as "dara" sales wherein heap of all qualities of produce are sold in one common lot thus the farmer producing better qualities is not assured of a better price. Hence there is no incentive to use better seeds and produce better varieties.
- **Inadequate transport facilities: -** Transport facilities are highly inadequate in India. Only a small number of villages are joined by railways and pucca roads to mandies. Produce has to be carried on slow moving transport vehicles like bullock carts. Obviously such means of transport cannot be used to carry produce to far-off places and the farmer has to dump his produce in nearby markets even if the price obtained in these markets is considerably low. This is even truer with perishable commodities.
- **Presence of a large number of middlemen: -** The field of agricultural marketing is viewed as a complex process and it involves a large number of intermediaries handling a variety of agricultural commodities, which are characterized by seasonality, bulkiness, perishability, etc. The prevalence of these intermediaries varies with the commodities and the marketing channels of the products. Because of the intervention of many middlemen, the producer's share in consumer's area is reduced.
- **Malpractices in unregulated markets: -** Even now the number of unregulated markets in the country is substantially large. Arhatiyas and brokers, taking advantage of the ignorance, and illiteracy of the farmers, use unfair means to cheat them. The farmers are required to pay arhat (pledging charge) to the arhatiyas, "tulaii" (weight charge) for weighing the produce, "palledari" to unload the bullock-carts and for doing other miscellaneous types of allied works, "garda" for impurities in the produce, and a number of other undefined and unspecified charges. Another malpractice in the mandies relates to the use of wrong weights and measures in the regulated markets. Wrong weights continue to be used in some unregulated markets with the object of cheating the farmers.
- **Inadequate market information: -** It is often not possible for the farmers to obtain information on exact market prices in different markets. So, they accept whatever price the traders offer to them. With a view to tackle this problem the government is using the radio and television media to broadcast market prices regularly. The news papers also keep the farmers posted with the latest changes in prices. However the price quotations are sometimes not reliable and sometimes have a great time-lag. The trader generally offers less than the price quoted by the government news media.
- **Inadequate credit facilities: -** Indian farmer, being poor, tries to sell off the produce immediately after the crop is harvested though prices at that time are very low. The safeguard of the farmer from such "forced sales" is to provide him credit so that he can wait for better times and better prices. Since such credit facilities are not available, the farmers are forced to take loans from money lenders, while agreeing to pledge their produce to them at less than market prices. The co-operative marketing societies have generally catered to the needs of the large farmers and the small farmers are left at the mercy of the money lenders.
- **Small and scattered holding: -** The agricultural holdings are very small and scattered throughout the country, as a result of which the marketable surplus generated is very meagre. It is not an easy task organizing how the goods can be assembled for efficient marketing. Moreover there are many varieties of particular crops and this poses problems in pricing.
- **Forced sales: -** The financial obligations committed during production force farmers to dispose the commodity immediately after the harvest though the prices are very low. Such forced sales or distress sales will keep the farmer in vicious cycle of poverty. Report has it that the farmer, in general, sells his produce at an unfavourable place and at an unfavourable time and usually he gets unfavourable terms.
- **Technological development problems in farm production: -** Evidence has it that technological change in performing certain farm operations brought in new problems in agricultural marketing. For example, paddy harvesters are identified to increase the moisture content problem in paddy; mechanical picking of cotton associated with the problem of mixing trash with cotton; potato diggers are found to cause cuts on the potato; sugarcane harvesters effects the problem of trash mix with the cane, etc. These problems lead to the reduction of price for the farm products. Unless corrective measures are affected, the production technologies accentuate the marketing problems.
- **Poor handling, packing, packaging, and processing facilities: -** For efficient and orderly marketing of agricultural products, careful handling and packing are required. Present packing and handling are inadequate. For instance, many times we see rough and careless treatment in the packing and initial handling of fruits and vegetables. Green vegetables are packed in heavy sacks which will be heated up

quickly at the centre, wilt and rot soon. Workers or passengers are allowed to ride on top of a load of vegetables, which will result in physical damage. Careless handling of fruits and insanitary handling of the produce are other problems. Poor handling and packing expose the products to substantial physical damage and quality deterioration. If there are no processing facilities, say, for tomatoes, it means all the harvested crops must be sold within a given time and because there are packaging problems, quite a substantial part of the produce may be lost before getting to the market. Not only do these losses cut down the supply of products reaching the consumers, but also raise the price of the remaining portion, which must bear all costs.

- **Growth of urban centres: -** The growth of urban centres creates more marketing problems, concerned with inadequate supply to meet the increase in size; the need to create new markets and storage problems.
- **Communication problem: -** One of the key elements of efficient agricultural marketing system is the availability of proper communication infrastructure. Rural areas are inadequately placed with reference to posts, telegraphs and telephone. The literacy rate being low among the farmers, it poses difficulty of the communication tasks.
- **Lack of farmer's organization: -** The farmers are scattered over a wide area without any common organization. In the absence of such organization, farmers do not get anybody to guide them and protect their interests. On the other hand, traders are an organized body. Thus, the marketing system, therefore, constitutes unorganized farming community on one side and organized and powerful traders on the other side. Under such situations, farmers will be generally exploited and do not get remunerative prices for their produce.
- **Inadequate research on marketing: -** Until recently, all efforts have been geared towards producing more without thinking about how to market them. There is need to know about new technologies in food storage and preservation. There is also need for research on consumer demands and preferences, handling and packaging.
- **Problems caused by Globalization: -** The globalization has brought drastic changes in India across all sectors and it is more so on agriculture, farmers and made a deep impact on agricultural marketing. It is basically because of majority of Indians are farmers. It has brought several challenges and threats like uncertainty, turbulence, competitiveness, apart from compelling them to adapt to changes arising out of technologies. If it is the dark cloud there is silver lining like having excellent export opportunities for our agricultural products to the outside world.

Suggestions to Improve Agricultural Marketing

Improving the marketing system of agricultural products would help the farmer to better his economy. The following are suggested measures that could reflect an improved agricultural marketing system:

- **Establishment of More Regulated Markets: -** A regulated market is one, which aims at the elimination of the unhealthy and unscrupulous practices, reducing marketing charges and providing facilities to producers. Under the regulated markets, its management should be vested with market committees in which the members would be producers, traders, officials of the marketing societies, officials of agricultural and animal husbandry etc. The institute should be self-financed, statutory and autonomous. Funds would be raised through licensing fees and market fees on the notified agricultural produce transacted in the premises of the market yard. The regulated market however has the following benefits:
  - Farmers are encouraged to bring their produce directly to the markets.
  - Farmers are protected from the exploitation of market functionaries.
  - Farmers are ensured better prices for their produce.
  - Farmers have access to up-to-date market information.
  - The marketable surplus of the farmers will be increased.
  - Marketing costs are lowered and producers share will be increased.
- **Improvement in Standardization and Grading: -** Standard specifications and grading should be designed to be useful to as many producers, traders and consumers as possible i.e., standards should reflect market needs and wants. One grade should have the same implications to producers, traders and consumers in the quality of the product. It must have mutually acceptable description. They should reflect commodity characteristics that all types of buyers recognize. The grading should be simple, clear and easy to understand.
- **Improvement in Handling and Packing: -** This refers to the adoption of new techniques for the physical

handling of commodities throughout the various phases of marketing, for instance, the use of cold storage (mechanical refrigeration) in handling of perishables, new methods of packing etc. The most appropriate handling and suitable containers among the available ones are meant to use against dust, heat, rain, flies etc., to prevent considerable physical losses and quality deterioration.

- **Provision of Storage Facilities: -** Reduction of physical damage and quality deterioration in the products can be brought about through the application of the scientific techniques and provision of appropriate storage facilities depending on the nature and characteristics of products and the climatic conditions of an area. To this effect, more licensed warehouse are required. A licensed warehouse has the following benefits:
  - Reduces the wastage in storage of various commodities by providing scientific storage facilities
  - Assists the government in orderly marketing of agricultural commodities by introducing standard grade and specifications
  - Issues warehouse receipts, a negotiable instrument in which commercial banks advance finance to the producers and dealers
  - Assists government in the scheme of price support operations.

  However, there would be procedures for storage which are not too bureaucratic. The depositor intending to store the produce in the warehouse would have to present a written requisition in the application prescribed by the warehouse. The commodity meant for storage will be properly packed and delivered at the warehouse. The depositor would have to disclose all details of the commodity including the market value in the application form. The commodity brought for storage will be graded and weighed by trained technical personnel before the commodity can be stored. Different storage charges would also apply for different commodities and the stocks offered for storage will be insured against possible risks of fire, theft and floods, strikes and civil commotion.
- **Improvement in Transport Facilities: -** Link-up and associated road development is sine qua non for the success of market structure. The availability of efficient transportation encourages the farmers to the markets of their option to derive the price benefits. Rural roads particularly are in bad state during all seasons and more so during rainy season. Investment on roads should be given top priority. Also another problem is that perishables cannot be transported in closed wagons hence there is a need to provide necessary ventilation in whichever means they are to be transported.
- **Market Information: -** As such we have newspapers, price bulletins, reports of the government agencies etc., which provide market information. This information would be much more useful if an educational programme is made available to analyse and interpret the information at the markets. The raw data no doubt provides valuable information but skilful interpretation makes it useful to the farmers.
- **Market Research: -** Market research can be defined as the study of consumer demand by a firm so that it may expand its output and market its product. It centres on consumer's needs, preferences, impressions of a product, accessibility of markets, efficiency of marketing etc. Marketing research needs to be given top priority to improve up on the marketing system.
- **Market Extension: -** This involves the dissemination of needed information on marketing to producers. The farmers will be advised on consumer preferences, grading, packaging, transport, etc., in order to help them to secure better returns.
- **Provision of Agricultural Marketing Training to Farmers: -** Provision of training is of utmost importance in view of the malpractices resorted to by various market functionaries. The farmer needs to be trained in product planning i.e. crops and varieties to be grown, preparation of produce of produce for marketing, malpractices and rules and regulations, market information, promotion of group marketing, etc.
- **Promoting Cooperative Marketing: -** Cooperative marketing is the organized sale of farm products on a non-profit basis in the interests of the individual producer. Cooperative marketing are organized by farmers themselves and the profits are distributed among the farmer-members based on the quantity of the produce marketed by them.

  The agricultural marketing system should basically ensure that the producer is encouraged to increase production, besides assuring the farmer remunerative prices for his produce and supplying the commodities to the customers at reasonable prices. In view of this, cooperative marketing societies should be established for meeting the requirements of the farmer. The benefits of cooperative marketing include:
  - Make arrangement for the sale of produce of the members

- Provides credit facilities to the members on the security of agricultural produce
- Provide grading facilities, which would result in better price
- Make arrangement for scientific storage of the member's produce
- Arrange the supply off inputs required by the farmers
- Undertake the system of pooling the produce of the members to enhance the bargaining power through unity of action
- Arrange for the export of the produce to enable the farmers get better returns
- Act as an agent of the government in procurement of food-grains, etc.

- **Provisions for Cold Storage Facilities and Refrigerated Transport: -** For perishable commodities like fruits and vegetables, quality losses are enormous and hence it would be necessary to take measures and devise means or methods of controlling and minimizing losses. Preservation is, thus, a necessary adjunct of production and a vital link between production and consumption. Cold storage is the most important for the proper marketing of horticultural produce, because it had a definite season of production and the quality of the produce deteriorates quickly after harvest. Most fruits and vegetables losses moisture to the surrounding air almost any time in the humidity of the air is less than saturated. It is possible to maintain high humidity of the 80 – 95 per cent in proper cold storages and hence refrigeration is also beneficial in reducing moisture losses. Refrigerated transport for perishables needs to be provided during their movement in marketing channels. Besides road transport, railway wagons should also be suitably modified for transportation of perishables.
- **Development of Physical Market: -** Physical markets handling fruits and vegetables suffer from operational and management inadequacies. A country level plan to identify markets of national importance for fruits and vegetables and provision of need-based infrastructure from export point of view in all these markets is imperative.

Conclusion

There is no doubt that in any marketing there is a motive towards profit involved and at the same time the marketing is to be based on certain values, principles and philosophies such as offering just and fair prices to the farmers who toil hard to till. Bringing necessary reforms coupled with proper price discovery mechanism through regulated market system will help streamline and strengthen the agricultural marketing.

In order to avoid isolation of small-scale farmers from the benefits of agricultural produce they need to be integrated and informed with the market knowledge like fluctuations, demand and supply concepts which are the core of economy. Marketing of agriculture can be made effective if it is looked from the collective and integrative efforts from various quarters by addressing to farmers, middlemen, researchers and administrators. It is high time we brought out significant strategies in agricultural marketing with innovative and creative approaches to bring fruits of labour to the farmers.

Agricultural Transportation: Issues and Related Constraints

Contents

Introduction

An efficient transport system is critically important to efficient agricultural marketing. If transport services are infrequent, of poor quality or are expensive then farmers will be at disadvantage when they attempt to sell their crops. An expensive service will naturally lead to low farm gate prices (the net price the farmer receives from selling his produce). Seasonally impassable roads or slow and infrequent transport services, coupled with poor storage, can lead to losses as certain crops (e.g. milk, fresh vegetables, tea) deteriorate quickly over time. If the journey to market is made over rough roads then other crops (e.g. bananas, mangoes) may also suffer losses from bruising; this will also result in lower prices to the farmer.

Agriculture is best served by consistent high urban, and international, demand. This is best brought about by an efficient, high volume, transport and marketing system where the transporting and marketing unit costs are low. If the margin between what the farmer receives from the sale of his produce and what the urban consumer pays for his produce is high then the effective demand transferred to the farmer will be correspondingly be reduced. Similarly if internal transport costs in a country are particularly high then the scope for agricultural exports will also suffer in comparison with other more efficient countries.

The pattern of agricultural marketing is strongly influenced by the nature of transport services. Many developing countries suffer from monopolistic, low volume and high cost transport and marketing systems. Economies of scale are present in both transport and marketing operations. In the following we will consider transport costs, the impact of roads on rural development, access to markets and the potential use of intermediate means of transport.

Role of Intermediate Means of Transport in Agriculture

Intermediate Means of Transport or IMTs includes wheelbarrows, bicycles, rickshaws, various animal carts and wagons, motorcycles, motorized three-wheelers, and two-wheel tractors that fill the gap between more expensive motor vehicles and tedious human effort. Intermediate means of transport IMTs can play a useful role in agricultural marketing. Walking, the dominant mode of on-farm transport, can restrict any increase in agricultural production. IMT can improve the efficiency of on-farm agricultural transports by reducing transport costs and time. The effects on agricultural production can be manifold:

- Cultivation of bigger areas
- Utilization of more fertile, but remote, soils
- Production of heavier corps
- Increased utilization of fertilizer and manure

- Reduced pest damage and spoilage at crop harvest time
- Reduction of transport time, partly used for income generation
- Reduced effort and drudgery involved in human porterage
- Spill-over effects if animals are used for ploughing and transport

Thus, IMT enable the farmers to respond better to markets by augmenting or changing their production. Additionally, they reduce losses, save transport costs and time. If markets are within walking distance then head loading is important. Transport efficiency can be significantly increased by improvement of footpaths or the use of IMT. If markets are more than half a day's non-motorized travel, a multimodal transport system is a cost-effective solution. Trucks are unbeatable on long distances, good roads and fully loaded, and IMT operate more efficiently on short distances with small loads and on bad roads making a multimodal approach the best solution for rural transport problems.

Effect of Markets and Storage Facilities on Agricultural Transportation

The presence of markets and storage facilities play an important role in affecting choice of vehicle. Markets and storage facilities both provide the same role of acting as a place where agricultural produce can be amalgamated. This may be for the purpose of immediate sale or for transportation to the next destination. Access to markets and storage facilities therefore affect vehicle choice in two main ways.

Firstly, the ease of access to these facilities, whether in terms of distance or ability to use the facilities, will dictate the farmer's decision on which vehicle to use. For example, if the storage facility is close he may decide to buy a non-motorised vehicle which would have been of no use if the facility was beyond a certain distance. Similarly, if once the farmer had reached the facility he was unable to use it either because of its expense or because of exclusionist type practises, the need for a vehicle becomes redundant, and the farmer's produce may as well be sold to the village trader. The farmer will only demand a more advanced vehicle if it is the perception that the vehicle will enable an effective increase in farm gate prices.

Secondly, where goods are amalgamated it means that the density of demand for vehicle services increases. The density of demand is of vital importance in determining vehicle choice. The larger the demand the more an efficient and cost effective vehicle can be justified and hence the unitary costs of transport are reduced. The existence of markets and storage facilities are important at any level. For example, at the village level a small grain store may be able to accumulate enough demand from all the farmers to justify the use of a donkey cart for transportation to market. Without the store individual farmers may only be able to justify head loading their surplus produce to market. Similarly, at the district level a market could attract city traders who bring large trucks to transport the produce bought at the market in bulk.

The ease with which farmers and traders have access to markets and storage facilities will be reflected in their distribution costs (transport and storage). If distribution costs are low this will effectively increase farm gate prices which will give farmers the incentive to increase production.

Transportation Cost of Agricultural Produce and Farmer's Income

Cost of transportation of agricultural produce from the farm sites to the market has a great impact on production and income of farmers. This is because transport charges on agricultural produce vary with type of crops, the efficiency of the transport and distance travelled. A significant proportion of the farmer's income had gone to transportation and this is as a result of bad roads in these areas. High cost of transportation would translate to high selling price and if the price is too high when compared with other farmers from other areas, customers will not buy and this may result to selling at a loss.

The importance of an efficient and competitive marketing system has been stressed as a complement to rural

transport services (RTS) and infrastructure in promoting development. However, the presence of markets in them also constitutes a means by which the effective demand for transport can be increased. A market acts as a point where goods and people are amalgamated together and thereby concentrating the demand for transport. Where populations are dispersed markets are also likely to be dispersed with long average distances to market and people less likely to make the trip. This is an important consideration for the demand for Intermediate means of transports where, if distances become too large, an Intermediate means of transport may not be viable.

In addition, one of the most effective ways that farmers have of getting the best price for their produce is for them to sell it themselves directly to final consumers at rural or urban markets, and thus bypass the normal marketing system. Although farmers do not have the economies of scale of travelling wholesalers it is often recognised by urban dwellers that the keenest prices are often provided by the farmers. Farmers bringing their own produce to market represent a very important way of limiting the power of the marketing cartels. Farmers rely on travelling wholesalers, traders, parastatals or large private marketing companies they all reduce the farmers bargaining power, and critically, it reduces demand for transport services and the supply of vehicles available for rural people. There is usually little support by the authorities for 'unofficial' trading and farmers are frequently harassed as they attempt to sell.

Transportation Problems and Road Network

Farmers face various transportation problems in the process of transporting their produce from the farm to their houses and markets. These problems included:

- Bad roads,
- High cost of transportation,
- Irregularity of vehicles,
- Insufficiency of vehicles,
- Insufficient means of transportation and
- Long distance from farm to their houses as well as markets.

Road network plays main role among them. This is because it is the major means of transporting agricultural produce from the farms to the markets. Road transport has both positive and negative impact on agricultural development in India.

The impacts of bad road infrastructure on agricultural output and productivity are following: -

- The agricultural sector accounts for a large share of gross domestic product. Poverty is concentrated in rural areas. The relatively low levels of road infrastructure and long average travel time's result in high transaction costs for sales of agricultural inputs and outputs, and this limits agricultural productivity and growth.
- Many farmers are reluctant to grow a marketable surplus second crop because it cannot be sold or because the difficulty and expense of transport significantly reduces the returns to labour.
- Agricultural productivity will be low and there is a lack of innovation because extension information and inputs do not reach the farmers.
- Rural people often are too poor to own their own motorized vehicles and depend on public transport to gain access to locations outside their communities. When rural roads deteriorate public transport becomes more expensive and transport operators eventually decide to stop their business.
- Some of the variables that determine the level of development in a given environment are easy accessibility and mobility.
- A strong relationship between road transportation, underdevelopment and rurality has been identified by various researches.
- When the distance of farm to the market is far and the road is rough perishable crops may be destroyed and farmers may run at a loss.

- With improved roads, transport cost savings occur both through lower costs of existing traffic and lower costs of generated and attracted traffic. The assumption is that traffic will grow as a result of road improvements. A deterioration of the road network on the other hand will gradually reduce traffic levels. Moreover the unit transport cost will increase.
- When the roads become impassable, there will be a shift to less-effective modes of transport, replacing motorized transport by more costly non-motorized transport. The move to non-motorised transport often implies that a lot of transport simply ceases to take place. If motorised transport is not available, bulky goods can only be transported for short sections.
- By the reduction in competition in the transport sector due to lower traffic levels, results in the increased cost of transport and that is passed to the farming households.
- A well maintained road network keeps input and transport prices down and, hence, production costs lower and can lead to improved livelihoods through higher incomes.
- The quality and density of the rural road network makes a significant difference in the cost of agricultural inputs, the quality and value of outputs as well as the delivery of extension services.

Problems of Road Transport in India

Road transport of the country is facing a number of problems. Some of these problems are discussed below:

- Most of the Indian roads are unsurfaced (42.65%) and are not suitable for use of vehicular traffic. The poor maintenance of the roads aggravates the problem especially in the rainy season. According to one estimate there is about per year loss of Rs. 200 crores on the wear and tear of the vehicles due to poor quality of roads. Less than 0.1 percent of the national income is spent on the maintenance of roads in India.
- Sixty percent of villages are without roads in India. It adversely affects our agriculture and rural economy.
- There is heavy tax burden on motor transport in India. There are multiple check-posts, toll tax and octoroon duties collection points on the roads which bring down the speed of the traffic and waste time. Rate of road taxes vary from state to state and interstate permits are difficult to obtain.
- Way side amenities like repair shops, first aid centers, telephones, clean toilets, restaurants, rest places are lacking along the Indian roads. There is very little attention on road safety and traffic laws are wilfully violated.
- There is little co-operation and co- ordination among different states with regard to motor transport. As such, motor transport faces lot of difficulties.
- According to 'Road Transport Reorganization Committee', 90 per cent of the operators are small operators owning five vehicles or less. Owing to this small number, satisfactory and efficient service is not being provided to the people.
- Due to high prices of petroleum products and diesel operational costs of road transport are rising and making the mode of transport more costly.
- Most of the drivers on the roads are unskilled and untrained.
- One major problem on the Indian roads is the mixing of traffic. Same road is used by high speed cars, trucks, two wheelers, tractors, animal driven carts, cyclists and even by animals. Even highways are not free from this malady. This increases traffic time, congestion and pollution and road accidents.
- In India, roads are not well-maintained as there are no timely repairs. It causes discomfort and quick depreciation of vehicles.
- There is very little participation of private sector in road development in India because of long gestation period and low-returns. The legislative framework for private investment in roads is also not satisfactory. The road engineering and construction are yet to gear themselves up to meet the challenges of the future.
- There has been no stability in policy relating to highway development in the country. It has changed with the change of government. There are a number of agencies which look after the construction and maintenance of different types of roads. Since there is no co-ordination between these agencies their decisions are often conflicting and contradictory.

Special Problems in the Construction of Rural Roads

Rural roads constitute a special category of roads as regards the type of materials used and construction techniques employed, as compared with roads forming the highway network. As a result, the construction and maintenance problems involved in keeping the rural road network at a satisfactory level of serviceability are of a different quantum and type. Some of these problems are:-

- Rural roads are generally built up in stages, extending over a number of years. This practice arises from the inadequate availability of finances, as well as from the fact that the traffic is likely to increase after an initial road link is established, thereby necessitating an upgradation of the pavement.
- One important and significant feature pertaining to the construction of rural roads is the emphasis placed on the utilisation of the local materials, both soil and stone aggregates in the various layers of the pavement. This necessitates that such materials to be utilized after careful evaluation of their properties and affecting the needed improvements by blending or the use of additives as may be required.
- The construction of rural roads is handled by a number of different agencies, varying from state to state. Within the same state different agencies might be building rural roads in different districts.
- The level of expertise available shows great variation from department to department, and it is not unusual to find that trained personnel are not available in the executing department to plan, design and construct a rural road that makes optimal use of the material and financial resources available and build a material and financial resources available manual labour is resorted to, to the maximum extent, since providing employment to the local population also forms one of the essential objectives of the various rural development programmes.
- Rural labour generally does not have the necessary skills associated with the different phases of road construction, nor is any training imparted to them before inducting them into the construction programme. Employment on such construction works is viewed, rather mistakenly, as a relief measure lesson the problem of rural employment. The consequence of such thinking is a finished product of poor quality, i.e., an improperly built road that has only frittered away the meagre resources.
- The lack of adequate quality in the inputs, human as well as material, results in a faster deterioration of the serviceability to a lower than the tolerable level. In turn, these results in greater demands on maintenance, viz, more frequent repairs, involving additional deployment of manpower and materials, all adding upto higher spending on maintenance. If money for maintenance is short, final result will be the deterioration of the roadway leading to the loss of initial capital investment itself.

Measures Taken for Improving Rural Road Infrastructure by Government

Rural roads connect villages giving access to rural population to the National Highways through Major District Roads and State Highways. Around 59 per cent of the total road length is accounted by rural roads largely built under Jawahar Rojgar Yojna. These roads are of limited value from the point of view of movement of heavy traffic. Some of the government's measures to improve rural road infrastructure are as follows:-

- Pradhan Mantri Gram Sadak Yojana (PMGSY) was launched on 25th December 2000 as a fully funded Centrally Sponsored Scheme to provide all weather road connectivity in rural areas of the country. The programme envisages connecting all habitations with a population of 500 persons and above in the plain areas and 250 persons and above in hill States, the tribal and the desert areas.
- The District Rural Roads Plans (DRRPs) have been developed for all the districts of the country and Core Network has been drawn out of the DRRP to provide for at least a single connectivity to every target habitation. This planning exercise has been carried out with full involvement of the three tier Panchayati Raj Institutions.
- Large scale revision of Rural Roads Manual were carried out by IRC at the special intervention of Ministry of Rural Development. This Manual has established the standards for construction of Rural Roads.

- A three tier quality mechanism has been operationalised to ensure quality of road works during construction.
- There is a provision of two bills of quantities, one for construction and another for routine maintenance on lump-sum basis amount every year for 5 years and the contactor is required to offer not only for construction but also for maintenance separately. This helps in delivery of better quality roads because if the quality of road is compromised by the contractor during construction, much more money would be required during the routine maintenance rendering the contract uneconomical for the contractor.
- A web based online monitoring, management and accounting system has been developed under the PMGSY. The online system and website is being managed and maintained in collaboration with NIC and CDAC.
- The Central Government has created a dedicated fund, called Central Road Fund through collection of cess from petrol and diesel. Presently, Rs. 2/- per litre is collected as cess on petrol and High Speed Diesel (HSD) Oil. The fund is distributed for development and maintenance of National Highways, State Roads and Rural Roads.
- Special construction technology to tackle the construction of roads in the hilly regions would be adopted to ensure quality roads within a specific time frame.
- Promoting participation of private operators on non viable semi urban/rural routes through favourable policy regime. This could be achieved through following options:-
    - Auctioning of combination of routes (which are a mix of profitable and non viable routes) to private operator(s) so as to enable them to compensate their losses on account of operation of non viable routes;
    - Offering non viable routes to bidder asking for lowest subsidy/financial support;
    - Subjecting non viable routes to lower rates of taxation or permit fees and;
    - Allowing alternate competing modes of passenger road transport.

Suggestions for Better Rural Road Network

It is essential that for quick development of rural road network concerted effort is required during planning which should begin at gross root level by associating the concerned village folk and by convincing them that appropriate quality of road constructed with appropriate technology would meet their requirement and this would be maintained and upgraded with their association. All possible resources should be mobilized for raising the necessary funds. Some of the possible suggestions are:-

- A feeling has to be created in rural people that they are getting or building an asset for themselves and future generation instead of having a feeling that government is building a road and that the major beneficiaries are the government agencies or the contractor. In other words they should have feeling of belonging instead of detachment.
- If Villagers are made aware about their minimum needs and assured that all assistance will be forthcoming for proper maintenance and continuous upgrading of the road with time and need, they will have a cooperative attitude and would assist in many ways during the initial construction, or subsequent maintenance.
- Land consolidation work can be taken up simultaneously to planning. The land for access road along with raising of the track and proper drainage of the village should also be considered with other facilities for the village during land consolidation. The land for access road on embankment may be considered similar to land reserved for Panchayat land and other common facilities to the village.
- In some cases the village get submerged by the flood of a nearby river. In that case protection of village by bunds/dykes can be considered and these “bunds” will also provide access roads on embankment. But the drainage of village has to be adequately planned in these cases otherwise any opening in the ‘bund’ for cross drainage works, may flood the village by back flow when water level is higher on the other side.

- The quality of road to be constructed has to be planned and will depend upon the subgrade soil properties, level of water table, quantity and quality of anticipated traffic and level of maintenance to be provided. The simplest and first stage of road construction is a properly cambered formation, with reasonable shoulder width and drainage system.
- The road construction work can be taken up in lean farming period, where by free (if managed) or cheap labour could be available. Similarly the timely maintenance of rural roads is essential. This is from the consideration that once damage starts in rural earthen roads it will develop at a much faster pace compared to higher grade roads. Any neglect will totally undo the assets created in past and instead of upgrading at a later date, only in first stage construction has to be repeated every time afresh. The standard of road should be continuously raised and adequately maintained over the future years.
- At least some part of land revenue collected from the villages could be ploughed back for their development and a minimum percentage of land revenue should be earmarked for rural roads also.
- Another source of raising fund for the rural road development could be, levying a sort of a cess on the saleable produce. This could be collected from the farmers at the market place, sugar mills, rice mills, etc. Many market places (Mandies) do levy a cess on the parked vehicles and produce sold, for the development of market place and for the facilities provided. Even the private wholesale dealers charge commission over the sale. At present most to the farm produce is purchased by the governmental agencies and the price offered s according to the rates fixed by the government, thus the cess to be collected may form a part of the price offered. The cess collected from market place may be distributed amongst the villages feeding the market place.
- Village Panchayats can also collect a type of 'Road Tax' from the vehicles in the village. The rates could be different for different types of vehicles.
- A toll tax can be collected by panchayat from the vehicles visiting the village.
- Banks can also be asked to liberalize their policy and should consider advancing loans to villages at nominal interest for construction of rural roads providing access to the village which would not involve greater risks than that of existing procedure of advancing loans to artisans, etc. for setting up their shop, workshop etc. for increasing the income.
- Industrial houses, commercial undertakings, banks etc. can also be asked to adopt villages for upliftment. Villages selected should be similar to selection of poor families in a village or district for their upliftment. These families are given some fund for raising their means of livelihood.
- The government can also provide matching grant to the funds raised by Panchayat by tax collection, donation, etc. for access road construction to backward villages.
- By proper training and motivation of the personnel involved in the construction and maintenance of these, as well as increasingly adopting appropriate technological methods that have been developed, better rural roads can be built.

Conclusion

Transport plays a significant role in the structure of food production and marketing and that easy transport to market can make all the difference in the level of rural incomes. An improved transportation will encourage farmers to work harder in the rural areas for increased production, add value to their products, reduce spoilage and wastage, empower the farmers as well as having positive impact on the productivity, income, employment level and reduce poverty level in the rural areas. Finally, transport is also seen as a facilitating factor in the mobilisation of the farmers and other allied workers in the overall national development of the nations.

e-Agriculture : e-Technology in The Aid of Farmers

Contents

Introduction

E-Agriculture is an emerging field for enhancing sustainable agriculture and food security through improved processes for knowledge access and exchange using information and communication technologies (ICT).

Agriculture is one of the most important sectors in India, and could benefit tremendously with the applications of ICTs especially in bringing changes to socio-economic conditions of poor in backward areas. Agriculture constitutes a major livelihoods sector and most of the rural poor depend on rain-fed agriculture and fragile forests for their livelihoods. Farmers in rural areas have to deal with failed crops and animal illness frequently and due to limited communication facilities, solutions to their problems remain out of reach.

The service role of ICTs can enhance rural community's opportunities by improving their access to market information and lower transaction costs for poor farmers and traders. Though India has a strong and fast growing IT industry, access to ICTs remains very low particularly in rural areas. The present indicators of IT penetration in Indian society are far from satisfactory.

The National Policy for Farmers emphasizes the use of Information and Communication Technology (ICT) at village level for reaching out to the farmers with the correct advisories and requisite information. The available satellite data relating to weather news, long-term and short-term weather forecast, production information, market prices policy developments pertaining to agriculture, apart from the number of advisory services in public or private domain that disseminate information should be utilized adequately.

Information Technology and its Components

Induction of IT as a strategic tool for agricultural development and welfare of rural India requires that the necessary IT infrastructure is in place. The rapid changes and downward trend in prices in various components of IT makes it feasible to target at a large scale IT penetration into rural India. Some of the broad factors to be noted with respect to various components of IT are listed below:

- **Input Devices:** Radical improvements are witnessed with respect to the means of communication by human beings with computers such as key boards, mouse devices, scanners. The advent of touch screen monitors that allow users to give input to computers by touching on the appropriate location of the monitor has made it possible to develop user-friendly interface for farmers which is easy, intuitive, circumvents language barrier and at the same time provides a relaxed environment to the users. The present day digital cameras make it possible to capture and store good quality graphics and large video clips. The small size and low weight of these digital cameras, which are increasingly becoming affordable, open up the possibilities of providing computer based demonstration clips to educate the farmers. The digital cameras can also be used to upload plant stress related images, movie clips which can facilitate an expert residing at a far of location to quickly recommend a solution.
- **Output Devices:** Monitor screens, printers & plotters, data projectors support high resolution and good quality output. The qualities of these output devices have the potential of generating renewed interest in the farmers in using IT based services. The light weight portable data projectors can be easily carried by the agricultural extension personnel for serving larger audience. Similarly, speakers can also be attached to the computers to incorporate voice based trainings for farmers.
- **Processors:** The processing speeds of computers have gone up. At present high speed processorsare available which makes it possible to undertake substantial processing of data at the client side.
- **Storage Devices:** 80GB and even higher hard disk drives have become common in PC range of computers. This makes it possible to store substantial information at the local level which facilitates faster access. Similarly, high capacity pen drives, CDs make it possible to transfer large volumes of data to locations which cannot be connected to networks immediately. These storage devices are also used for backup of crucial data. As a precaution, many corporate store their backups at locations away from the place of work.
- **Software:** Various operating systems are available which act as interface between the user and the machine. The graphic user interface (GUI) has become an accepted prerequisite for end users. Application software which can support complex user requirements are available. Of the shelf solutions for office automation packages, groupware applications, complex database solutions, communication products, solutions based on remote sensing & geographical information systems are available. In addition, solutions based on some or all of these are also readily available. The present downward trend in the IT industry provides an opportunity get customised application for any specific task developed at an affordable price. Rapid Application Development and Deployment (RADD) is a popular model for quick development and deployment of applications. Development environment itself is simplified with tools that quicken the pace of software specialists. Project management and monitoring software are available that facilitate efficient execution of large and complex applications that are required for rural India.
- **Networking Devices:** The capacity of modems, used to convert the data from digital to analog and vice versa, which are popularly employed to use telephone lines have increased. Internal modems are available integrated into the computer so that they are not exposed to outside environment. The capacities of other networking devices such as routers have also gone up which makes it possible to create large networks with smooth data transmission.
- **Transmission Media:** The media through which the data transfer takes place has also undergone revolutionary change. Telephone lines are still the popular source in India although the reliability and low bandwidth are still major issues. High capacity cables, optical fibre, radio, wireless local loops, satellite transmission and various solutions based on a combination of these are already being used in many parts of the country.
- **Other Accessories:** Uninterrupted Power Supply (UPS) devices are crucial to ensure the durability of the IT equipment as well as provide backup mechanisms. The potential of solar power packs to provide a feasible solution to shortage of power in the rural areas needs to be exploited.

Role of IT in Agriculture

Applications of IT in support of agricultural and rural development fall into five main areas. These are:

- Economic development of agricultural producers;
- Community development;
- Research and education;
- Small and medium enterprises development; and
- Media networks.

Precision farming, popular in developed countries, extensively uses IT to make direct contribution to agricultural productivity. The techniques of remote sensing using satellite technologies, geographical information systems, agronomy and soil sciences are used to increase the agricultural output. This approach is capital intensive and useful where large tracts of land are involved. Consequently it is more suitable for farming taken up on corporate lines.

The indirect benefits of IT in empowering Indian farmer are significant and remain to be exploited. The Indian farmer urgently requires timely and reliable sources of information inputs for taking decisions. At present, the farmer depends on trickling down of decision inputs from conventional sources which are slow and unreliable. The changing environment faced by Indian farmers makes information not merely useful, but necessary to remain competitive.

Here are some agricultural development services that can be provided in the developing world using ICT:

- Online services for information, education and training, monitoring and consultation, diagnosis and monitoring, and transaction and processing;
- E-commerce for direct linkages between local producers, traders, retailers and suppliers;
- The facilitation of interaction among researchers, extension (knowledge) workers, and farmers;
- Question-and-answer services where experts respond to queries on specialised subjects ICT services to block- and district-level developmental officials for greater efficiency in delivering services for overall agricultural development;
- Up-to-date information, supplied to farmers as early as possible, about subjects such as packages of practices, market information, weather forecasting, input supplies, credit availability, etc.;
- Creation of databases with details of the resources of local villages and villagers, site-specific Information systems, expert systems, etc.;
- Provision of early warning systems about disease/ pest problems, information regarding rural development programmes and crop insurances, postharvest technology, etc.;
- Facilitation of land records and online registration services;
- Improved marketing of milk and milk products;
- Services providing information to farmers regarding farm business and management;
- Increased efficiency and productivity of cooperative societies through the computer communication network and the latest database technology;
- Tele-education for farmers;
- Websites established by agricultural research institutes, making the latest information available to extension (knowledge) workers and obtaining their feedback.

E-Agriculture Ecosystem

E-Agriculture initiatives bring together a wide array of local and regional stakeholders to form a mutually beneficial value chain:-

- **Grameen Intel and other social businesses:** Information and expertise, consulting services, technology, and programs to reach rural and impoverished markets.
- **Governments and multilateral development agencies:** Program support to enable and increase rural outreach, improve food security, create jobs, and develop partner-ships with local businesses and community organizations.
- **Banks and other financial institutions:** Credit, capital, and other financial instruments (crop insurance, subsidies, etc.) for entrepreneurs and farmers.
- **Universities and agriculture extension systems:** Technology to strengthen extension systems; advice and technical support for farming communities; training and capacity-building for entrepreneurs; research and development projects designed to solve problems faced by farming communities.
- **Supply chain (e.g., suppliers, commodity markets, aggregators):** Best-of-class products and services for farmers that improve returns to all stakeholders, including farmers.
- **Technology companies:** Internet connectivity, hardware, and software solutions that create access to new markets, value chains, and business models.
- **Community organizations (e.g., farmer cooperatives, rural telecenters, government and NGO-run agriculture service centers):** Help entrepreneurs; provide grassroots agriculture domain and business support, and enable programs to scale efficiently.

ICT Initiatives for Agricultural Development in India by Various Agencies

Some initiatives in India that use ICT for agricultural development are:

- Gyandoot project (Madhya Pradesh);
- Warana Wired Village project (Maharashtra);

- Information Village project of the M S Swaminathan Research Foundation (MSSRF) (Pondicherry);
- iKisan project of the Nagarjuna group of companies (Andhra Pradesh);
- Automated Milk Collection Centres of Amul dairy cooperatives (Gujarat);
- Land Record Computerisation (Bhoomi) (Karnataka);
- Computer-Aided Online Registration Department (Andhra Pradesh);
- Online Marketing and CAD in Northern Karnataka (Karnataka);
- Knowledge Network for Grass Root Innovations-Society for Research and Initiatives (SRISTI) (Gujarat);
- Application of Satellite Communication for Training Field Extension Workers in Rural Areas (Indian Space Research Organisation);

In addition to the above, a few non-governmental organisations (NGOs) have initiated ICT projects such as:

- Tarahaat.com by Development Alternatives (Uttar Pradesh and Punjab);
- Mahitiz-samuha (Karnataka);
- VOICES – Madhyam Communications (Karnataka);
- Centre for Alternative Agriculture Media (CAAM);

Some exclusive agricultural portals are also available, such as:

- haritgyan.com
- krishiworld.net
- toeholdindia.com
- agriwatch.com
- itc's soyachoupal.com
- acquachoupal.com
- plantersnet.com

Case Studies

These are some of the few examples of ICT enabled services for Indian farmers:-

Agropedia

- Agropedia is a peer-group tool for interaction among the farmers.
- This is a comprehensive, integrated model for digitalized content of agricultural domain. This e-initiative intends to bring together a community through ICT enabled knowledge creating and organising platform with an attempt to leverage the current agricultural extension system.
- IIT Kanpur (agropedia platform), IIT Bombay and IIITM Kerala (multi-model delivery) are the three key partner organizations who are in charge of different projects and responsibilities along with ICRISAT- Hyderabad, NAARM- Hyderabad, GBPUAT- Pantnagar, UAS- Raichur under the aegis of the National Agricultural Innovation Project (NAIP).
- ICRISAT is the consortium leader, which is responsible for the outputs and deliverables.
- Agropedia has been labelled as one stop solution for the Indian agro-sphere. Defining and developing the Knowledge-Model for understanding of the crop has been done first time ever in the world in order to accumulate codified and approved information about the crops with the support of Food and Agriculture Organisation (FAO), Rome.
- These models are essentially the structural representation by using symbols for tagging a particular piece of information and relationships between them. Following this, Chickpea, Pigeon pea, Sorghum and Groundnut.
- Knowledge-Models are developed at ICRISAT, Wheat, Sugarcane, Litchi and Vegetable pea are developed at GBPUAT and Rice is developed at IITK.

e-Choupal

- e-Choupal is an initiative from ITC's Agri Business Division to face the challenges of India's agricultural uncertainty.
- Indian agriculture is characterised by fragmented farms, weak infrastructure and the involvement of numerous intermediaries. e-Choupal aims at bringing out the Indian farmers from vicious circle of low risk taking ability.
- To increase the competitiveness of the Indian agricultural sector and enhance productivity, ITC has developed this market-led business model. It is assumed and expected that a growth in rural incomes will also result in the overall growth of Indian economy.
- e-Choupal operates in three layers. This three-layered infrastructure allows ITC to provide a complete end-to-end solution to suit the needs of both the farmers and consumers at village as well as in global level.

- The first layer consists of ICT kiosks (Village Level) with internet access, managed by an ITC trained local farmer called the Sancalak. The second layer is known as hubs managed by the traditional intermediary who has local knowledge /skills called Samyojak. The final layer is a network of companies (consumers of farmers products and providers of products and services to the farmers) orchestrated by ITC is known as Choupal Sagar, which has a pan-Indian presence.
- With this model, ITC is able to deliver the same benefits as vertical integration does in matured agricultural economies like USA.
- e-Choupal is the largest initiative among all Internet-based programmes in rural India. It reaches to over 4 million farmers of more than 400000 villages through 6500 kiosks. It operates across ten states, namely Madhya Pradesh, Haryana, Uttarakhand, Karnataka, Andhra Pradesh, Uttar Pradesh, Rajasthan, Maharashtra, Kerala and Tamil Nadu in the cultivation of soybeans, coffee, wheat, rice, pulses, and shrimp.

Kissan Kerala

- Kissan Kerala is an Agriculture Information Services system to provide information and advisory to the farmers of Kerala. This is accessible by all concerned anytime in the day and from any parts of the state.
- The objective of this programme is to empower the farmers by providing them useful information and required knowledge; this would lead the farmers to take better decision.
- To disseminate the message and to answer farmer's queries, various channels are used like Television, Internet, Telephone, and Mobile. The farmers are free to choose any medium of their choice.
- The quintessential feature of this ICT enabled service delivery model is to ensure that the farmers get the expert's assistance on time and agricultural organisations provide necessary help to the farmers.
- This has helped the cultivators to better the crop production, enhanced crop protection, value addition to the existing practices, opening up new avenues and improves the overall life of the farming community.
- Children, Youth, women, men and seniors are the target group of this programme, who are somewhat related to the agricultural activities.
- Kissan Kerala focuses on five broad areas.
    - Online Agri advisory service : Portal based online Advisory services for the farmers (www.kissankerala.net)
    - Kissan Krishideepam : Agriculture based weekly Television program in vernacular language
    - Online Agri video Channel : In collaboration with the You Tube, online agricultural video channel was brought in the country
    - Tele Advisory Services : Farmers are just a call away from getting solutions to their problems. AQ dedicated phone number is there to address their need
    - The mobile based Agri Advisory services: Through text, voice or video message, farmers can get their answers on mobile phones

AgmarkNet

- In order to bring the farmers in a better bargaining position and to promote a culture of good agricultural marketing practices in the country, Directorate of Marketing and Inspection (DMI) , Ministry of Agriculture has embarked upon an ICT Project – NICNET based Agricultural Marketing Information System Network (AGMARKNET) as part of the Central Sector Scheme : "Marketing Research and Information Network".
- Objectives:
    - To establish a nation-wide information network for speedy collection and dissemination of market information and data for its efficient and timely utilization.
    - To facilitate collection and dissemination of information related to better price realization by the farmers by facilitating:
        - Market related information such as market fee, market charges, costs, method of sale, payment, weighment, handling, market functionaries, development programmes, market laws, dispute settlement mechanism, composition of Market Committees, income and expenditure, etc.;
        - Price-related information such as minimum, maximum and modal prices of varieties and qualities transacted, total arrivals and dispatches with destination, marketing costs and margins, etc.;
        - Infrastructure related information comprising facilities and services available to the farmers with regard to storage and warehousing, cold storage, direct markets, contract farming, buy-back arrangements, grading, re-handling and repacking etc.;
        - Promotion related information covering accepted standards and grades, labelling, sanitary and phyto-sanitary requirements, pledge finance, marketing credit and new opportunities available in respect of better marketing;

- To sensitize and orient farmers to respond to new challenges in agricultural marketing by using ICT as a vehicle of extension.
- To improve efficiency in agricultural marketing through regular training and extension for reaching region-specific farmers in their own language.
- To provide assistance for marketing research to generate marketing information for its dissemination to farmers and other marketing functionaries at grass-root level to create an ambience of good marketing practices in the country.

- Under the project, 199 market nodes are computerized and are reporting daily prices of commodities reaching these markets noted. The training to the officials of the department has been conducted.

eMojani

- eMojani is a software to distributed to land and city survey offices.
- One can now apply online for his request for measuring his land. All Fees are calculated and displayed by the application.
- The application allocates the cases to registered Measurement Surveyors of the department. Now the system decides the Surveyors for doing the measurement and not the individual from the department.
- The application generates the necessary Challan's, Receipts and prints the Date of Measurement, Name of Surveyors for doing the measurement along with their contact details.
- This application has been implemented throughout the state. Department has banned the manual maintenance of Measurement case register. Manual applications are no more accepted.
- The manual calculation of the fees and assigning the cases to the individual Surveyors has been stopped.
- The eMojani Application is Integrated with Govt. Receipts and Accounts System (GRAS) for on line transfer and accounting of citizen payments towards various fees. The application has been awarded with the "eGovernance Public Jury Award by the State Government" for the year 2012.

Agri - Subsidy

- An online application that automates the subsidy distribution operation under various schemes of Agriculture department.
- The application is entered online from block level, forwarded to district office Online & the same is sanctioned at District level Online.
- While sanctioning the subsidy, it is taken care that necessary funds are available at district office that was allocated from state level office.
- The subsidies are granted for 11 different schemes of central & state.
- The details of payment of subsidy are also entered online & SMS is sent to the farmer on every event of his application. Various kinds of reports are available for monitoring and evaluation of the project.

Kisan Call Centers

- The Kisan Call Centre (KCC) initiative aims to provide information to the farming community through toll-free telephone lines.
- Under this project, call centre facilities have been extended to the farmers through call centres located in different states so that farmers can get the information in their own language.
- Recently KCCs have been further revamped by consolidation and appointing a new service provider for KCC to set up state of the art KCCs at 14 identified locations.

National e-Governance Plan in Agriculture (NeGP-A)

- The Mission Mode Project has been introduced during last phase of the 11th plan to achieve rapid development of agriculture in India through the use of ICT for ensuring timely access to agriculture related information for the farmers of the country.
- There are a number of current IT initiatives/schemes undertaken or implemented by DAC which are aimed at providing information to the farmers on various activities in the agriculture value chain.
- These initiatives will be integrated so that farmers would be able to make proper and timely use of the available information.
- Such information is intended to be provided to farmers through multiple channels including Common Service Centers, Internet Kiosks and SMSs. 12 clusters of services have been identified and the project has been sanctioned for implementation in 7 States i.e. Assam, Himachal Pradesh, Karnataka, Jharkhand, Kerala, Madhya Pradesh and Maharashtra.
- The services include Information on Pesticides, Fertilizers & Seeds, Soil Health; Information on crops, farm machinery, training and Good Agricultural Practices (GAPs); Weather advisories; Information on prices, arrivals,

procurement points, and providing interaction platform; Electronic certification for exports & import; Information on marketing infrastructure; Monitoring implementation / evaluation of schemes & program; Information on fishery inputs; Information on irrigation infrastructure; Drought Relief and Management; Livestock Management.

Bhoomi

- The land records management system is the first e-Governance project successfully implemented for the benefits of the common man, jointly by the Government of Karnataka & NIC Karnataka.
- It has been providing service to more than 70 lakh farmers of Karnataka since the last five years.
- BHOOMI has become the model for replication in many other States. It has received wide spread recognition from the public and also won the international award, Silver of CAPAM 2002.
- Salient features are Kiosk setup in each taluk to issue the land records documents to public on demand, Finger print (Bio-metrics) authentication to ensure fool proof system, PKI enabled BHOOMI & integration with Sub-Registrar's data, Mutation requests processed on First-in First-out Basis.

TARAhaat

- This project, named "TARAhaat" after the all-purpose haat (meaning a village bazaar), comprises a commercially viable model for bringing relevant information, products and services via the Internet to the unserved rural market of India from which an estimated 50% of the national income is derived.
- TARAhaat combines a mother portal, TARAhaat.com, supported by franchised networks of village cybercafes and delivery systems to provide a full range of services its clients.

Warana Wired Villages

- The key objective of the project has been to utilise IT to increase the efficiency and productivity of the existing sugar cane cooperative enterprises by setting up of a state-of-the-art computer communications network.
- This provides agricultural, medical, and educational information in the local language to villages around Warana Nagar in the Kolhapur and Sangli Districts of Maharashtra.

Dairy Information Services Kiosk

- The DISK application targeted at the booming dairy sector has been tested for two milk collection societies by the Indian Institute of Management Ahmedabad's e-governance center.
- The project consists of two basic components—an application running at the rural milk collection society that could be provided Internet connectivity and a portal at the district level serving transactional and information needs of all members.
- DISK has helped in the automation of the milk buying process at 2,500 rural milk collection societies and has been tested in two co-operative villages of Amul dairy in Kheda district.
- Software called AkashGanga has been developed with special features to enable speedier collection of milk and faster disbursement of payments to dairy farmers.

GramSampark

- 'Gramsampark' is a flagship ICT product of the state of Madhya Pradesh.
- A complete database of available resources, basic amenities, beneficiaries of government programmes and public grievances in all the
- 51,000 villages of Madhya Pradesh can be obtained by accessing the website.
- Gramsampark has three sections-Gram Paridrashya (village scenario), Samasya Nivaran (grievance redress) and Gram Prahari (village sentinel). An eleven-point monitoring system has been put in place whereby programmes are monitored village-wise every month.
- Four more programmes are under the monitoring system, which includes untouchability-eradication, women's empowerment, water conservation and campaigns for sanitation.

Digital Gangetic Plane

- One of the first few long-distance Wi-Fi projects in the world, the Digital Gangetic Plane (DGP) connects few villages in Uttar Pradesh to internet using wireless network.
- Media Lab Asia (MLA) and Indian Institute of Technology (IIT), Kanpur started creating the DGP wireless network.
- The even terrain of Gangectic plain allows unhindered line-of-sight signal transmission for wireless networks despite the presence of tall telecom or power supply towers.
- Applications developed intervene on education, health and livelihoods.
- Bimari Jankari or disease information portal offers healthcare information in Hindi.
- Digital Mandiis a one-stop agro-commodities prices shop for rural farming communities.

- The portal serves as agricultural knowledge base in Hindi.
- DGP is largely limited by its approach of being a technological research focused on innovation, experimentation and deployment of Wi-Fi enabled internet connectivity.

Gyandoot

- Gyandoot is a rural infokiosk-based e-governance service delivery model initiated by the state government of Madhya Pradesh in Dhar district.
- The project aims to create a cost-effective, sustainable and replicable rural internet delivery model for improving government services for the poor, involving citizen's cooperatives, government and the community.

IT and Indian Agriculture in the Future

Technologically it is possible to develop suitable systems, as outlined in the previous sections, to cater to the information needs of Indian farmer. User friendly systems, particularly with content in local languages, can generate interest in the farmers and others working at the grassroots. It is possible to create dedicated networks or harnesses the powers of Internet to make these services are available to all parts of the country.

The task of creating application packages and databases to cater to complete spectrum of Indian agriculture is a giant task. The Long Term Agriculture Policy provides an exhaustive list of all the areas that are to be covered. This can be taken as a guiding list to evolve design and develop suitable systems catering to each of the specified areas. Our country has the advantage of having a large number of specialised institutions in place catering to various aspects of Indian agriculture. These institutions can play a crucial role in designing the necessary applications & databases and services. This will facilitate modularisation of the task, better control and help in achieving quick results. As it is, several institutions have already developed systems related to their area of specialisation. For quick results, it may be useful to get the applications outsourced to software companies in India. This will facilitate quick deployment of applications and provide boost to the software industry in India. In order to avoid duplication of efforts, it may be useful to consider promoting a coordinating agency which will have an advisory role to play in evolving standard interface for users, broad design and monitoring of the progress.

In the post WTO regime, it is suggested that it is useful to focus more on some agricultural products to maintain an unquestionable competitive advantage for exports. This will call for urgent measures to introduce state of the art technologies such as remote sensing, geographical information systems (GIS), bio-engineering, etc. India has made rapid strides in satellite technologies. It is possible to effectively monitor agricultural performance using remote sensing and GIS applications. This will not only help in planning, advising and monitoring the status of the crops but also will help in responding quickly to crop stress conditions and natural calamities. Challenges of crop stress, soil problems, natural disasters can be tackled effectively through these technologies. A beginning in precision farming can be encouraged in larger tracts of land in which export potential can be tilted in our country's favour.

While developing these systems it is necessary to appreciate that major audience that is targeted is not comfortable with computers. This places premium on user friendliness and it may be useful to consider touch screen technologies to improve user comfort levels. It is often observed that touch screen kiosks, with their intuitive approach, provide a means for quick learning and higher participation. It is also necessary to provide as much content as possible in local languages.

Once the required application packages & databases are in place, a major challenge is with respect to dissemination of the information. The Krishi Vigyan Kendras, NGOs and cooperative societies may be used to set up information kiosks. Private enterprise is also required to be drawn into these activities. These kiosks should provide information on other areas of interest such as education, information for which people have to travel distances such as those related to the government, courts, etc. Facilities for email, raising queries to experts, uploading digital clips to draw the attention of experts to location specific problems can be envisaged.

Constraints and Remedies for Effective Dissemination

Educating and catering to the information needs of farmers across nearly seven lakh villages in India indeed sounds unrealistic as this would require immense financial investment. A one-time major investment in establishing communication technologies in the required places restricts the government's objective of covering more people regularly because of insufficient power availability in rural areas, poor ICT infrastructure, ICT illiteracy, non availability of timely relevant content, non-integration of services, poor advisory services and lack of localization, and in particular non availability of agricultural information kiosks/ knowledge centers at the grass root level.
Some of the major constraints delaying the spread of e-revolution to rural India are listed below:

- **Haphazard development:** It is observed that some initiatives have already been made to provide IT based services to rural community. However, duplication of efforts are witnessed as most of the services revolve around limited subjects. Keeping in view the giant task involved, it is necessary to form a coordination mechanism to strive for a

concerted effort to support farming community in the country. Such a coordination agency may only have advisory powers such as user interface, broad design, delivery mechanism of the content and standards for setting up kiosks.

- **User friendliness:** The success of this strategy depends on the ease with which rural population can use the content. This will require intuitive graphics based presentation. Touch screen kiosks are required to be set up to encourage greater participation.
- **Awareness about the Benefits of ICT:** Farmers sometimes become averse to adopting technology as they think that it might result in their losing their traditional methods of cropping practices. They simply do not want to use such systems, even if the cost incurred is negligible. Therefore, the attitude and mindset of farmers needs to be changed first. There is a need to win their confidence and create awareness about the benefits of ICT in agriculture.
- **Local languages:** Regional language fonts and mechanisms for synchronisation of the content provides a challenge that needs to be met with careful planning.
- **Restrictions:** Information content based on remote sensing and geographical information systems can provide timely alerts to the farmers and also improve the efficiency of administration. These applications can have a major impact on the farmers and help them to appreciate the potential of information technology. However, government's map restriction policies often threaten to stifle the optimal utilisation of these tools.
- **Power Supply:** In most of the rural India, power supply is not available for long hours. This will reduce the usefulness of the intended services. Since almost entire country receives sunshine for most part of the year, it is useful to explore solar power packs for UPS as well as for supply of power. The Ministry of Non-conventional Energy Sources may pay special attention in this area which can be a major contributor to the growth of IT in villages.
- **Connectivity:** Despite the phenomenal progress made in the recent years, the connectivity to rural areas still requires to be improved. Reliable connectivity is a prerequisite for a successful penetration of IT into rural areas. Many private ISPs are setting up large networks connecting many major towns and cities. Since some of these networks pass through rural areas, it is possible to provide connectivity to a large number of villages. Several technologies exist that can be utilised for connecting rural areas. Cable network is a possible medium for providing the last mile connectivity to villages.
- **Bandwidth:** Even in areas where telephone and other communication services exist, the available bandwidth is a major constraint. Since internet based rural services require substantial use of graphics, low bandwidth is one of the major limitations in providing effective e-services to farmers. As already stated, networks with high bandwidth are being set up by several companies passing through rural segments which can be utilised. Until this materialises, a two pronged strategy of storing static information at the kiosks and providing dynamic information from remote locations can be examined. The graphic oriented content which does not change frequently, such as, demonstration clips for farmers, can be stored on the local drives at the kiosks and arrange for periodic updation of this information over the network during non-peak hours. The dynamic information which changes more frequently can be accessed from remote locations to obtain the latest status.
- **Dissemination Points:** Mass deployment of information kiosks is critical for effective use of the Internet based content and services. In order to ensure that the information kiosks are economically feasible, it is necessary to make the proposition sustainable and viable. This requires a major focus on a viable revenue model for such kiosks. In the new information era, the kiosks should be designed to become electronic super markets that can, in addition to being information sources, handle other services of use to the people living in rural areas. The revenue available through such sources can make a kiosk attractive for prospective investors. The Government can provide finance facilities to unemployed rural agricultural graduates who can be expected to have greater commitment and at the same time act as an efficient interface for less educated rural visitors. The objective should be to transform rural information kiosks into 'clicks and mortar' gateway to rural India for 'Bricks and mortar' industry. Some of the sources that can generate revenue for rural kiosks are :
    - **Distance Education:** A large number of people travel substantial distances to attend educational courses. It is possible to set up virtual classrooms right in their villages.
    - **Training:** People living in rural areas require training and a means for upgrading their skills in their area of work. It is possible to provide quality education right at their door steps with facilities for online interaction with experts. For example, a village teacher or a paramedical staff can keep abreast latest developments without disturbing his/her routine. Similarly, training can be imparted on various aspects of agriculture such as correct practices, irrigation practices, efficient utilisation of tools used in farming such as tractors.
    - **Insurance:** The advent of private players into insurance has brought about advanced IT systems that can render services over networks. The kiosks can be insurance agents for insurance firms which, in turn, can compensate the kiosk operators for online transactions for new business as well as maintaining the old.
    - **Local Agent:** Many companies have difficulty in working out logistics for their supplies to rural outlets. A rural kiosk can act as conduit for such 'bricks and mortar' companies. This has the potential of transforming a rural kiosk into a profitable venture.
    - **Rural Post Office:** The kiosks can facilitate sending and receiving emails, facilitate 'chats' with experts. Several successful rural kiosks are already available in many states which run essentially on this model.

- **E-Governance:** Rural kiosks are the stepping stones for effective implementation of e-governance. Details related to central / state / local governments, formats and procedures, status verification such as case listings in courts, filing of applications in electronic format where admissible, etc. are some of the areas where kiosks can be of major use.
- **Online Examinations:** Online certification examinations are 'in things' with many organisations and certification agencies. Many people are forced to stay at metros to take the examinations. Eventually it should be possible to conduct these examinations through the rural kiosks.

- **Stake Holders:** At present, several initiatives have been taken in the form of websites / portals targeting rural India. These are at best sketchy information sources catering to pockets of rural India. It is to be noted that strong interlinkages exist within entire rural India and concerted and coordinated effort is required for carrying the benefits of IT to rural India. The magnitude of the task is such that no single institution or organisation can accomplish it. It is necessary for stake holders in rural India, such as fertiliser industry, to come together to provide adequate thrust to the effort initially. The fertiliser industry distributes more than 15 million tonnes of nutrients per annum in the country involving complex production, logistics and storage operations. A small savings made possible through better management of information up to the point of delivery to farmers can mean significant savings. The success of e-powering Indian agriculture is high if fertiliser industry makes a concerted and coordinated effort to set up Business to Business (B-B) market place with dealer / cooperative networks. The consumer industry also benefits from efficient operations in rural India. The corporate India may be willing to participate in a joint effort that proves beneficial to them as well as the rural India. The Government of India may, as outlined above, initiate a coordinating agency where various stake holders can join hands to spread e-culture to rural India and at the same time benefit from efficient operations.

Conclusion

The Indian farmer and those who are working for their welfare need to be e-powered to face the emerging scenario of complete or partial deregulation & reduction in government protection, opening up of agricultural markets, fluctuations in agricultural environment and to exploit possible opportunities for exports. The quality of rural life can also be improved by quality information inputs which provide better decision making abilities. IT can play a major role in facilitating the process of transformation of rural India to meet these challenges and to remove the fast growing digital devides.

The rapid changes in the field of information technology make it possible to develop and disseminate required electronic services to rural India. The existing bottlenecks in undertaking the tasks need to be addressed immediately. A national strategy needs to be drawn for spearheading IT penetration to rural India. A national coordinating agency with an advisory role can act as a catalyst in the process.

No single institution or organisation alone can succeed in the task of e-powering farmers and rural India. At the same time, scattered and half hearted attempts cannot be successful in meeting the objective. Industries with major stake in villages, such as fertiliser sector, should come together to provide the initial impetus. The success of any IT based service to rural India hinges on evolving a proper revenue model for the dissemination points. The information kiosks can draw revenue from the industry by providing and disseminating required services. Once these dissemination points prove to be economically viable, the IT revolution in rural India will require no crusaders.

VISION IAS ™
www.visionias.in
www.visionias.wordpress.com

G.S. PAPER III – ECONOMIC DEVELOPMENT

Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security.

1. Issues related to Direct and Indirect Farm Subsidies and Minimum Support Prices

Right from the time of independence, achieving food security for all has been a national goal. Food Management is an important component in realizing this goal. The main objectives of food management include:

- procurement of food grains from farmers at remunerative prices,
- distribution of food grains to consumers at affordable prices; and
- maintenance of food buffers for food security and price stability.

The government has a number of instruments at its disposal to achieve these objectives.

1.1 Government's price policy

Government's price policy seeks to ensure remunerative prices to the farmers for their produce with a view to encourage higher investment and production and to safeguard the interest of the consumers by making available supplies at reasonable prices. The price policy also seeks to evolve a balanced and integrated price structure in the perspective of overall needs of the economy. Towards this end, the Government fixes the Minimum Support Price (MSP) for major agricultural commodities viz. paddy, jowar, bajra, maize, ragi, arhar (tur), moong, urad, cotton, groundnut-in-shell, sunflowerseed, soyabean, sesamum, nigerseed, wheat, barley, gram, masur (lentil), rapeseed/mustard, safflower, copra and Jute and Fair and Remunerative Price (FRP) for sugarcane, taking into account the recommendations of the Commission for Agricultural Costs and Prices (CACP), the views of State Governments and Central Ministries as well as other concerned stake holders.

i. Minimum Support Price

MSP is the price which the government ensures to farmers for their produce. Government announces minimum support price (MSP) for major crops during the two main crop seasons – rabi and kharif – every year. The substantial hike in MSP has resulted in better prices available to farmers for their produce. Successive rise in MSP has also led to overall food security to the country: India is now self-sufficient in wheat and rice. Rice, wheat and major coarse cereals are purchased by procuring agencies under MSP. Government helps producers of pulses, oilseeds and some other crops by **market intervention** when prices tend to fall below the MSP. The government is strengthening the procurement infrastructure so that farmers do not have to resort to distress sale of their produce.

MSP is in the nature of a minimum guaranteed price for the farmers offered by the Government for their produce in case the **market prices fall below that level.** If the market offers higher price than MSP, the farmers are free to sell their produce at that price.

ii. Fair and Remunerative Price (FRP)

The Fair Price is offered in the interest of farmers keeping in view the need for a remunerative price and the present situation of the agriculture. For example: the 'fair and remunerative price' of Sugarcane is determined under the **Sugarcane (Control) Order 1966.** This will be uniformly applicable all over the country. States can top up FRP to give farmers a more remunerative price. The concept of FRP in case of essential commodities such as in place of Statutory Minimum Price (SMP) is in fact a big step forward as it ensures upfront payment towards margins on account of profit and risk to sugarcane farmers on the cost of production and transportation of sugarcane. Moreover, there is a system of **State Advisory Prices (SAP)** in some States, which are generally higher than the FRP.

iii. Central Issue Price (CIP)

It is the price at which Central Govt. issues the food grains to State Governments/UT Administrations. Wheat and rice are issued to the State Governments/UT Administrations from the Central pool at the uniform Central Issue Prices (CIP) for distribution under Targeted Public Distribution System (TPDS). The Steps to Contain Price Rise in Essential Commodities:

- **Reduced import duties to zero** – for wheat, onion and pulses and to 7.5% for refined edible oils. The import duty on sugar has been kept at 10%.
- **Banned export of edible oils** (except coconut oil, forest based oil and edible oils in blended consumer packs upto 5 kg with a Minimum Export Price of USD 1500 per MT) and pulses (except Kabuli chana and organic pulses and lentils up to a maximum of 10000 tonnes per annum).
- **Imposed stock limits** from time to time in the case of select essential commodities such as pulses, edible oil, and edible oilseeds for a period upto 30.9.2013 and in respect of paddy and rice upto 30.11.2013.
- Maintained the Central Issue Price (CIP) for rice (at Rs 5.65 per kg for BPL and Rs 3 per kg for AAY) and wheat (at Rs 4.15 per kg for BPL and Rs 2 per kg for AAY) since 2002.
- Suspended Futures trading in rice, urad, tur, guar gum and guar seed.
- To ensure adequate availability of sugar for the households covered under TPDS, the levy obligation on sugar factories was restored to 10%.
- Government allocated rice and wheat under **Open Market Sales Scheme** (OMSS Scheme).

iv. Decentralized Procurement

The Scheme of Decentralised Procurement (DCP) of foodgrains (rice and wheat) was introduced in 1997-98 with a view **to enhance the efficiency of procurement and Public Distribution System (PDS)** and **to encourage local procurement and reduce out go of food subsidy.** Under the scheme, the States undertake the responsibility of procurement of foodgrains, its scientific storage and distribution through Targeted Public Distribution System (TPDS). The surplus of foodgrains procured by DCP States, in excess of their TPDS requirement is handed over to FCI for the Central Pool stocks and deficit, if any, is met by FCI. At present the States of West Bengal, Madhya Pradesh, Chhattisgarh, Uttarakhand, Andaman and Nicobar Islands, Odisha, Tamil Nadu, Karnataka and Kerala are procuring rice under the decentralised procurement scheme. Government of Andhra Pradesh have agreed to adopt the Decentralised Procurement (DCP) Scheme of procurement from 2012-13 onwards for seven districts. The Government of India is actively pursuing this issue with the remaining State Governments to adopt the DCP scheme.

Due to the introduction of decentralized procurement there has been an increase in the procurement of rice in the country benefitting large number of farmers. Provision of minimum nutritional support to the poor through subsized foodgrains and ensuring price stability in different states are the twin objectives of the food security system. In fulfilling its obligations towards distributive justice, the government incurs food subsidy. Food Subsidy is released to Food Corporation of India (FCI) and Decentralised Procurement (DCP) States on distribution of foodgrains. It is the difference between cost of foodgrains procured and Central Issue Price (CIP). Under Decentralised Procurement (DCP) Scheme, States undertake the responsibility of procurement of foodgrains, its storage and distribution under Targeted Public Distribution System (TPDS). The entire difference between the **economic cost of foodgrains** and **Central Issue Price** (CIPs) is reimbursed to these States directly as food subsidy.

1.2 Issues of Pricing in Agriculture

Though with economic liberalization and gradual integration with the world economy, relaxation of export controls on several agricultural products since 1991 have helped agricultural exports, there are still occasional interventions by the government (for example, export bans on wheat and rice, or limits on the stocking of grains by private trade that dissuade the private sector players from investing in the agri-system. However, one of the main government interventions in the agricultural markets currently is its policy of **minimum support prices (MSP)** for agricultural commodities. For procurement of horticultural commodities which are perishable in nature and not covered under the Price Support Scheme, with a view to protect the growers of these commodities from making distress sale in the event of bumper crop during the peak harvesting periods when the prices tend to fall below the economic cost of production, a Market Intervention Scheme (MIS) is implemented on the request of a State /UT Government which is ready to bear 50 percent loss (25 percent in case of North-Eastern States), if any, incurred on its implementation.

MSP is viewed as a form of market intervention by the central government and as one of the supportive measures (safety nets) to the agricultural producers i.e. farmers. This has also a strong linkage to factor market of the agriculture and related sector

1.2.1 The MSP is aimed at:

(i) Assure remunerative and relatively stable price environment for the farmers by inducing them to increase production and augment the availability of food grains.

(ii) Improve economic access of food to people.

(iii) Evolve a production pattern which is in line with overall needs of the economy.

1.2.2 Problem with the Minimum Support Price Policy

Most important aspects deserve attention is sustainable MSP policies are:

(i) unwarranted fluctuations in prices, which may be provoked by domestic causes and international price variations

(ii) uneven incentive structure for the farm producers; allocation of resources towards desired crops

(iii) consumers face sharp price rise which may have been created by monsoon failure or artificial scarcity.

(iv) farmers in the states which don't have surplus production are deprived of the benefit of MSP.

(v) market prices in some mandies even fall below MSP.

1.2.3 Govt. intervention for regulating prices

i. Model APMC act

Model APMC bill is designed to help small farmers get **better prices** through **contract farming.** The legal framework for contract farming under the State Agricultural Produce Marketing (Regulation) Acts will be quite helpful to the small farmers in securing better remuneration for their produce, particularly in backward areas/ districts, as such arrangements would **cover the price risk** and also the production risk to a great extent. Contract Farming has the potential of combining small farmers' efficiency with economy of scale, utilizing corporate management skills, providing assured markets and reducing transaction costs in the value chain by ensuring vertical integration. Several national and multinational processors or fast food chains are increasingly entering into contract with the farmers to encourage them to cultivate farm products (fruit, vegetables, etc.) of the desired quality by providing them not only seeds and other inputs but also assured procurement of the produce at pre-decided prices. Such tie-ups have special significance for small and marginal farmers, who have small marketed surplus and do not have staying power. They may not individually be capable of investing in technology, but through self help groups or

cooperatives, there could emerge a desirable institutional framework, through which farmers can suitably reap the benefits of contract farming arrangements.

Contract farming is particularly useful for high value crops because it enables the corporates to associate with the farmers and helps in imparting the latest technological know how to them. The Model Agricultural Produce Marketing (Regulation) Act circulated by the Central Government to the States in 2003 for implementing marketing reforms has provisions for the registration of contract farming sponsors and recording of contract farming agreements with the Agricultural Produce Marketing Committee (APMC) or a prescribed authority under the Act, protection of title or rights of the farmers over the land under such contracts, dispute settlement mechanism and a model draft agreement suggesting various terms and conditions.

In seven States/ Union Territories there are no APMC Acts, therefore, there is no regulation of contract farming in such States / UTs. The Model Act circulated by the Ministry is suggestive in nature, and, since Agriculture is a State subject, it is for the State Governments to decide on the implementation, intermediation and monitoring of the contract farming arrangements in their State.

1.3 The burden of subsidies

i Nutrition Based Subsidy Scheme

The Cabinet approved Nutrient Based Subsidy (NBS) rates for Phosphatic and Potassic (P&K) fertilisers for the year 2013-14 on May 1, 2013. As per the NBS policy, the government fixes subsidy rates for various nutrients for P&K fertilisers every year. In contrast, the government periodically fixes the **Maximum Retail Price (MRP) for urea**, which is not covered under the NBS policy. The difference between MRP and normative cost is paid to the urea companies as subsidy.

Under the NBS policy, P&K fertiliser manufacturers and importers set the domestic MRP for their products in accordance with international prices of these fertilisers. Despite a decline in international prices of P&K fertilisers, commensurate declines in domestic MRPs have not been observed. Hence, the government has mandated P&K fertiliser manufacturers and importers to submit certified cost data while claiming subsidy. **In case the government finds MRPs to be unreasonable, the subsidy may be restricted or denied.** If the government discovers an abuse of the subsidy mechanism, a fertiliser company's grade(s) of fertilisers or the entire company itself may be excluded from the NBS scheme. The government expects new NBS rates to result in about 15% reduction in P&K subsidy outgo (**about Rs 4,400 crore**) for the year 2013-14 and at least Rs 1,500 and Rs 1,000 per tonne decline in prices of DAP and MOP from their current levels.

2 Public Distribution Systems (PDS)

2.1 Objective

Government of India is committed to ensure **food security** for all and to make available essential commodities to vulnerable section at reasonable cost round the year through Public Distribution System (PDS). With this objective in mind the PDS was reorganised in 1997 with its focus on the poor whereby the population Below Poverty Line (BPL) will be given 20 kg of foodgrains per month per family at 50 per cent of economic cost. This will benefit an estimated 33 crore of people living Below Poverty Line (BPL) in the country while the population Above Poverty Line (APL) will continue to get foodgrains at economic cost through the fair price shops. The estimated subsidy for running the Targeted Public Distribution System is estimated at Rs. 7457crore.

2.2 Functioning of PDS

A well targeted and properly functioning Public Distribution System (PDS) is an important constituent of our food security. The Targeted Public Distribution System (TPDS) with its focus on "poor in all areas" envisages issue of 35 Kg of foodgrains per family per month for the population Below Poverty Line (BPL) at specially subsidized prices. Under TPDS, the States are required to formulate and implement foolproof arrangements for identification of poor, for delivery of foodgrains to Fair Price Shops (FPSs) and for its distribution in a transparent and accountable manner at the FPS level. The thrust is to include only the really poor and vulnerable sections of society. The National Agenda for Governance seeks to reform and improve the Public Distribution System so as to serve the poorest of the poor in rural and urban areas.

2.3 Limitations of PDS

1. Procurement of foodgrains in a few States led to many problems with regard to the levy of taxes, storage and transportation to different centres. This resulted in heavy transit losses.
2. As the major food deficit States are located in the North-East and far South, transportation of foodgrains from Punjab and Haryana to these States put enormous pressure on rail traffic besides causing huge expenditure on transportation cost and losses on account of transit, storage and pilferage.
3. **Post-harvest grain losses** have become more pronounced due to food scarcity conditions arising out of vagaries of weather and fluctuation in production levels.
4. Farmers retain roughly 70% of the foodgrains for food, feed or seed purpose. Of the balance 30% is traded and marketed. About 50% is handed by the public sector (the Food Corporation of India assisted by various State agencies) and the rest goes to private trade. A considerable loss of foodgrains, both in quality and quantity, takes place at farm level.

2.4 Revamping PDS

- To overcome these problems the Government **decentralized the procurement** process by dispersing the procurement centres to different parts of the country, encouraging local procurement to the maximum extent. Under this scheme, the designated States procure, store and issue foodgrains as per allotments indicated by the Centre under PDS. The difference between the economic cost of the State Governments and the Central Issue Prices is passed on the State Governments as subsidy.
- An adequate storage of **buffer stock of foodgrains** in the Central Pool is an essential element of the national food policy. Buffer stock of foodgrains is necessary not only to impart inter-seasonal stability to foodgrain supply and prices but also to ensure food security and meet emergent situations arising out of unexpected crop failures and natural disasters. Buffer stock norms for each quarter have been prescribed.
- Since foodgrain production has almost reached a plateau, one of the means of meeting the consumption requirement for increasing population is by **reducing the post-harvest losses** by strengthening forward linkages in the agriculture sector.
- **Initiatives towards computerization of PDS**: Ministry of Consumer Affairs, Food & Public Distribution has given top priority to Public Distribution System (PDS) reforms which include improvement of infrastructure for distribution and storage of PDS food grains. State Governments have been urged to take initiatives to computerize system and adopt best practices of management.
- e-gov and PDS: Computerization of TPDS is being implemented as a Mission Mode Project (MMP) under the National e-Governance Plan (NeGP) by the Central Government. As per MMP guidelines, a dedicated institutional mechanism by way of an Empowered Committee (EC) and a **Central Project e-Mission Team (CPeMT)** for

computerization of TPDS has been set up. States/UTs have also been requested to establish a two-tier structure at their level comprising a State Apex Committee as well as a State Project e-Mission Team (SPeMT). Detailed guidelines for end-to-end Computerisation of TPDS have been issued to all States/UTs. Action Plan for computerization of TPDS have also been received from all States/UTs. The application software prepared by National Informatics Centre (NIC) has been shared by it with State Information Officers (SIOs) of NIC. To ensure the implementation of Computerization of TPDS, the progress is also being reviewed in various meetings, conferences, etc. In the first phase, the scheme on Computerization of TPDS Operations had been approved to be implemented on pilot basis in three districts each of Andhra Pradesh, Assam, Chhattisgarh and Delhi. A pilot scheme on **Smart Card based delivery of essential commodities** has been initiated in Chandigarh UT and Haryana. Under the scheme, existing ration cards are to be replaced by Smart Cards.

3. Issue of Buffer Stock

The buffer stocks are required to **feed TPDS** and other welfare schemes, ensure **food security** during the periods when production is short of normal demand during bad agricultural years; and (iii) **stabilize prices** during period of production shortfall through open market sales. The total annual stock of food grains in the Central Pool is distributed over different quarters of the year depending upon offtake and procurement patterns. The seasonality of production and procurement is thus a decisive factor in determining the minimum norm of food grains stocks required in a particular quarter of the year. For working out buffer stocking norms and making recommendations for policy decisions, the Government has been setting up from time to time Technical Groups under the Chairmanship of Union Food Secretary. The last buffer stock strategic standards norms were set in 2005. Government maintains buffer stocks of wheat and rice in the Central Pool.

3.1 Strategic reserve of food grains

As per buffer norms and in order to ensure food security in the country, Government has decided that **a strategic reserve** of 50 lakh tonnes of foodgrains would be maintained by Food Corporation of India (FCI). The strategic reserve is to be built up over a period of time starting from 2008-09. The stock of foodgrains in the Central Pool including strategic reserve would be kept in the available godowns/ additional godowns proposed to be constructed by the FCI and State agencies. The cost of maintaining the strategic reserve would be borne by the Government of India in the form of subsidy.

3.2 TPDS

The Government has allocates foodgrains @ 35 kg per family per month for Below Poverty Line (BPL) including Antyodaya Anna Yojana (AAY) category under Targeted Public Distribution System (TPDS). In addition, the Government makes a special ad-hoc additional allocation @ 10 kg of foodgrains per family per month for all accepted number of BPL, AAY and APL families to check inflationary trend in the economy.

3.3 Issues with Buffer Stocks of Food grains in India:

i. Contradictions in the policy approaches

42% percent of our little children are malnourished while India's godowns are bursting with food grain. There are glaring contradictions in India's policy approach towards buffer stock management. Subsidies on food and agriculture have shot up and bumper crops have been harvested. Despite that food prices in key staple commodities have continuously increased. Farmers are being paid more than double than 10 years ago. Still they are committing suicide. Exporters of food grains and agriculture commodities have been making huge profits at the cost of national exchequer loses.

ii. An artificial shortage

India has bumper crops every year; 259.32 million tonnes in 2012-13 and have enormous buffer stocks. The Food Corporation of India expects to procure some 50 million tonnes of wheat this rabi season, stocks may touch a mark of 100 million tonnes. Stockpiling by the FCI has led to an artificial shortage of wheat despite bumper crops. This leads rise in domestic prices dramatically. There is no sense in building up such massive stocks at a huge cost to the economy and burden on consumers.

iii. Low per capita availability

Per capita availability of food grain stands at 462.9 gm in 2011 which is less than 170 kg per person per year. The average food availability for 2006-10 was 404.62 gm per capita. Declining per capita availability of food grain has been a severe problem to the livelihood of the general masses in India which is admitted in the Economic survey for 2012-13.

iv. Storage Capacity

Huge amount of food grains keep laying in open sky in agriculture affluent states such as Punjab, Haryana and UP; at the same time the previous stock keep on rotting. The warehousing system of the food grains in India is highly inadequate and inefficient and ineffective. The Ministry of Consumer Affairs, Food & Public Distribution has taken a number of initiatives to create additional food grain storage capacity which include 152.97 lakh ton capacity in 19 states through private entrepreneurs and central and state ware housing corporations. Steps have also been taken for construction of **godowns in North eastern** region with a cost of Rs 568.17 crores to stock food grains in the region and speedy movement of food grains from procuring states to distribution centres.

v. Export of Surplus Foodgrains

The export of foodgrains depends on availability of surplus over and above the requirement of **buffer stock including strategic reserve,** international demand and supply situation, quality standards in the importing countries, varieties traded and price competitiveness. The Empowered Group of Ministers (EGOM) on Food takes into account various factors including the stocks of food grains available in the country, surplus over and above the buffer stock norm and strategic reserve requirements, the concerns of food security, availability of food grains to common man at reasonable price and remunerative prices to the grower, on a continuous basis and decides on the export of food grains as and when required. The Government has also decided to export limited quantities of wheat/non basmati rice from time to time to various countries like Afghanistan, Nepal, Sri Lanka, Maldives, Bangladesh and Oman on diplomatic/humanitarian basis.

Problem with exports: Unable to manage the stocks, the government resorts to exports at subsidized rates which only benefit the traders. Given that the economic cost of wheat is Rs. 19,100 (per metric tonne) and the minimum export price for wheat fixed by the government is in the region of Rs. 16,200, the losses are estimated at Rs 1,700 crore for the previous year. Global prices have tumbled in the past week below the government fixed minimum export price of $300 a metric tonne to about $270.

4. Food Security

India is lagging behind in achieving the MDGs of halving hunger by 2015. The decline in per capita foodgrain availability and its unequal distribution have serious implications for food security in both rural and urban areas. The proportion of households below the poverty line was 28% is close to 300 million persons. The percentage of population consuming diets providing less than 2400 kcal (underlines definition of below poverty line) per capita per day is almost 77% of the rural population. Poverty is concentrated and food deprivation is acute in predominantly rural areas with limited resources such as rain-fed agricultural areas. Food sector as a whole has also been supported in the current budget with higher provision for **food subsidies, market intervention and imports.** These will help in attaining food security for all and containing food

inflation. The National Food Security Mission, a scheme intended to bridge yield gaps of major crops, has been provided Rs. 2,250 crore.

4.1 National Food Security Bill

A sum of Rs. 10,000 crore has been kept for the National Food Security Act. The Government hopes that the Bill for this will be passed by Parliament as early as possible. This allocation is over and above the normal provision for food subsidy, towards the incremental cost that is likely under the Act.

4.2 Swaminathan Committee Report recommendations on Food Security

- Implement a **universal public distribution system.** The National Commission on Farmers pointed out that the total subsidy required for this would be 1% of GDP.
- Reorganise the delivery of **nutrition support programmes** on a life-cycle basis with the participation of Panchayats and local bodies.
- **Eliminate micronutrient deficiency** induced hidden hunger through an integrated food cum fortification approach.
- Promote the establishment of Community Food and Water Banks operated by Women Self-help Groups (SHG), based on the principle **'Store Grain and Water everywhere'.**
- Help small and marginal farmers to improve the productivity, quality and profitability of farm enterprises and organize a Rural Non-Farm Livelihood Initiative.
- Formulate a **National Food Guarantee Act** continuing the useful features of the Food for Work and Employment Guarantee programmes. By increasing demand for food grains as a result of increased consumption by the poor, the economic conditions essential for further agricultural progress can be created.

4.3 National Food Security Mission (NFSM)

A Centrally Sponsored Scheme on NFSM was launched in the country to enhance the production of rice, wheat and pulses by 10, 8 and 2 million tones, respectively by the end of 11th Plan. The mission aims at increasing production of rice, wheat and pulses through area expansion and productivity enhancement, restoring soil fertility and productivity, creating employment opportunities, and enhancing farm level economy to restore confidence of farmers of targeted districts. Various activities of NFSM relate to demonstration of improved production technology, distribution of quality seeds of HYVs and hybrids, popularization of newly released varieties, support for micro nutrients, gypsum, zero tillage, rotavators, weeders and other farm implements, IPM, INM, extension, water lifting and moisture saving devices training and mass media campaign including awards for best performing districts. Besides, the pilot projects on community generators, control of blue bulls and demonstration of ICRISAT technologies would also be implemented.

The strategies adopted by the NFSM for increasing productivity and production of major crops are being further fine-tuned so that the momentum gained by the Mission in the 11th Plan is used for achieving 25 million tonne per year additional foodgrain production by 2017.

In the 11th Plan, NFSM exceeded its target of adding 20 million tonne foodgrain production per year in 2011-12, a year before the target date. In the first year of the current Plan, i.e. 2012-13, as against the target of producing additional 2 MT rice, 1 MT wheat and 1.25 MT pulses, NFSM has achieved significantly higher production - 7 MT rice, 9 MT wheat and 2.5 MT pulses.

4.4 The Chhattisgarh Model for Food Security

Chhattisgarh is the only state to enact a food security law. A combination of policy, policing and adminstrative measures for wider coverage rather than targeted distribution, putting ration shops in the hands of those trusted by the community they serve, incentives for those running the fair price shops, computerised tracking of foodgrain, weeding out bogus BPL (below poverty line) cards and zero tolerance for pilferage has resulted in efficient delivery of foodgrain to 74 % of the population. The Chhattisgarh Food Security Act extends coverage to 90%t of the population. Apart from grains, beneficiaries are entitled to 2 kg of pulses at Rs 5- Rs 10 per kg. The Chhattisgarh model would argue that the Food Security Act can work without impacting the economy negatively. The state first reformed its PDS and gave its farmers sufficient incentives before enacting the law.

5. Technology Missions

5.1 Integrated Watershed management techniques

The main objectives of the IWMP are to restore the ecological balance by harnessing, conserving and developing degraded natural resources such as soil, vegetative cover and water. The outcomes are prevention of soil run-off, regeneration of natural vegetation, rain water harvesting and recharging of the ground water table. This enables multi-cropping and the introduction of diverse agro-based activities, which help to provide sustainable livelihoods to the people residing in the watershed area. In addition, the Scheme of Technology Development, Extension and Training (TDET) are also being implemented to promote development of cost effective and proven technologies to support watershed management.

Technological support is very critical for the development of wastelands. Proper area specific strategy has to be developed keeping in view the agro-climatic conditions and capability of the soil. The Central Sector Scheme of **Technology Development, Extension & Training** (TDET) was launched during the year 1993-94 to develop suitable technologies for development/reclamation of wastelands for sustainable production of food, fuel wood, fodder etc. The Scheme is being implemented through ICAR Institutes, State Agriculture Universities (SAUs), DRDAs and Government institutions having adequate institutional framework and organizational backup. Successful implementation of the Scheme is expected to bridge the gap between the existing technologies and the need relevant to the latest situation. Under this Scheme, 100% Central Grant is admissible to implement the projects on wastelands owned by the

Government, Public Sector Undertakings including Universities, Panchayats etc. In case of the projects on wastelands of Private Farmers/Corporate Bodies. Space technology, GIS Mapping, Satellite imagery technologies etc. have been very successful in various states across India.

5.2 Space technology applications for Agriculture

At present India has nine remote sensing satellites making it as **one of the largest constellation** of remote sensing satellites in the world. **Satellite sensors** provide valuable database to arrive at suitable decisions in maintaining productive capabilities of **agro ecosystems.** Remote sensing and INSAT are useful for various agricultural purposes as follows:

1. Pre-harvest crop acreage and production estimation is a remote sensing based nation-wide project to provide crop statistics with reasonable accuracy.
2. Satellites provides valuable inputs for diversification and intensification of crops.
3. Satellite imageries are useful for correct planning and improvement of **watershed development projects.**
4. **Mapping and monitoring of wastelands** is being carried out for entire country using remote sensing.
5. Remote sensing satellite data can be used for mapping of various **Saline and Usar soils** for reclamation measures.

6. **Potential Fishery Zones** (PFZ) are demarcated on the basis of presence of chlorophyll and sea- surface temperature data obtained from remote sensing satellites. Based on this, advisories are issued to fishermen.
7. By virtue of the unique combination of Remote Sensing and contemporary microwave satellites, periodic database to monitor droughts and floods is provided.
8. Indian Meteorological Department uses data from the INSAT for weather forecasting which is also used by IMD for providing agro-meteorological services.
9. INSAT utilization of **agriculture extension** services has been quite effective in disseminating improved agriculture practices throughout the country.
10. Precision agriculture, an emerging agricultural management concept, embodies the convergence of biotechnologies and other agricultural technologies with space and informatics to optimize agricultural inputs viz., fertilizers, pesticides, water etc, in tune with micro-level/field requirements. The concept is at present limited to developed countries and is yet to evolve in India.

5.3 National Mission on agricultural Extension & Technology

A new strategy is being formulated for farm mechanization during the Twelfth Five Year Plan. The aims & objectives of the proposed Sub Mission on Agricultural Mechanization (SMAM) under National Mission on agricultural Extension & Technology are as under:

- Increasing the reach of farm mechanization to small and marginal farmers;
- Establishment of 'Custom Hiring Centre' to offset the adverse economies of scale arising due to small landholding and high cost of individual ownership.
- Passing on the benefit of hi-tech, high value and hi-productive agricultural machinery to farmers through creating hubs for such farm equipment;
- Promotion farm mechanization through demonstration and capacity building activities ;
- Ensuring quality control of newly developed agricultural machinery.

5.4 Promoting Farm Mechanization among Small and Marginal Farmers

The Ministry of Agriculture has various extension services for disseminating the know-how of **modern agricultural technologies** throughout the country which also includes remote/rural areas by following ways:

- Through establishment of Agriculture Technology Management Agencies (ATMA) for introduction of new technologies to the farmers.
- Through **Kisan Call Centres** (KCC) for providing the information on modern technologies to the farming community.
- **Kisan Vigan Kendras** (KVK) of Indian Council of Agricultural Research (ICAR) are established with the aims at assessment, refinement and dissemination of modern technology to the farmers.
- Various agricultural technologies are being dissimientated through a network of Doordarshan National Channel, 18 Regional Kendras and 180 Narrowcasting Centres apart from 96 FM Radio Stations under **"Mass media Support to Agricultural Extension"** scheme. Promotion and strengthening of agricultural mechanization is also done through training, testing and demonstrations. To promote farm mechanization amongst small and marginal farmer and to facilitate custom hiring facility, the Government is also considering providing assistance on procurement of agricultural machinery to establish custom hiring centres, to individual Entrepreneurs, Self Help Group (SHG)/ User Groups (UG) of farmers, Cooperative Societies etc.

5.5 National Agricultural Innovation Project

The Indian Council of Agricultural Research (ICAR) and the World Bank have been implementing a joint National Agricultural Innovation Project (NAIP) in the country. The specific objective of the National Agricultural Innovation Project is to accelerate the collaborative development and application of agricultural innovations between public and research organizations, NGOs, farmers, private sector and other stakeholders. Some of the major activities under the project are as follows:-

- Three hundred thirty six (336) entrepreneurs have been incubated and 60 technologies commercialized.
- Rice knowledge management portal for providing complete rice information from a single portal has been developed.
- An online access to over 2,900 journals to 140 National Agricultural Research System (NARS) libraries has been provided.
- Over 610 NARS Scientists have so far been trained in frontier areas of agricultural sciences in the state of art laboratories across the world. 86 national trainings involving international experts have also been sanctioned and more than 80 have been completed.
- Research on production to consumption system is covered by 51 consortia working across sub-sectors of Indian agriculture.
- Sustained improvement in incomes and well-being of farm families, mainly in disadvantaged areas, have been undertaken in 102 districts of the country.

5.6 Agricultural Research and education

Indian Council of Agricultural Research (ICAR), is the main organisation of the Department of Agricultural Research and Education (DARE) of the Ministry of Agriculture. It has played pivotal role in developing agricultural technologies, input materials and critical scientific mass leading to self-sufficiency in food. The activities of the ICAR are organised into eight subject matter divisions, namely, Division of crop sciences, Horticulture, Soil Agronomy and Agro-Forestry, Agricultural Engineering, Animal Science, Fisheries, Agricultural Extension and Agricultural education. The Research is carried out through a chain of 45 Central institutes, 4 Bureaux, 10 project directorates, 30 national research centres (NRCs) and 80 All India Coordinated Research Projects (AlCRPs) located throughout the country, mostly at 28 State agricultural universities (SAUs) at their 200 zonal research stations. The whole country has been divided into 120 distinct agro-climatic zones and in each of them, a multidisciplinary regional research station has been established under on-going national agricultural research project.

Launched- **Jai Vigyan National Science and Technology Mission** on Conservation of Agro- biodiversity (Plant Genetic Resources). A total of 61,015 samples of diverse germplasm procured from 63 countries. In National Gene Bank, data pertaining to all conserved accessions have been computerized.

6. Economics of Animal-rearing

Animal husbandry and dairying are vital sectors of India's economy, more particularly the rural economy. It provides a significant proportion of **self-employment opportunity** in the employment generated in the agriculture livestock sector. **The Operation Flood** played major role in bringing the milk production to triple fold since its inception in 1970's. India also became the world's Number one milk producer in 1997, with an estimated production of 72 million tonnes, more than that of the then biggest – the United States (70.7 million tonnes). One sixth of world cattle population is in India and the Milk machine buffalo population contributes more than half of the globe. India ranks fifth in egg production in the world.

6.1 Contribution of Livestock in Indian Economy:

Animal Husbandry Sector plays a vital role in providing household nutritional security, increased income, and employment especially of women and in rural transformation. Animals provide a diverse range of output for cultivation, irrigation, transport; fibre and leather goods, manure for fertilizer and fuel besides direct production of milk, meat and eggs for human consumption. **Livestock provide economic security and social status to the family.** Concentration of livestock in general and small ruminants in particular, is in marginal, small and semi-medium holdings which mostly represent poorer sections of the society. Thus progress in livestock sector is directly related to a more balanced development of rural economy and upliftment of poorer sections of the society. As discussed above; animal husbandary provides self-employment to millions of households in rural areas. Women constitute 71% of the labour force in livestock farming. Rural women play a significant role in animal husbandry and are involved in operations like feeding, breeding, management and health care. In dairying, 75 million women are engaged as against 15 million men. A large manpower is also involved in livestock related activities like manufacture of animal food products and beverages, manufacture of textiles, tanning & dressing of leather, farming of animals, production, processing and preserving meat and meat products, manufacture of dairy products, retail and wholesale trade of livestock products.

Though the proportionate contribution of livestock sector to total GDP has remained steady between 4-6%; share of livestock in the agricultural GDP has improved from 15% in 1981-82 to 26% in 2010-11.

6.2 Dairy development

Dairying with crossbred cattle and high yielding buffaloes has become a remunerative business. Studies have shown that dairy enterprise as against crop in rural areas was on the top with regard to profit in marginal, small and medium holdings ,also that dairying and crop production together for small farmers having irrigated land was more profitable than crop farming alone. Animal Husbandry components provide easy cash; so small farmers prefer it to crop production. An **Integrated Dairy Development Project** has been put in place for non-operation flood, hilly and backward regions of the country. These two programmes will help dairy development by increasing milk production, generating additional employment and providing remunerative prices to the milk producers in addition to improving genetic merit of cattle and buffaloes.

In India's dairy development the role of international cooperation has been significant through bilateral and multilateral assistance. Among the countries that have participated include, Australia, Canada, Denmark, Germany, New Zealand, Sweden, Switzerland, UK and USA. European Union, FAZ/UNDP, FAD/WFP, UNICEF and the World Bank (IDA) are International Agencies that assisted in India's ambitious programme. One outstanding example of such cooperation is the Operation Flood (1970-96). Planned and executed by the National Dairy Development Board (NDDB), this project (OF) has been a major instrument for modernizing the dairy sector and putting it under the cooperative umbrella. India's milk production by 2020 will be 186 million tonnes at the growth rate of 4.3 per cent and 221 million tonnes at the growth rate of 5%. The consumption has been estimated to be 160 million tonnes thus making a surplus for export. There is a need to integrate good hygienic and manufacturing practices along with attractive **packaging and cold chain network** in the production system to improve the quality and shelf life of the products.

6.3 Fisheries

Fisheries help in augmenting food supply generating employment, raising nutritional level and earning foreign exchange. India is now the sixth largest producer of fish in the world. Fish Farmers Development Agencies (FFDA) provide a package of technical, financial and extension support to fish farmers, for the development in land fisheries. For the development of marine fisheries, apart from six major fishing harbours viz. Cochin, Chennai, Vishakhapatnam, Roychowk and Paradip, 41

minor fishing harbours and fish landing centres have been constructed to provide lending and berthing facilities to fishing craft.

6.4 Meat, Egg and Wool

Low nutritional input is the major concern in small ruminants for increasing their reproductive efficiency and body weight gains. The carcass weight in sheep and goats which are around 12 and 10 kg respectively have been constant for the last more than 20 years and the increase in volumes of meat and wool yield have largely been due to increase in numbers. Focus, therefore, in small ruminants would be on improvement of existing pastures/grass lands which have deteriorated over the years and adoption of semi-intensive systems of production to achieve higher growth rate and more number of lambs/kids per female in a year. Crossbred pigs have higher growth rate and better feed conversion efficiency. Rabbits should be encouraged for production of meat, wool and skin.

Commercial poultry production is highly organised and the germ plasm feed and other essential inputs like vaccine are being marketed by the private sector. Commercial poultry production, however, is concentrated in urban and peri-urban areas and limited to some States. The rural sector, which provides 32 - 35 per cent of eggs and broilers, has not been serviced by the private sector. Strengthening the rural poultry production system while providing household nutritional security would also provide extra family income. To increase egg production in the rural sector, State poultry and duck breeding farms are being strengthened to produce and disseminate breeding stocks suitable for low input technology to women beneficiaries and other socially backward segments of the society. The scheme which is currently being implemented in the North-Eastern States shall be extended to the rest of the country.

6.5 The National Livestock Mission(NLM)

A number of new initiatives have been proposed in the 12th Five Year Plan for retaining youth in Agriculture Sector and funding for research and innovations in the sector. The twin objectives of the plan are ensuring **food security** and improving the lot of farmers through higher investments in agriculture and allied sectors. To address the challenges in live stock sector, National Livestock Mission and National Programme for Bovine Breeding & Dairying have also been proposed in the Plan.
The National Livestock Mission will be launched in 2013-14 to attract investment and to enhance productivity of livestock, taking into account local agro-climatic conditions. Rs. 307 crore have been provided for the Mission. There will be a sub Mission in NLM for increasing the availability of feed and fodder.

6.5.1 Submissions under NLM:

- Sub-Mission on Livestock Development,
- Sub-Mission on Pig Development in North-Eastern Region,
- Sub-Mission on Fodder and Feed Development,
- Sub-Mission on Skill Development, Technology Transfer and Extension.

6.5.2 Components of NLM

- Forage production from Non-forest wasteland / rangeland / grassland / non-arable land (ha) and Forage production from Forest Land (ha);
- Cultivation of coarse grains and dual purpose crops ;fodder seed production and distribution ;Conservation of fodder through post harvest technologies ;
- Distribution of hand driven chaff cutters; distribution of power driven chaff cutters;

- Establishment of high capacity Fodder Block Making units ;
- Distribution of low capacity, tractor mountable Fodder Block Making units Silage making units; bypass protein making units; area specific mineral mixture / feed processing units; feed testing laboratories; strengthening of the regional fodder stations;
- strengthening of research; training and human resource Development; institutional strengthening and support.

6.6 Challenges to Animal Rearing in India

- Availability of **quality nutrients** through feed and fodder resources has to be ensured.
- The **large size of cattle population** is hampering the vertical genetic improvement in cattle production.
- The small sized herds both in governmental and institutional farms and with private farmers is an important issue especially when the developed countries are making use of genomic tools for **vertical genetic improvement** in their livestock genetic resources.
- **Disease diagnosis,** health and hygiene maintenance of livestock is affecting the production potential. Emerging and remerging animal disease that may affect the health across the species is causing concern, especially, the zoonotic diseases.
- Safer food, packaging and maintenance of quality milk and other animal products would positively affect the livestock products in the country as well as **for exports.**
- Amelioration of ill effects arising out of **climate changes** especially the mitigation strategies for methane production by livestock.
- Resource constraints, large population size, low productivity and small livestock are other the main constraints.

7. Agriculture in Budget 2013-14

There is a substantial rise in allocation for farm schemes, new schemes on nutri-farms, farmer producer organisations, livestock etc. Union budget for 2013-14 supports the agriculture sector in a big way. While the existing provisions have been continued, a number of new initiatives have been taken for bringing in more investment to this sector, promoting growth in key areas and farmers' welfare. The following are the **major provisions** relating to agriculture and food sector in the budget:

- Agriculture gets **Rs 27,049 crore,** an increase of 22% over Revenue Expenditure of the current year.
- Plan outlay for agriculture has been raised considerably: Agriculture Ministry: **Rs 17095 crore;** out of this, for **agricultural research**: **Rs 3,415 crore.**
- Agricultural credit target fixed at Rs 700,000 crore.
- The interest subvention scheme for short-term crop loans will be continued. A farmer will be able to get credit at **4 % per annum.**
- The interest subvention scheme has so far been applied to loans given by **public sector banks, RRBs and cooperative banks.** This is being extended to crop loans borrowed from private sector **scheduled commercial banks**.
- Bringing Green Revolution to Eastern India (**BGREI**) has been a remarkable success; an allocation of Rs 1000 crore in 2013-14. Assam, Bihar, Chhattisgarh and West Bengal have increased their contribution to rice production.
- The original Green Revolution States face the problem of stagnating yields and over-exploitation of water resources. The answer lies in crop diversification. Rs 500 crore has been allocated for crop diversification to promote technological innovation and encourage farmers to choose crop alternatives.

- The **Rashtriya Krishi Vikas Yojana** is intended to mobilise higher investment in agriculture; Rs. 9,954 crore is allocated to RKVY.
- The National Food Security Mission, a scheme intended to bridge yield gaps of major crops, has been provided Rs. 2,250 crore.
- The allocation for the **integrated watershed programme** has been raised to Rs. 5,387 crore to help small and marginal farmers who are vulnerable everywhere especially in drought prone and ecologically-stressed regions. Watershed management techniques help in improving productivity of land and water use.
- A pilot programme on **Nutri-Farms** for introducing new crop varieties that are rich in micro-nutrients such as **iron-rich bajra, protein-rich maize and zinc-rich wheat** is to be started; Rs 200 crore has been allocated for this to start pilots in the districts most affected by malnutrition.
- The National Institute of Biotic Stress Management for addressing plant protection issues will be established at Raipur, Chhattisgarh. The Indian Institute of Agricultural Bio-technology will be established at Ranchi, Jharkhand and will serve as a centre of excellence in agricultural bio-technology.
- A pilot scheme to replant and rejuvenate coconut gardens that was implemented in some districts of Kerala and the Andaman & Nicobar Islands will be extended to the entire State of Kerala. Rs 75 crore has been allocated for this scheme.
- Farmer Producer Organizations (FPO) have emerged as aggregators of farm produce and link farmers directly to markets. Matching equity grants will be provided to registered FPOs upto Rs. 10 lakh per FPO to leverage working capital from financial institutions. Rs 50 crore is being provided for this purpose.
- Besides, a **Credit Guarantee Fund** will also be created in the Small Farmers' Agri Business Corporation with an initial corpus of Rs 100 crore.

7.1 Latest Budgetary Provisions on Subsidy

- Rs 90,000 crore have been provided for food subsidy [including expenditure likely on implementation of the Food Security Act] as against 2012-13 RE of `85,000 crore. The subsidy is used in TPDS operations and foodgrain procurement. In addition, provisions have been made for subsidy on import of pulses (`250 crore) and edible oils (`318.34 crore).
- Other subsidies that will benefit the agricultural sector are: fertilizer subsidy: Rs 65,971.5 crore; interest subvention on farm credit: Rs 6,000 crore; price support by Jute and Cotton Corporations: Rs 255 crore.

8. Current Legislative Reforms

8.1 The Agricultural Biosecurity Bill 2013

The Bill 2013 proposes:

a. integration of plant and quarantine services;

b. establishment of an Authority for prevention, control, eradication and management of pests and diseases of plants and animals and unwanted organisms for ensuring agricultural biosecurity; the Bill establishes the **Agricultural Biosecurity Authority of India** that will:

- regulate the import and export of plants, animals and related products;
- prevent the introduction of quarantine pests from outside India;
- Implementing post-entry quarantine measures.

c. to meet international obligations or India for facilitating imports and exports of plants, plant products, animals, animal products, aquatic organisms and regulation of agriculturally important micro-organisms;

d. prevention and control of pest infestation or infection, including declaration of an area as "controlled area" for this purpose and measures for control of such infestation or infection;

e. provision for infection, taking samples, entry and search of premises, checking of conveyances to ensure compliance of **phytosanitary and sanitary measures** and also seizure, treatment and disposal of plants, animals and their products to prevent spread of pests by designated officers;

f. declaration of biosecurity emergency in case of outbreak of organisms threatening biosecurity and actions and procedures to deal with it;

g. removal of plant, animals, their products and other objects imported in violation of the provisions of the proposed legislation.

h. **The Customs Act, 1962** or other laws in force, that prohibit the import of certain customs and goods shall also apply to those pests, plants and animals, which require permits or are prohibited by the Authority.

i. An **Agricultural Biosecurity Fund** shall be constituted for the purposes specified in the Act; envisaged Authority may borrow money from any source through the issue of bonds and debentures to discharge its functions.

8.2 Model APMC Act

Quite recently on July, 2013; Committee on Agricultural Market Reforms recommended Universal Implementation of Model APMC Act. The Committee submitted its report to agriculture minister. **The Committee of State Ministers In-charge of Agriculture Marketing to promote marketing reforms has called for an effective implementation of Model APMC Act in all the states.** This committee was constituted in March, 2010 under the Chairmanship of **Shri Harshvardhan Patil**, Minister for Cooperation and Parliamentary Affairs, Govt. of Maharashtra. The mandate of the committee was to

(i) persuade various State Governments/Administration of Union Territories to implement the reforms in agriculture marketing through adoption of Model APMC Act and Rules;

(ii) suggest further reforms necessary to provide a **barrier free national market;**

(iii) suggest measures to effectively disseminate market information and to promote grading, standardization, packaging and quality certification of agricultural produce.

(iv) setting up of multiple and competitive marketing channels; independent regulatory authority to encourage private investors;

(v) need for **viability gap funding** to attract private sector investment; higher investment in marketing infrastructure under RKVY;

(vi) waiver of market fee on fruit and vegetables; setting up of independent district level authority for registration and dispute settlement;

(vii) setting up grading units with trained manpower in the market.

8.3 National Food Security Bill: Discussed below under Food Security heading.

8.4 Biotechnology Regulatory Authority of India Bill, 2013

The Bill was introduced in the Lok Sabha on April 23, 2013 to promote the safe use of modern biotechnology by enhancing the effectiveness and efficiency of regulatory procedures. Some of the key features of the Bill are:

- The Bill establishes the **Biotechnology Regulatory Authority of India** (Authority).

- The functions of the Authority shall include regulating the research, transport, import, manufacture and use of organisms and products of modern biotechnology.
- A **Biotechnology Regulatory Appellate Tribunal** will hear appeals against the decisions of the Authority.
- Field trials for certain organisms or products cannot be conducted unless the Authority permits them as aiding the development of modern biotechnology such as genetically engineered plants, animals used in food or any animal clones that can be applied in agriculture, fisheries or food products.
- The Bill will not apply to the clinical trials of drugs, under the Drugs and Cosmetics Act, 1940, and food or food additives or any material under the Food Safety and Standards Act, 2006.
- An Inter-Ministerial Governance Board will oversee the performance of the Authority. A **Biotechnology Advisory Council** will render strategic advice to the Authority regarding developments in modern biotechnology and their implications in India.
- Regulatory divisions of the Authority have been created to deal with agriculture, forest and fisheries, human health and veterinary products, etc.
- A Risk Assessment Unit will appraise applications before final approval is granted for proposed research, transport or import of an organism or product.

8.5 Amendments to the Multi-State Co-operative Societies (Amendment) Bill

The Cabinet approved amendments to the Multi-State Co-operative Societies (Amendment) Bill 2010, currently pending in the Lok Sabha.

- The Bill amends the **Multi-State Co-operative Societies Act, 2002,** which regulates multi-state cooperative societies i.e. cooperatives which serves the interest of members in more than one state.
- The Bill seeks to allow the constitution of interim boards, grant the Central Registrar power to modify bye-laws, and permit the constitution of an election authority to conduct elections.
- The Standing Committee on Agriculture submitted its report on the Bill on December 20, 2012 and was of the opinion that several provisions of the Bill contravened the Constitution.
- According to the Ministry, the official amendments aim to ensure that the provisions of the Bill are in conformity with the provisions of the Constitution (Ninety-Seventh Amendment) Act, 2011. **The Act adds co-operative societies to the Constitution.**
- The Bill provides that the Central Registrar may declare a multi-state co-operative society "sick" and constitute an interim board for a period of up to five years.
- It defines a "sick co-operative society" as one which has accumulated losses equal to or exceeding the total of its paid-up capital, free reserves and surpluses and has also suffered cash losses in the current financial year and the one preceding it.

References

1. Research study on State of Indian Agriculture 2011-12; Dept. of Agriculture Cooperation
2. 12th Plan Document; Planning Commission
3. Press releases from PIB.
4. Annual report 2012 and 2013; Ministry of Agriculture
5. Web sites of
    - ICAR
    - National Dairy Development Board
    - FCI
    - ICRISAT
    - The Hindu

G. S. III – ECONOMIC DEVELOPMENT

FOOD PROCESSING AND RELATED INDUSTRIES IN INDIA – SCOPE AND SIGNIFICANCE, LOCATION, UPSTREAM AND DOWNSTREAM REQUIREMENTS, SUPPLY CHAIN MANAGEMENT

Q1. In view of different classifications by various departments/organizations on what Food Processing includes, an inter-ministerial stakeholder meeting was held which reached a consensus on the definition of food processing industries. Give the definition arrived at in this meeting.

Food Processing Industries, as defined by the inter-ministerial stakeholder meeting, includes items pertaining to the following two processes:

- **Manufactured Processes**: If any raw product of agriculture, animal husbandry or fisheries is transformed through a process [involving employees, power, machines or money] in such a way that its original physical properties undergo a change and if the transformed product is edible and has commercial value, then it comes within the domain of Food Processing Industries; and
- **Other Value-Added Processes:** If there is significant value addition (increased shelf life, shelled and ready for consumption etc.) such produce also comes under food processing, even if it does not undergo manufacturing processes.

Q2. Which items constitute the Food Processing Industries in India.

Food processing is a large sector that covers activities such as agriculture, horticulture, plantation, animal husbandry and fisheries. It also includes other industries that use agriculture inputs for manufacturing of edible products. Based on International Standard Industrial Classification, it has been assumed that the factories listed in the following groups can be summed up to constitute Food Processing Industries.

S.No	NIC Group	Description
1	151	Production, Processing and Preservation of Meat, Fish, Fruits, Vegetables, Oils and Fats
2	152	Manufacturing of Dairy Products
3	153	Manufacture of Grain Mill Products, Starches and Starch products and prepared animal feeds.
4	154	Manufacture of Other Food Products.
5	155	Manufacture of Beverages.

The above groups also include food products which are under the mandate of Ministries other than Ministry of Food Processing as well

Source: Data Bank on Economic Parameters of the Food Processing Sector

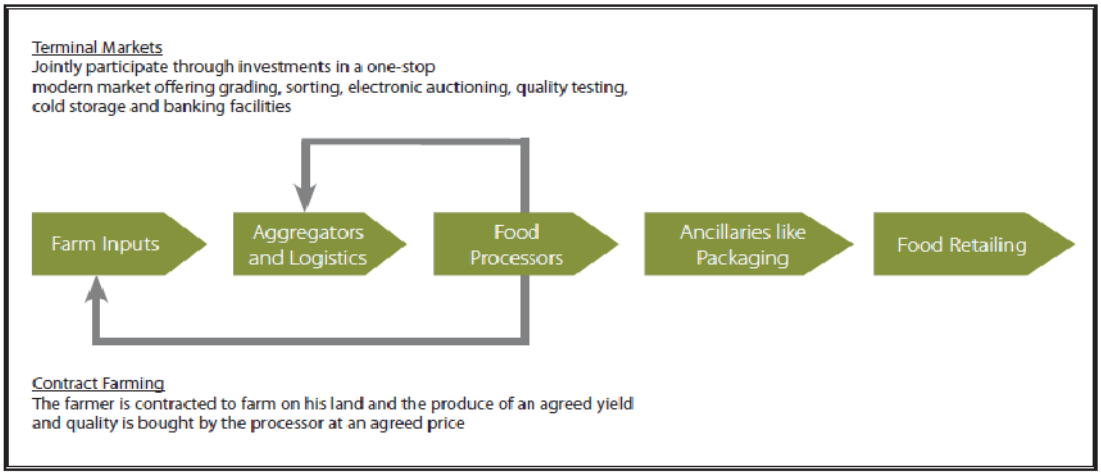
Q3. Give the Supply Chain of the Food Processing Sector and explain the Backward and Forward integration across the supply chain.

The different stages of processing of manufactured food products are as follows:

Source: Data Bank on Economic Parameters of the Food Processing Sector

Primary Processing relates to conversion of raw agricultural produce, milk, meat and fish into a commodity that is fit for human consumption. It involves steps such as cleaning, grading, sorting, packing etc. Secondary and Tertiary Processing Industries usually deal with higher levels of processing where new or modified food products are manufactured.

The generic value chain of the food processing industry from raw materials to retail to the consumer is shown below in the figure. Traditionally, different players across the value chain play different roles and worked more or less independently. Recently, the trend has been towards increasing integration and collaboration across players in the value chain, to garner mutual benefits. Such integration is being driven by the manufacturers, who are looking to integrate backward and forward chains; and establish linkages with both raw material producers (farmers) and aggregators/logistics providers. These links have led to two new models emerging in the sector – Contract Farming and Terminal Markets. These are further discussed below.



Source: Food Processing Markets and Opportunities by IBEF

- **Contract Farming**

Contract Farming is an agreement between the food processor (contractor), who is typically a large organized player, and the farmer, whereby the farmer is contracted to plant the contractor's crop on his land. He also agrees to harvest and deliver to the contractor a quantum of produce, based upon anticipated yield and contracted acreage at a pre-agreed price. The food processor provides inputs in terms of technology and training to the farmer, to improve the yield and quality of the produce. This results in a win-win situation that generates a steady source of income for the farmer and eliminates supply shocks and assures good quality farm inputs which are crucial for the processor. The Government of India has been actively encouraging contract farming endeavours. The National Agricultural Policy envisages that 'private sector participation will be encouraged through contract farming and land leasing arrangements to allow accelerated technology transfer, capital inflow and assured market for crop production'

- Successful Contract Farming in India

  A good example in this area has been Pepsi Foods' experience with contract farming for its tomato processing plant at Hoshiarpur in Punjab. Through transfer of technology and providing good quality seeds and inputs to farmers, Pepsi was able to substantially increase both quality and quantity of tomato production in the area, so as to meet thedemands of its plant. A key aspect of Pepsi's approach was its partnership with local bodies such as the Punjab Agricultural University and Punjab Agro Industries Corporation Limited, which went a long way in getting the farmers' buy-in and ensuring success of the venture.

- **Terminal Markets**

A Terminal market is a central site, often in a metropolitan area, that serves as an assembly and trading place for agricultural commodities. Here there are different options for disposing off the produce. It can either be sold to the end consumer, or to the processor, or packed for export, or even stored for disposal at a future date. It thus offers different options to farmers under a single roof. Typically, terminal markets operate on a hub and spoke model where the markets form the hubs, and are linked to different collection centres (spokes) that are located close to the production centers. The typical value chain structure for a terminal market, as well as the key activities and corresponding infrastructure requirements at each level, are depicted in the figure above.

Let's discuss the backward and forward linkages in more detail now.

Backward Linkage – Raw Material Supply

- The concept of backward linkage between farmers and industry is promoted to encourage and enable farmers to grow products of appropriate quality. This helps the poorest of the poor farmers as well as marginal and medium farmers fetch appropriate and remunerative return for their produce. The scheme for providing assistance is already in operation but needs to be strengthened further to cover majority of farmers/producers. It can be dovetailed with similar schemes offered by local bodies like Panchayats to provide the required fillip in the best interests of farmers and processors.
- The existing institutions like local bodies, cooperatives and self-help groups, which have been in operation for over four decades in different contexts, can be utilized to strengthen the backward linkage. This way the skill and expertise acquired by these institutions would be constructively used, while this mechanism would help quickly create the bridge of trust between farmers and processors. This would ensure smooth supply of raw material to the processors and help the farmers (poor, marginal and big) in getting remunerative prices for their products. Thus, a complete network of farmers and processors will be created cutting across their status.

Forward Linkage – Marketing

- There is an urgent need to develop forward linkages for fresh and processed food. Presently, there are a large number of intermediaries operating between the farmers/processors and the consumers, resulting in high cost to the latter and low return to the former. The efforts to cut intermediaries need to be made in such a way that the special skill and expertise required to operate the intermediate links in the system like transportation and market distribution are not jeopardized. To achieve this, attempts are required to be made to provide appropriate tax incentives and holidays for setting up food processing industries, taking care of expenses on market promotion and ancillary activities.
- The North Eastern Region, the Hilly States (J&K, HP and Western UP), the Islands (A&N, Lakshadweep) and the Integrated Tribal Development Projects (ITDP) areas in the country should be given special consideration. Fiscal incentives like excise duty/sales tax concessions and tax holidays should be given not only to the units being established here, but also to those set up outside but processing the produce from these areas. This is because the high cost involved in transporting raw material and packaging material makes the product expensive, and thus uncompetitive, in the markets outside. Providing fiscal incentives to units located outside but operating as a part of the primary processing unit in one of these areas would facilitate cutting down the double transportation cost and help the products from these areas become marketable at competitive rates. The consumer would also have the advantage of buying quality products from these areas at affordable prices.
- Special attention is to be laid towards setting up regulated markets with the primary objective to improve market efficiency and achieve equitable distribution of benefits between producers, traders and consumers. This will be possible by evolving strategies to strengthen regulated market yields and equipping them with grading, cleaning and packaging facilities, along with market information systems.
- Efforts are to be made to develop packaging technologies for individual products to increase their shelf life and improve consumer acceptance, both in the domestic and international markets.
- Efforts are to be made to harmonise food laws to encourage production of high quality products with minimum intervention from regulatory authorities. The complexity of multiple administering authorities for food processing enterprises is also required to be simplified by developing an integrated and unified system.

Q4. Explain the scope and significance of the Food Processing Sector in India.

India is one of the world's largest producers as well as consumer of food products, with the sector playing an important role in contributing to the development of the economy. It is the fifth largest industry in our country in terms of production, consumption, export and growth. The worth of the Indian processed food sector stood at USD 157 billion in FY2012. Going forward, it is expected to touch USD 255 billion by 2016 with 13 percent growth rate per annum.

With a population of more than one billion individuals and food constituting a major part of the consumer's budget, this sector has a prominence next to no other businesses in the country. Moreover the importance of this sector to

India's economy becomes all the more relevant, considering the fact that this sector continued to perform well, despite fall in GDP number and poor performance by many other industries, during recession in 2008-09.

The industry encompasses a gamut of activities involved in reaching the final product to the consumer, starting with farming activity to produce inputs, processing of the inputs to create products and the associated supply chain involved in delivering the products. It has increasingly come to be seen as a potential source for driving the rural economy as it brings about synergy between the consumer, industry and agriculture. A well developed food processing industry is expected to increase farm gate prices, reduce wastages, ensure value addition, promote crop diversification, generate employment opportunities as well as export earnings. This sector is also capable of addressing critical issues of food security and providing wholesome, nutritious food to our people.

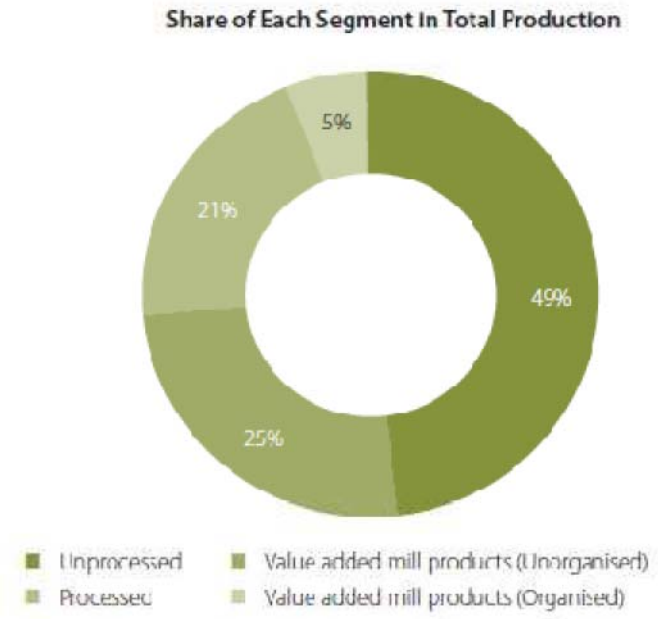
While the industry is large in terms of size, it is still at a nascent stage in terms of development. Out of the country's total agriculture and food produce, only 2 per cent is processed. However, the contribution of food processing sector to GDP has been growing faster than that of the agriculture sector. If the contribution to GDP of both agricultural sector and food processing sector were growing at the same rate, then it would mean that the growth in food processing sector is only due to increased agricultural raw material supply. However, more and more agricultural products are being converted (in value terms) to food products. This means that the level of processing in value terms has been increasing.

Primary food processing (packaged fruit and vegetables, milk, milled flour and rice, tea, spices, etc.) constitutes around 60 per cent of processed foods. It has a highly fragmented structure that includes thousands of rice-mills and hullers, flour mills, pulse mills and oil-seed mills, several thousands of bakeries, traditional food units and fruits, vegetable and spice processing units in unorganized sector. In comparison, the organized sector that includes flour mills, fish processing units, fruit and vegetable processing units, meat processing units and numerous dairy processing units at state and district levels is relatively much smaller.

Segment	Dairy Sector	F&V	Meat and Poultry Processing	Fisheries	Packaged Foods	Beverages	Staple foods
Growth rate of the market	15%	20%	10%	20%	8%	27%	85%
Key Segments	Value added milk products like Butter, Cheese and Ghee	Raw F&V, Fruit Pulps, Canned Fruits and Pickles	Cattle, Buffalo and Poultry	Marine Fisheries, Frozen Products and Minced Fish products	Noodles/ Vermicelli	Fruit-based Drinks and Carbonated Drinks	Sugar, Wheat Flour and Salt
Extent of processing	37%	2%	1%	12%	-	-	-
Share of organised sector	15%	48%	5%	-	80%	77%	50%

Source: http://www.investmentcommission.in/food_&_agro_products.htm and KPMG Analyses

Source: Food Processing Markets and Opportunities by IBEF



Source: Food Processing Markets and Opportunities by IBEF

Q5. Analyze the critical success factors for manufacturers in the Food Processing Sector in India.

The Indian food processing industry's growth potential cannot be disputed; however, it requires certain competencies and success factors to fructify this potential. These include addressing the current gaps in the value chain as well as leveraging on the various advantages the country provides. Investors in the sector need to be aware of these factors and build the required capabilities in their business to ensure success. Some of the key success factors are discussed below.

- **Integrated Supply Chain and Scale of Operations**

While India ranks second in production of fruits & vegetables, nearly 20 to 25 per cent of this production is lost in spoilage in various stages of harvesting. The key issues are poor quality of seeds, planting material and lack of technology in improving yield. Ensuring good quality produce entails investments in technology and ability to sustain a long gestation period for the harvest. Good quality production also results in better quality of processed fruits. Hence there is a need to establish backward linkages with the farmers with the help of arrangements such as contract farming to improve the quality of the produce. Scale is a key factor in the processing industry. Nearly 90 per cent of the food processing units are small in scale and hence are unable to exploit the advantages of economies of scale. This is also true with land holdings.

- **Processing Technology**

Most of the processing in India is currently manual. There is limited use of technology like pre-cooling facilities for vegetables, controlled atmospheric storage and irradiation facilities. This technology is important for extended storage of fruits and vegetables in making them conducive for further processing. In the case of meat processing, despite the presence of over 3600 licensed slaughter-houses in India, the level of technology used in most of them is limited, resulting in low exploitation of animal population. Bringing in modern technology is an area that existing as well as new investors in the sector can focus on, this will make a clear difference in both process efficiencies as well as quality of the end product.

- **Increasing Penetration in Domestic Markets**

Most of the processing units are export oriented and hence their penetration levels in the domestic market are low. For example,

  - Penetration of processed fruits and vegetables overall is at 10 per cent
  - The relative share of branded milk products especially ghee is still low at 2 per cent
  - Penetration of culinary products is still 13.3 per cent and is largely tilted towards metros
  - Consumption of packaged biscuits for Indian consumers is still low at 0.48 per cent while that for Americans is 4 per cent

However, there is increasing acceptance of these products amongst the urban population. India has a large untapped customer base and even a small footprint in the domestic market would enable the player to gain significant volumes. Acceptance in the domestic market and hence higher penetration is driven by the following factors:

  - **Competitive Pricing**

    Consumers of processed foods are extremely price sensitive even a small change in pricing can have significant impact on consumption. For instance, the launch of PET bottles, new price points and package sizes in non-carbonated drinks (such as by Coca Cola) increased in-home consumption from 30 per cent in 2002 to 80 per cent in 2003. Competitive pricing also enables penetration in the rural markets.

  - **Brand Competitiveness**

    Share of branded products in purchases of Indian consumers has also increased substantially. This is especially true for urban consumers. Branded products like Basmati rice and KFC's chicken have been very successful implying that there is a good demand for hygienic branded products at reasonable prices.

  - **Product Innovation**

    Certain processed food categories such as snack foods are impulse purchase products where consumers look for novelty and new flavours and hence these categories lack brand loyalties. Visibility through attractive packaging boosts consumption. Increasing time constraints amongst the working middle class has boosted consumption of products like instant soups, noodles and ready-to-make products. Innovation in packaging and product usage is an important success factor for processed foods.

Q6. Examine India's strengths in the Food Processing Sector.

India's strengths in the food processing Sector lie in the following:

- **Favourable-Factor Conditions**

India has access to several natural resources that provides it a competitive advantage in the food processing sector. Due to its diverse agro-climatic conditions, it has a wide-ranging and large raw material base suitable for food processing industries. Presently a very small percentage of these are processed into value added products. The semi-processed and ready to eat packaged food segment is still evolving.

India's comparatively cheaper workforce can be effectively utilized to set up large low cost production bases for domestic and export markets. Cost of production in India is lower by about 40 per cent over a comparable location in EU and 10-15 per cent over a location in UK. Along with these factor conditions, India has access to significant investments to facilitate food processing industry. There have been increasing investments not only by domestic firms and Indian government, but also foreign direct investment.

- **Related and Supporting Industries**

The Indian food processing industry has significant support from the well-developed R&D and technical capabilities of Indian firms. India has a large number of research institutions like Central Food Technological Research Institute, Central Institute of Fisheries Technology, National Dairy Research Institute, National Research and Development Centre etc. to support the technology and development in the food processing sector in India.

- **Government Regulations and Support**

The Government of India has taken several initiatives to develop the food processing industry in India. The government has been developing agri-zones and mega food parks to promote food processing industry in India. In order to promote investment in the food processing sector, several policy initiatives have been taken during recent years.

- **Large Number of Players**

There are a large number of players in the organized as well as unorganized sector. The organized sector is small but growing - for example, it forms less than 15 per cent of the dairy sector and around 48 per cent of the fruits and vegetable processing. The sector offers potential for growth and a large number of Multi National Corporations have entered into India to leverage this opportunity.

Despite the above-mentioned strengths, the following areas have been identified by the Ministry of Food Processing Industries where investments are required:

- Mega food parks
- Agri-infrastructure and supply chain integration
- Logistics and cold chain infrastructure
- Fruit and vegetable products
- Animal products, meat and dairy
- Fisheries and sea food
- Cereals, consumer foods and ready-to-eat foods
- Wine and beer
- Machinery and packaging

Q7. Provide a SWOT analysis of the Food Processing Industry in India.

Strengths

- Round the year availability of raw materials.
- Social acceptability of food-processing as an important area and support from the central government.
- Vast network of manufacturing facilities all over the country.
- Vast domestic market.

Weaknesses

- High requirement of working capital.
- Low availability of new, reliable and better accuracy instruments and equipments
- Inadequate automation w.r.t. information management.
- Remuneration is less attractive for talent in comparison to contemporary disciplines.
- Inadequately developed linkages between R&D labs and industry.

Opportunities

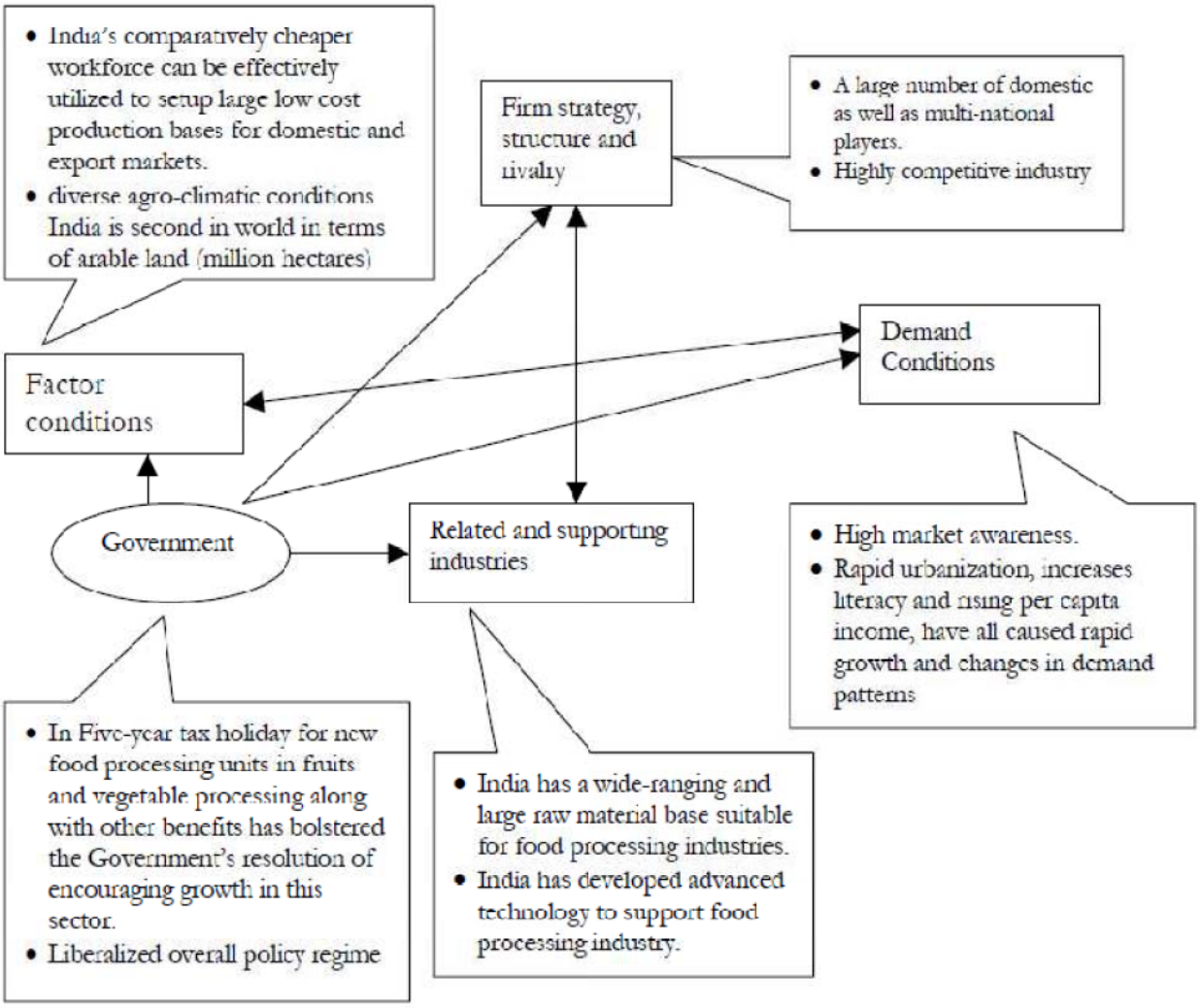
- Large crop and material base in the country due to agro-ecological variability offers vast potential for food processing activities.
- Integration of developments in contemporary technologies such as electronics, material science, computer, bio-technology etc. offer vast scope for rapid improvement and progress.
- Opening of global markets may lead to export of our developed technologies and facilitate generation of additional income and employment opportunities.

Threats

- Competition from global players
- Loss of trained manpower to other industries and other professions due to better working conditions prevailing there may lead to further shortage of manpower.
- Rapid developments in contemporary and requirements of the industry may lead to fast obsolescence.

Q8. The various competitive advantages in the food processing sector in India have been analyzed using the Diamond Porter Framework. Explain this diagrammatically.

The various competitive advantages in the food processing sector in India have been analyzed using the Diamond Porter Framework. It is as shown below:



Source: A report on Indian Food Processing Industry by CCI

Q9. Companies have adopted various strategies to increase their market share in the Indian Food Processing Sector. Give examples of some of these strategies.

Companies have adopted various strategies to maintain and increase their market share in India. These include competitive pricing, aggressive advertising campaign, expansion plans etc. Examples of such strategies are

- Agro Tech Foods used two strategies to counter the threat of low priced competition. By launching lower-priced blended oils under the Sundrop umbrella, and acquiring a fairly strong presence in the mass market for edible oils through its low priced brand, Crystal. Secondly, it reengineered its costs to lower its own fixed cost structure.
- In the mass segment, Britannia introduced biscuit packs at lower price points.
- Gits is strategically growing and broadening its export market and has launched new international style export packaging.
- The strategy followed by Haldiram is competitive pricing and labor intensive products that predominantly cater to the Indian palette. It follows aggressive marketing in terms of TV advertisements, print ads and kiosks of Haldiram's range of products at railway stations.
- Hindustan Level Limited has followed the strategy of divesting its non-core businesses and focusing on its food business as a growth driver.

- New products are being continuously launched in all product segments by Nestle. The dairy portfolio consisting of regular and flavoured curds, skimmed milk and fruit-based milk, condensed milk and butter is being expanded by launch of lassi and cheese.

Q10. List out the policy initiatives and measures taken by the government to support this sector.

Policy Initiatives

- In order to facilitate and exploit the growth potential of the sector, the government has initiated extensive reforms. Some of the key measures undertaken by the Government include: amendment of the Agriculture Produce Marketing Committee Act, rationalization of food laws, implementation of the National Horticulture mission etc. The government has sought to address the low scale of processing activity in the country by setting up the mega food parks, with integrated facilities for procurement, processing, storage and transport.
- Most of the processed food items have been exempted from the purview of licensing under the Industries (Development and regulation) Act, 1951, except items reserved for small-scale sector and alcoholic beverages.
- Food processing industries were included in the list of priority sector for bank lending in 1999.
- Automatic approval for foreign equity up to 100 per cent is available for most of the processed food items except alcohol, beer and those reserved for small-scale sector subject to certain conditions.
- Full repatriation of profits and capital has been allowed.
- Zero duty import of capital goods and raw material for 100 per cent export oriented units.
- Full duty exemption on all imports for units in export processing zones has been done.
- **Food Safety and Standard Act, 2006**
  Till the year 2005, thirteen different laws were applicable on the food and food processing sector. Multiple laws/ regulations prescribe varied standards regarding food additives, contaminants, food colours, preservatives and labeling. In order to rationalize the multiplicity of food laws, a Group of Ministers (GoM) was set up to suggest legislative and other changes to formulate integrated food law, to be a single reference point in relation to regulation of food products. Based on the recommendations of the GoM, the Ministry of Food Processing enacted the Food Safety & Standard Act (FSSA), 2006.

  This Act was meant to consolidate the laws relating to food and to establish the Food Safety and Standards Authority of India for laying down science based standards for articles of food and to regulate their manufacture, storage, distribution, sale and import, to ensure availability of safe and wholesome food for human consumption and for matters connected therewith or incidental thereto.

  Salient features of the act:

  - Food Safety and Standards Authority of India to be aided by several scientific panels and a central advisory committee to lay down standards for food safety. These standards will include specifications for ingredients, contaminants, pesticide residue, biological hazards and labels.
  - The law to be enforced through State Commissioners of Food Safety and local level officials.
  - Everyone in the food sector is required to get a licence or a registration which would be issued by local authorities.
  - Every distributor is required to be able to identify any food article to its manufacturer, and every seller to its distributor.
  - Anyone in the sector should be able to initiate recall procedures if he finds that the food sold had violated specified standards.

Infrastructure Development in the Food Processing Sector

There is a lack of suitable infrastructure in the shape of cold chain, packaging centers, value added centre, modernized abattoirs etc. Government attaches highest priority to development and expansion of physical infrastructure for facilitating prompt growth of industries. In order to address the problem of infrastructure in food processing sector, the Government has implemented the scheme for infrastructure development comprising the following components:

- In order to raise India's processed-product quality to international standards, to address health concerns and harness the export opportunity, the government is establishing a network of quality control and testing laboratories and testing centers across India, supported by R&D through research institutes.

- **National Institute of Food Technology Entrepreneurship and Management (NIFTEM)**
  Set up at Kundli (Haryana), it functions as a knowledge center in food processing.

- **Mega Food Parks Scheme**
  The idea behind setting up of mega food parks is that small and medium entrepreneurs find it difficult to invest in capital-intensive activities. Therefore, as a part of the strategy to develop food processing infrastructure, the Ministry has been proactively pursuing the task of setting up of mega food parks in different parts of the country. In the mega food parks, common facilities like cold storage, food testing and analysis lab, affluent treatment plant, common processing facilities, packaging centre, power supply, water supply, seminar / conference / training facilities etc can be assisted. It facilitates establishment of a strong infrastructure backed by an efficient supply chain. The Mega Food Parks have farm proximate facilities such as primary processing centers, collection centers and a central processing center. The food processing units within a Mega Food Park use common infrastructure required for processing, packaging, quality control labs, trade facilitation center etc. This cluster approach makes food processing more economically viable. The state-of-the art processing infrastructure gives them the required technical edge. Mega Food parks have the potential to revive the agriculture in the surrounding areas by increasing returns for farmers, besides creating large employment opportunities in rural areas.

- **Scheme for Cold Chain, Value Addition and Preservation Infrastructure**
  The objective of the scheme is to facilitate creation of integrated cold chain and preservation infrastructure facilities without any break from farm to consumer. It intends to address the shortage of cold storage capacity. The scheme mentions three types of facilities to be created such as 1) Minimal processing center at the farm gate level having facilities like weighing, sorting, grading, pre-cooling, CA/MA storage, IQF and normal storage facilities; 2) Mobile pre- cooling vans and reefer trucks; and 3) Distribution hubs having facilities such as CA/MA chambers, multi-purpose cold stores, variable humidity stores, IQF and blast freezing etc.

- **Modernization of Abattoirs**
  The objective is modernize existing abattoirs or establish modern abattoirs promoting scientific and hygienic slaughtering, application of modern technology for waste management, better by product utilization, provision of chilling facility, retail cold chain management etc. under PPP mode with the involvement of local bodies (panchayats or municipalities) on build-own-operate/build-operate-transfer (BOT)/Joint venture(JV) basis.

Despite of continual efforts and initiatives of the Government to provide the required stimulus to the sector, processing activity is still at a nascent stage in India with low penetration. The level of processing is currently low across the product categories.

Q11. Explain the challenges that still remain despite government initiatives.

The challenges for the food processing sector are diverse and demanding, and need to be addressed on several fronts to derive maximum market benefits. A combination of uncontrollable and controllable factors has affected the growth of the sector and has acted as a hindrance in achieving its potential. The **uncontrollable factors** include fragmentation of land holdings which has resulted in lack of scale and has made investments in automation unviable; regional climatic variations which impact the production; and the constraints in land availability due to competing pressure from urbanization, constructions and industrialization. These factors are difficult to address and hence have to be discounted for while accounting for the inadequate growth of the sector.

It is the **controllable factors** which can be addressed by companies and the Government, which impact the production levels and hence need proper actions. Even today India is grappling with issues of quality and quantity of raw produce, low labor productivity with slow adoption of technology. On the Infrastructure front, we have supply chain and wastage related problems and low levels of value addition etc. The other issues of concern, holding this sector back

are impaired access to credit; inconsistency in state and central polices, which requires both the Center and the State to work as one single cohesive unit.

Q12. Explain the evolution of the food processing Sector in India.

Evolution of India's Agriculture and Food Processing Sector

Before 1960s	1960 - 1990	1991 – to date
Policies were not directed towards Agriculture: More focus on Industry sector (esp. capital goods) though 48% of India's GDP was from agriculture in 1950-51. The need to create a self-reliant and diversified industry sector motivated planners to adopt a import substitution strategy But, in the early 1950s, the GDP growth was only 3.9% against the expected 5%. But population growth was 2.3% against the expected 1.4%. As a result food security of India worsened as India imported cereals worth 28% of its export earnings	Focus on Agriculture: Main objectives were self-sufficiency in food grains, reasonable prices for the farmers and affordable prices for the consumers (especially the poor) Green Revolution: Introduction of high-yielding variety of rice and wheat, Provision of irrigation facilities and fertilizers and Minimum Support Prices for the crops Creation of buffer stock for food and strengthening of the Public Distribution System Green revolution was successful in bringing the imports to 1.9% of the total export earnings Land Ceiling Act -1972: To provide lands to the landless farmers. Ceiling on the land holding by the farmers Restriction on exports: Agricultural goods were restricted from being exported. Also, the prevailing exchange rates did not favour exports	Economic Reforms: Agricultural sector was ignored. Industry-first approach, focusing on removal of industrial licensing, removal of import licensing from all manufactured and capital goods, tariff reductions and relaxation of rules for foreign investment However, post- 2000, government focused on the food processing industry 100% FDI is allowed automatically in food processing sector No industrial license required to start the industry except for a few items like alcohol, beer etc Export Promotion: Food parks and export zones were promoted which provides benefits like duty free imports, profits from export sales are exempt from corporate taxes etc

Food Processing Industry in nascent stage	Growth of Food Processing industry

Key Conclusions from the evolution of Agro Processing Industry in India

Food Crisis and Green Revolution:

- Food crisis in India during 1960s forced the government to adopt Green revolution which helped in self-sufficiency in food.

Focus on improving the poorer sections of the society:

- To improve the livelihood of the poorer sections of the society, land ceiling act was enforced during 1972.
- The primary aim is to provide land to landless farmers. It also limits the area of land held by a farmer (limited to 17 ha – varies in different states)

Focus on Food processing industry after 1991:

- After the economic reforms, government focused on improving the food processing industry in India.
- Allowance of 100% FDI in food processing industry, export promotion incentives and other schemes to attract investments.
- However, investment in this sector has been very low in India. The government has identified food and agro processing industry as one of the 'sunrise' sectors that has high potential for domestic demand and export markets

Source: Deloitte Report on Food and Agro Processing

Q13. List a few provisions of the Vision 2015 document on Food Processing Industries and future prospects of this Industry.

A vision, strategy and action plan has been finalized for giving boost to growth of food processing sector. The Vision 2015 adopted by the Ministry of Food Processing aims to achieve the following:

- Trebling the size of the processed food sector
- Increasing level of processing of perishables from 6 % to 20 %.
- Value addition to increase from 20 % to 35%
- Share in global food trade to increase from 1.5 % to 3%
- The level of processing for fruits and vegetables is envisaged to increase to 15% in 2015
- The Cabinet has also approved the integrated strategy for promotion of agri business and vision, strategy and action plan for the Food Processing Sector.

Vision Document Projections		
	2003-04 ($ billion)	2014-15 ($ billion)
Total food consumption	205	
Processed foods	126	274
Primary processed food	79	136
Value Added Food	48	138
Share of value added products in food production	16%	50%

Indian food-processing industry is poised for explosive growth driven by changing demographics, growing population and rapid urbanization along with increased government support. These factors will increase the demand for value added products and thus improve the prospects of food-processing industry in India. The government's focus towards food processing industry as a priority sector will ensure policies to support investment in this sector and attract more FDI. India with its vast pool of natural resources and growing technical knowledge base has strong comparative advantages over other nations. According to CII has estimates, food-processing sector has the potential of attracting US $33 billion of investment in 10 years and generate employment of 9 million person-days. The food processing sector in India is clearly an attractive sector for investment and offers significant growth potential to investors.

Q14. The Food processing Sector is expected to grow well in the coming years. Examine.

Indian food processing industry has seen significant growth and changes over the past few years, driven by changing trends in markets, consumer segments and regulations. These trends, such as changing demographics, growing population and rapid urbanization are expected to continue in the future and therefore, will shape the demand for value added products and thus for food processing industry in India.

The popularity of food and agro products is not surprising when the sector is now offering a growth of more than 150 per cent in sales. With such promise in the sector, a number of foreign companies have joined the fray. While US brands such as McDonald's, Pizza Hut and Kentucky Fried Chicken have become household names, more are on their way.Many foreign MNC's such as Nestle, Perfetti Van Melle and Indo Nissin Products have been successful by leveraging the India-advantage. Learning from the experiences of these successful MNC's and in light of the above assessment, the food processing sector in India is clearly an attractive sector for investment and offers significant growth potential to companies so investing.

The new wave in the food industry is not only about foreign companies arriving here attracted by the prospective size of the market. It is also about the migration of the Made in India tag on food products traveling abroad. Indian food brands and fast moving consumer goods (FMCGs) are now increasingly finding prime shelf-space in the retail chains of the US and Europe. These include Cobra Beer, Bikanervala Foods, MTR Foods' ready-to-eat food stuff, ITC's Kitchen of India and Satnam Overseas' Basmati rice.

The Government encourages many participative models such as terminal markets and contract farming arrangements to benefit the various stakeholders. Many private players participating in these arrangements have been successful.

Some of the sectors which are relatively more attractive include Fruits and Vegetables, Meat, poultry and fisheries, dairy products, snack foods and ready-to-make items. India, having access to vast pool of natural resources and growing technical knowledge base, has strong comparative advantages over other nations in this industry. Also, the Government has provided various incentives such as capital subsidies and tax exemptions for boosting investments in these segments.

However despite the various aspects making these sectors attractive certain success factors are crucial in reaping their potential. These include, scale and supply chain efficiency, brand competitiveness and effective marketing, deploying superior technology, product innovation and pricing.

Various states realizing the importance of this industry from an employment as well as revenue generation perspectives have been extremely forthcoming in bolstering growth in this industry. Some of the states that have taken an extra mile by providing various fiscal as well as non-fiscal initiatives include Andhra Pradesh, Punjab, Madhya Pradesh, Uttar Pradesh and Karnataka. These states while having favorable factor conditions in terms of abundance of raw materials and labour, have also designed specific food processing policies to encourage private sector participation and foreign investments.

A well-integrated supply chain and a successful marketing strategy with investments in the most attractive segments and states is the key to competitiveness to success in this sector.

References:

- A report on Indian Food Processing Industry by Corporate Catalyst India
- The Food Processing Sector in India: An Overview
- Data Bank on Economic Parameters of the Food Processing Sector
- Strategic Plan by MoFPI
- MoFPI – Background Material for Economic Editors Conference
- Food Processing Market and Opportunities by IBEF
- Indian Food Processing Industries by ILO
- Manual on Food Processing Industry, by UNIDO
- ASSOCHAM Report
- Indian Processed Food Industry Report by Way2Wealth
- Vision, Strategy and Action Plan for Food Processing Industry in India Report by Rabo India Finance Pvt. Ltd. For MoFPI – Vols. 1 & 2
- Enhancing Firm Level Competitiveness: Indian Food and Agro Processing Industry by Deloitte
- Bottlenecks in Indian Food Processing Industry by FICCI
- White Paper on Food Processing Industry in India by D'Essence Consulting
- Other Internet Sources

G. S. III

LAND REFORMS IN INDIA

Land Reforms in India

Background

At the time of independence

- Ownership of land was highly concentrated
- Landlords used to extract maximum rental from tenants
- Tenants were left with no money after paying the rental and thus made no effort to develop agriculture
- They had neither resource nor knowledge
- Land was not organized and thus number of small fragments existed
- Often cultivators were shifted from one farm to another by landlords on their whims and fancies.
- Cultivators often had to supplement their farm income by working as hired laborers like their poorer landless counterparts.

Objectives of Land Reforms

Abolition of Intermediaries	• It was to be done so that ownership of land can be clearly identified with management and operation of land. The owner himself should operate and manage the land.
Land ceilings	• To meet the land hunger of working cultivators. • To reduce disparity in agricultural incomes in ownership and in the use of land. • To increase employment opportunities in the rural sector.
Consolidation of holdings	• For more efficient management.
Encouragement of co-operative joint farming	• To overcome the difficulties presented by tiny holdings. • Larger financial resources could be invested and employment opportunities increased.
Settlement and Regulation of tenancy	• To confirm the rights of occupancy of tenants, secure their possession of tenanted land and also rents on leased land.

Opposition to the Land Reforms

- Many argued that ceiling and tenancy legislation would, in effect, infringe upon the constitutional guarantees.
- It was said that agricultural output of the nation would be adversely affected because small farming will be inefficient as they would not be able to afford the cost of mechanisation.
- It was argued that land was a property and imposition of capital levy in terms of ceiling on land holding would be an injustice when similar measures were not simultaneously adopted in other sectors.
- Since land reforms was a state subject, Planning Commission fought hard to convince the states about the reforms. In this process the reform strategy was diluted.
- NSS collected data in 1954 which was made available to the planners in 1960. As, planners had already formulated the policy, the magnitude of the problem involved in structural reorganization could not be realized on time.

Implementation of Reforms

Abolition of Intermediaries

- While the aim was to abolish intermediaries between the tiller and the state, in actual practice the legislative enactments equated intermediaries with the zamindars and as a result it left a class of rent receivers and absentee landlords under ryotwari untouched.
- Intermediaries were quite successful in getting huge compensation for abolition. It may be mentioned that Communist nations abolished it without any compensation.

Land ceilings

- There are some cases where assignments on benami basis have been made.
- Implementing the reforms at a slow pace, in fact, failed the programme. This is because landlords transferred land to their relatives, friends etc., thereby coming under the ceiling on paper.
- Rise in agricultural productivity, rising land values and higher income from cultivation added to the economic strength of landlords. Substantial landowners who wield great authority in rural India are bitterly opposed to a ceiling on agricultural holdings. They are able to have their way because no serious effort has been made to organise the landless and the landed poor and enlist their support in favour of reforms.
- The Land Ceiling could not yield enough land to fulfil land requirement of vast population of tenants.
- The law provided a number of exemptions, for instance the one for sugarcane farms orchard.
- A large chunk of land which was recovered remains undistributed and uncultivated. In other words, where there is no return from the land and the government has already compensated those from whom it has been acquired, such land can be developed with little investment and effort.
- Litigation slowed the implementation of reforms.

Consolidation of Holdings

- In pursuance of this, many States had enacted legislations but not much progress could be made except in the States of U.P., Haryana and Punjab.
- In other States, work was continued for some years and lost momentum thereafter.
- Farmers are emotionally attached to their ancestral land, and therefore, they are not willing to take advantage of the scheme of consolidation of holding.
- Those farmers who own good quality land do not favour the scheme in fear of getting inferior and poor quality land after the consolidation.
- Consolidation of holdings is a cumbersome process. The government officials who implement the scheme are generally slow and often corrupt.
- In general, the scheme did not receive the desired support and co-operation from the farmers.
- The scheme has paved way for litigation and court cases, many of which are pending in different courts for a long time. This vitiates the serene atmosphere of the rural areas.
- Under the existing law of inheritance, the fields continue to be smaller and fragmented.
- In every consolidation, about 5 to 10 per cent of the village land is taken out for providing house sites to the weaker sections of society, approach roads (chak-roads) and village utility services. Hence, if the process is repeated three or four times, a sizable portion of the agricultural land would go out of agriculture.
- The cost of consolidation is realised from the farmers, which has adverse effect on their resources and economy.
- It has been observed that small farmers are generally allotted inferior quality land, and due to lack of money power, they are neither able to please the officials nor get justice in the court.

Co-operative Joint Farming

- In the First Five Year Plan (1951-56), the Government of India suggested 'Cooperative Village Management' as a more comprehensive goal towards which the rural economy should be developed. As an immediate step the plan adopted a policy of encouraging the formation of cooperative joint farming societies and suggested that small and middle farmers in particular, should be encouraged and assisted to group themselves into cooperative farming societies.
- A sample survey of some of the cooperatives by the Programme Evaluation Organisation of the Planning Commission, found that the societies fell into two broad categories, viz. those formed by land owners and those formed by landless agricultural workers with government assistance. A good proportion of the societies formed by the landowners were found to be fake, since they were formed mainly to evade tenancy legislations. The cooperative societies also received inadequate support from the state.
- The Plan defined cooperative farming as a society, which necessarily implied pooling of land and joint management.
- A committee which studied it observed, in 1965, that cooperative farming had not yet taken firm root; it is necessary to emphasize that the programme is still in its infancy. By its nature, cooperative farming will require some time before it can make a significant impact on the entire country.
- The majority of societies included in the study took measures to increase irrigation potential and to improve the land, which the members would not have been able to do individually.
- The capacity of the cultivators to adopt improved practices increased with the formation of societies.
- The case studies generally pointed out that there was an increase in the gross value of per-acre production
- Cooperative farming was not taken up as farmers who newly won the land rights were quite hesitant to give up any sort of right on their land.

Settlement and Regulation of tenancy

Regulation of Rents

- Though the rent was limited to one-fourth of produced but it could not be implemented on ground.
- It also had variation in different states.
- The costly legal process could not be availed by poor villagers though law was put in place by the govt.

Security of tenure

To protect tenants from being ejected and to grant them permanent rights on lands, laws have been enacted in most of the states. They have three essential features.

a) Tenants cannot be evicted without any reason. They can be evicted only in accordance with the laws.
b) Land can be resumed by the landlord only on the ground of personal cultivation. But the land-lord can resume the land only up to a maximum limit.
c) The landlord should leave some area to the tenant for his own cultivation. The tenant in no case should be made landless.

However, tenancy legislations in India are not uniform throughout the country. Each state has its own legislation. In Orissa, a limit has been imposed on the landlords for resuming land for personal cultivation.

Ownership of Rights

- All tenants should have been given security of tenure without giving owners the right to personal cultivation
- Owners have been given the right to resume a limited area subject to the condition that a minimum area is left with the tenant.

Debate: The existing ceiling and tenancy laws should be repealed or not?

Arguments in the favour of repealing these laws:

- The socio-economic and political milieu has changed since the time they were introduced. The land reform agenda has been practically removed from the agenda of political parties. The big land-holders who did not have much political power at the time of independence, have now become powerful. In this environment it is almost impossible to implement these laws.
- Dramatic changes have taken place in agriculture with the introduction of HYV seeds, mechanization, introduction of fertilizers etc. But ceiling denies farmers the opportunity to hold more land with surplus profit.
- The present tenancy laws have practically abolished lease market in land and thus curbed the opportunity of farmers to develop agriculture.
- The large land holding will result in modernisation of agriculture with the investment of more surplus capital.
- The resulting landlessness from the large landholding shall be offset by the employment of these people in agriculture itself. It should be backed by Minimum Wage legislation - if a landlord does not pay minimum wages then the government will have to pay.
- Small land farming is not economically viable and thus to boost the Indian economy the potential can be harnessed by having big farming as developed countries have.
- The trickle-down effect shall provide the fruits of development to all.
- It would lead to corporate farming which in turn leads to growth of food processing industry.

Arguments against the repeal of these laws:

- The resulting landlessness shall not be arrested in case of modernisation as mechanisation is labour saving.
- With subsidies already quite high, the government would not like to be further burdened for paying minimum wages.
- With the introduction of modernization, the surplus income has increased for small farmers as well. Thus, small land holding has also become economically viable.
- Since agricultural income is not taxed, if the ceiling and tenancy laws are repealed, then businessmen and rich people will start smashing the large land holdings leaving no scope for farmers to grow. Land prices will soar and speculators would have a field day.
- The cherished agenda of inclusive growth shall be defeated and the gulf between rich and poor shall widen.
- The social friction shall sharply intensify.
- If the lack of political will could not lead to implementation of land reforms, then competitive populism prevailing in the politics in India shall not let these law to repeal.

Conclusion:

The repeal of these laws shall be too drastic a change to adopt. Several measures need to be taken before considering such a change. For example, the imposition of agricultural income tax and agricultural holding tax shall deter the large holdings and impact the resources, which can mobilised to invest in social and physical infrastructure. Measures should be taken to discourage uneconomic holdings by imposing a minimum land holding limit. Further, it should be relaxed only in a phased manner.

Draft National Land Reforms Policy

The central government of India has released a draft of an ambitious new national land reform policy for public discussion that, if approved and adopted, could help the country end landlessness and extreme rural poverty.

The draft national land reform policy has five goals:

- Distribute land to all rural landless poor
- Restore land unjustly taken from vulnerable communities such as the Dalits (untouchables) and Tribals
- Protect the land of the Dalits and Tribals including the commons that they depend on going forward
- Liberalize leasing laws
- Improve land rights of women

Highlights of the Draft Policy

(For more details refer the Draft National Land Reforms Policy)

Landlessness among the poor being quite considerable, the States shall have a comprehensive plan for assignment of lands and their management. The draft policy proposes action in the following areas:

- **Creation of land pool**
    - In order to provide homestead land, minimum agricultural land, and shelter to every family, it is essential that a land pool is created. The smallest unit in this case will be a village or a cluster of villages, as the case may be, because it is not realistic to expect people to migrate long distances for obtaining their rights. The utilisation of the land pool for the purpose of homestead land or agriculture shall begin as soon as the pool is created at the village / cluster level.
    - States shall work towards the creation of a land pool within a specified timeframe comprising of, amongst others – (a) agricultural waste land, whether illegally encroached or otherwise; (b) restoration of land acquired, purchased and/or leased out to industries etc. or acquired for development purposes/ projects but remaining unutilised, (c) surplus ceiling land by removing illegal occupation on those, (d) Bhoodan land by removing illegal occupation on those , (e) Land being made available by correction of land records following reconciliation of forest land and revenue land and (f) Panchami land in Tamil Nadu/assigned land in Andhra Pradesh/ Gairan land in Maharashtara also by removing illegal occupation on those.

- **Assignment Policy**

    The States shall explore all available opportunities to create and maintain a land pool in every village. For this purpose, the States shall

    - Conduct an inventory of government, ceiling surplus, bhoodan and other categories of lands with the help of landless poor, Gram Panchayat, SHGs of women, and Civil Society Organizations, under the supervision of Revenue Authorities. As part of the inventory, comprehensive details about these lands including details of current enjoyers should be collected and the details should be made available to people.
    - Evict ineligible encroachers of government lands, ceiling surplus and bhoodan lands and distribute to the landless poor.

- **Time-bound assignment of land**
    - Distribute/Assign/Allot the available land to eligible land less poor, particularly the Scheduled Castes, Scheduled Tribes and other marginalized and deprived landless in a time bound manner both for agriculture and house sites. The allotment of land should be made in the name of women member in the eligible family. The list of beneficiaries should be prepared with the approval of Gram Sabha. The list of beneficiaries should be made available to the public.
    - Settle all the pending applications for regularization of unobjectionable occupations of government land by conducting a special drive in a time bound manner.

- **Ceiling surplus lands**

    There is an urgent need to re-visit the land ceiling limits in different categories. Excluding the achievements of some States like West Bengal, Kerala, and Jammu and Kashmir, the imposition of land

ceilings has not led to any worthwhile redistribution of agricultural land in the rest of the country. Some of the suggestions are:

- Every state should revise its ceiling limits, if the existing limit is more than 5-10 acres in the case of irrigated land and 10-15 acres for non-irrigated land.
- Exemptions to religious, educational, charitable, research and industrial organizations as well as plantations and aqua farms should be strictly discontinued. These institutions shall not be allowed to use more than one unit of 15 acres.
- States shall adopt 'single window' system for re-distribution of ceiling surplus land within a specified time frame.
- All States shall impose ceiling not only on 'Ownership' of land holdings but also on 'Operational' land holdings to prevent concentration of large tracts of land through lease-in. Under no circumstance shall a person/institution/organisation be allowed to own more land than the ceiling.
- For the purpose of curbing and monitoring evasions of ceiling laws through fraudulent land transactions, the Benami Transactions (Prohibition of the Right to Recover Property) Act, 1989 shall be appropriately amended.
- All the ceiling surplus lands, which are stated to have been distributed to the landless poor, shall be physically verified to see whether the assignees are in possession and enjoyment of these lands. If not, steps shall be taken to see that the assignees are given possession of lands.
- States shall prepare and maintain an inventory of all ceiling surplus lands and make it available for public scrutiny.

- **Bhoodan lands**

  - State governments, which have not distributed Bhoodan land, should conduct a survey within one year ascertaining the status of such land. The survey in addition to recording the present physical status, history of the allotment of titles, the incidence of irrigation, the present possession, the title of the donor etc. shall also indicate clearly lands which are unfit for settlement. This Survey will also include the lands that are already distributed for ascertaining their possession and the extent of sustenance. The State Governments shall apply all their resources including Amins and Surveyors from other Departments, Gazetted Officers and others to complete the survey work within one year, while keeping the sanctity of the time frame. The Panchayats, the Civil Society Organisations and the SHGs and their federations working with the people in the area will also be associated with the Survey.
  - The respective Bhoodan Yagna Acts may be amended to provide that if at any time subsequent to the confirmation of the Danapatra in course of any enquiry or otherwise it transpires that the land is not being used for the purpose for which it was donated the occupant thereof may be ejected by means of summary proceedings. In all such cases the competent authority may proceed to settle that land with suitable persons of eligible categories notwithstanding the subsequent transactions in the land or the interest acquired by the land subsequent to the donation.
  - The inventory of Bhoodan lands, thus prepared and digitized, shall be made available for public scrutiny.

- **Government lands**

  - The other category of land, which is wasteland (this term although needs to be redefined), is estimated to be around 63.85 million hectares (20.17 per cent of the geographical area) in India. There shall be an exercise undertaken by the Wastelands Division of State with the support of the Ministry of Rural Development to identify and quantify these lands in terms of the sustenance they provide to populations in non-cultivable manner. Further, the Gram Panchayat should be made in-charge of the well-defined wasteland in the purview of a Panchayat.

- **Redistribution of un-utilized lands acquired or allotted for public purpose**

  - There is a great amount of land that the State allots to various agencies (both public and private) for various purposes through acquisition, selling or leasing out. It is important to see that the land which is not used within five years in accordance with the purposes, for which it was allotted, shall come under the State Government's Land Pool by reversion. The proposed land acquisition law gives the State Government the option to return unutilized land to the original owner before placing it in the land bank. States may explore similar arrangements for lands which have been taken by acquisition in previous years and continue to be unutilized.

  - Upon every transfer of land without development, 20% of the appreciated land value shall be shared with the original land owners. The first claim on the Land Pool with the State Government shall be of the land less poor. The land distribution and allotment to the landless poor from the Land Pool shall be carried out in a time bound manner subject to the availability of land.

- **Lands belonging to religious institutions**

  - The States have considerable extents of lands donated to different religious and charitable institutions by private land owners, the income from which has to be used for their development and maintenance. These endowments have a stated purpose at the bequest of the donor. Depending on the nature of the institutions, these lands are generally administered by either the Department of Endowments or the Wakf Boards.

  - The administration of Endowment and Wakf lands needs better management. There has been no clear strategy for the protection of the endowment lands and ambiguity prevails as to how these lands can be administered. Further, considerable extents of these lands are under occupation of poor and equally considerable extents are under illegal encroachment by non-poor. In some States, there is a practice of allocating these lands on lease. Despite specific directions from the Supreme Court that a public auction must be conducted for disposal of endowment lands, invariably more often than not the auctions are held in secret and are sold to private parties for small amounts of money. Such practices are benefiting neither the poor nor the institutions for whose benefit the endowments/donations were made.

  - In view of the above, the States shall prepare an inventory of all endowment and wakf lands, remove all illegal occupations and shall take steps to lease out the lands to landless poor on equitable terms of lease. Such an action will be a win-win to both the landless poor and the institutions also as the institutions will get an assured income every year to sustain them.

Women and Land

- In all Government land transfers, women's claims should be directly recognized.
- According to the new policy, all new land distribution among landless poor families will be in women's name.
- In all land distribution schemes (land related to surplus land, custodial land, or under the land ceiling act), the land should be distributed to rural landless women workers.
- The policy recommends 50 percent of land holdings given to forest communities should go to women.
- Under the policy, elderly women and widows too would gain title to land.
- The policy advises the states to consider the adoption of a group approach in land cultivation. Thus, group titles to women's group should be granted.
- The policy also asked the state to assess all uncultivated arable land with the Government, and give women's groups such land in the long term for group cultivation.
- Women constitute nearly 40 percent of the agricultural workforce in the country. More importantly, 75 percent of all female workforce and 85 percent of all rural female workforce in the country at present, was involved in agriculture.

- In recent days, rural households are increasingly becoming female headed households, due to widowhood, desertion, or male out-migration.
- The Eleventh Five Year Plan recognised that agricultural productivity was increasingly getting dependent on the ability of women to function effectively as farmers and strongly, and had also made a recommendation to ensure effective and independent land rights for women.
- The Twelfth Five Year Plan emphasised enhancing women's land access from all three sources - direct government transfers, purchase or lease from the market and inheritance.
- The land rights can serve multiple functions in rural women's lives and would empower them to challenge the socio-economic and political inequalities prevalent in the rural-semi feudal society.

G.S. PAPER III – ECONOMIC DEVELOPMENT

INVESTMENT MODELS

Table of Contents

1 Economic Systems

There is hardly any country today which can be called either pure capitalistic economy or socialistic economy. However, for the purpose of categorization we can divide the economic systems into the following types:

1.1 Capitalism

Under capitalism, all farms, factories and other means of production are the property of private individuals and firms. They are free to use them with a view to making profit, or not to use them, if it so suits them. The desire for profit is the sole consideration with the property owners in the use of their property. Besides free and unfettered use of their property, everybody is free to take up any line of production he likes and is free to enter into any contract with other fellow citizens for his profit.

Although all modern States do impose certain restrictions on economic freedom in the interest of general welfare, yet even these restrictions leave much latitude to the propertied class to use their property in any manner they like, to start any business they think profitable to themselves and to enter into contracts they think necessary in their interest.

What to produce, how to produce and for whom to produce – all these central problems of economics are settled by the free working of the forces of demand and supply. In the words of Prof. Loucks, "capitalism is a system of economic organization featured by the private ownership and the use for private profit of man-made and nature-made capital".

1.1.1 General Features of Capitalism

- Right of Private Property
- Freedom of Enterprise (it implies three things : (a) freedom of enterprise, (b) freedom of contract, and (c) freedom to use one's property)
- Freedom of Choice by the Consumers
- Profit Motive
- Class Conflict
- Uncoordinated Nature (no conscious regulation or central direction of economic activity required)
- Control with Risks (one who risks his money controls the business)
- Competition
- Importance of Price System (price mechanism facilitates the functioning of capitalism)
- Economic Inequalities

1.1.2 Merits of Capitalism

- Automatic Working (does not require any central directing authority)
- Higher Efficiency and Incentive to hard work
- Higher Rate of Capital Formation
- Economic Development and Prosperity
- Optimum Utilization of Resources
- Just and Democratic
- Encouragement to Enterprise and Risk taking
- Adaptability

1.1.3 Demerits or Criticism of Capitalism

- Wasteful Competition (cut throat competition does not confer any corresponding social benefit)
- Human Welfare ignored
- Economic Instability and Unemployment
- Property Rights take precedence over Human Rights
- Social Injustice and Economic Inequality

- Misallocation of Resources
- Emergence of Monopolies and concentration of Economic Power
- Malpractices

1.2 Socialism

Socialism is an economic organization of society in which the material means of production are owned by the whole community and operated by organs representative of, and responsible to, the community according to a general plan, all members of the community being entitled to benefits from the results of such socialized planned production on the basis of equal rights.

In simple words, socialism implies social ownership of means of production, equality of incomes and opportunity for all. It does not mean that all productive resources should be owned by the State; only the major instruments of production should be under the state control so that economy is run for social benefit rather than private profit.

1.2.1 General Features of Socialism

- Social Ownership of Means of Production
- No Private Enterprise
- Economic Equality
- Equality of Opportunity
- Economic Planning
- Social Welfare and Social Security
- Classless Society

1.2.2 Merits of Socialism

- Social Justice
- Better Allocation of Resources
- Rapid Economic Growth
- Improving Productive Efficiency
- Social Security and Welfare
- Economic Stability

1.2.3 Demerits of Socialism

- Bureaucracy and Red Tapism
- Not Successful in Business
- Misallocation of Resources
- Loss of Consumer's Sovereignty
- Lack of Incentives
- Loss of Economic Freedom
- No economic Equality
- Concentration of Power in the State
- Loss of Personal Liberty

1.3 Mixed Economy

A Mixed Economy is neither pure capitalism nor pure socialism but a mixture of the two. It is operated by both private and public enterprise. That is, private enterprise is not permitted to function freely and uncontrolled through price mechanism. On the other hand, the government intervenes to control and regulate private enterprise in several ways. It had been realized that a free functioning of private enterprise results in several types of evils. For instance, it produces trade cycles, i.e. sometimes depression and unemployment and at other times booms and inflationary situation. Besides, free functioning of private enterprise results in extreme inequalities of income and wealth. It is also realized that in countries like India, economic development cannot be achieved at the desired rate of

growth without any active government help and guidance. Hence the government in such countries actively participates in economic activities in order to minimize the evils of unadulterated capitalism and to accelerate economic growth.

In the Indian economy, both the public and private sector are in operation, though the share of public sector has been progressively declining since 1991, when India began the economic reforms. The foundations of the mixed economy in India were laid by the Industrial Policy Resolution of 1948 which was modified by the Industrial Policy Resolution of 1956. According to these resolutions, the various industries were divided between the two sectors, viz. the private sector and the public sector. The responsibility for the development of several basic, heavy and strategic industries was assigned to the State and the development of the rest of the industries was left to the private sector. Even the private sector was sought to be controlled and influenced by the Government of India by means of direct controls or through appropriate fiscal and monetary policies.

1.3.1 General Features of Mixed Economy

- Co-existence of the Public and Private Sectors
- Role of Price System and Government Directives
- Government Regulation and Control of Private Sector
- Consumer's Sovereignty Protected
- Government Protection of Labour
- Reduction of Economic Inequalities
- Control of Monopoly

2 Economic Development

Though Economic Development has been defined differently from Economic Growth and Economic Progress by some, however, for our purposes here we can consider these terms as denoting the same. Thus we can base our definition of economic development on per capita income. Accordingly we can say that it denotes an increase in per capita income of the country at constant prices. A higher per capita would mean that people are better off and enjoy a higher standard of living and to raise the level of living of the people is the main objective of economic development. Nut the increase in national income must be maintained for a long time. A temporary or short-lived increase will not connote real economic growth. This improvement in income helps and in turn is facilitated by larger savings, increased capital formation and technological development.

2.1 Rostow's Stages of Economic Development

Rostow lays stress on the efficacy of free trade and free market capitalism. He has divided the historical process of economic growth into the following stages:

2.1.1 Traditional Society

- Subsistence economy
- Limited technology

2.1.2 Preconditions to "Take off" - Preparatory Stage

- A change in society's attitude towards science, risk-taking and profit-earning
- The adaptability of the labour force
- Political Sovereignty
- Development of a centralized tax system and financial institutions; and
- The construction of certain economic and social overheads like rail-roads and educational institutions

2.1.3 The "Take off" Stage

- The economy transforms itself in such a way that economic growth subsequently takes place more or less automatically
- The rate of investment increases in such a way that real output per capita rises and this initial increase carries with it radical changes in the techniques of production and the disposition of income flows which perpetuate the new scale of investment and thereby the rising trend in per capita output
- It implies three things
    - The proportion of investment to national income outstrips the likely population increase
    - The period must be relatively short so that it should show the characteristics of an economic revolution
    - It must culminate in self sustaining and self generating economic growth

2.1.4 Drive to Maturity - Period of Self Sustained Growth

- Rates of saving and investment are of such magnitude that economic development becomes automatic
- Overall capital per head increases as the economy matures
- The structure of the economy changes increasingly
- The initial key industries which sparked the take-off decelerate as diminishing returns set in. But the average rate of growth is maintained by a succession of rapidly growing sectors

2.1.5 Age of Mass Consumption

- Industrial base dominates
- Widespread consumption of high value consumer goods

3 Models used in the Planning Process

3.1 Harrod – Domar Growth Model

Harrod and Domar analyzed the dynamic nature of investment and demand and showed how variations in capital and in demand were responsible for instability in economic growth.

The main determinants of economic growth are: natural resources, technological progress, population growth etc. These determinants of economic growth influence the rate of growth by influencing two important factors:

- The rate of Investment
- Capital-output Ratio

Hence the rate of economic growth in a country depends on the rate of investment and capital-output ratio. Harrod and Domar arrived at the following relation:

Growth Rate = Investment * (1/Capital-Output Ratio)

3.1.1 Relevance of Harrod-Domar Model for Developing Countries

Harrod-Domar model was formulated primarily to protect the developed countries from chronic unemployment and they were not meant to provide guidelines to the developing economies in their economic development. Since they were formulated primarily for the developed countries they were based on high propensity to save and a correct estimate of the capital-ouput ratio, which should remain fixed over time. On the other hand, the main problems of the under-developed countries is to raise their propensity to save because it is generally low in these countries. Nor is it possible to assume a fixed value of the capital-output ratio. This ratio happens to be very

high in these countries. Thus the two important bases of the Harrod-Domar model are non existent in the case of developing economies.

Further, the nature of unemployment problem in developing countries is different from that in the developed countries. It is cyclical unemployment due to deficiency of demand in the developed economies and disguised in developing economies. In developed economies, unemployment can be removed by raising the level of investment so that aggregate demand increases which was not keeping pace with the growth of productive capacity. In the developing economies, there is unemployment because available productive capacity is inadequate to emply fully the existing labour force. Thus in such countries, the purpose of investment is to raise productive capacity rather than aggregate demand and fully utilize the existing idle capacity.

Thus the peculiar conditions prevailing in the developing countries e.g. disguised unemployment, low propensity to save and low productive capacity makes the Harrod-Domar model inapplicable to them. Also, this model assumes no government intervention, fixed prices and no institutional changes. All these assumptions too make it inappropriate.

However, we should not reject this model wholesale and emphasize their inapplicability to developing economies. With slight modifications and reinterpretation they can be made to furnish suitable guidelines even for the developing economies. In some cases, it is only a question of changing the emphasis. For instance, Domar's model recognizes the capacity creating role of investment. But it is intended to increase effective demand in developed countries, while in developing countries, the capacity creating role of investment is to be seen as a means of overcoming the problem of unemployment. Hence, to make the model applicable to the developing countries, it has to be suitably reinterpreted.

3.2 Lewis Model of Economic Development with Unlimited Labour Supply

Lewis presented a theory of economic development with the use of unlimited supply of labour. The supply of labour in under developed countries is generally such that an unlimited supply is available at the subsistence wage. This unlimited supply of labour is drawn from surplus agricultural labour, casual labour, domestic servants, women in households etc.

Lewis model is not based on disguised unemployment but on other conditions, viz.:

- The wage rate in the industrial sector is above the subsistence sector by a small but fixed margin
- The investment in the industrial sector is not large relative to population growth
- The cost of training of the skilled workers is constant

In his model, Lewis analyses the process of economic development in terms of inter-sectoral relationships in a dual economy composed of a 'Capitalist' (manufacturing, mining etc.) Sector and a 'Subsistence Sector' or the Self-Employment sector. In an overpopulated country the capitalist sector draws labour from the subsistence sector of which there is an almost unlimited supply. The wage in the capitalist sector depends on what labour gets/earns in the subsistence sector and is a bit higher so as to attract labour. Hence at this wage, the capitalist sector can have as much labour as it requires. Subsistence wage, in turn, is governed by the conventional view of the minimum required for subsistence or by the average product per worker in subsistence agriculture.

Lewis points out that the process of economic growth must come to an end when:

- No surplus labour is left
- Population declines
- Food prices rise pushing up wages; and
- Workers press for higher wages

3.2.1 Relevance of Lewis Model for India

Nehru's approach was based on the Lewis model. The basic idea was that India has an agriculture sector with a huge amount of surplus labour. If the surplus labourers are taken away from the agriculture sector, it will not affect output in that sector. The industrial sector has positive productivity for the labourers. If this sector is promoted, it will generate profit. If this profit is invested in machines and tools, the capital per worker will increase and this in turn, will boost profits. This profit is reinvested again and the process moves on. So, this will increase capital formation at a fast rate. Thus, the basic understanding has been that agriculture is not likely to bring about a turnaround, whereas continuous investment of profit generated by the industrial sector in industries will start a self-sustaining growth process.

3.3 Mahalanobis Strategy of Economic Growth

There has been a lot of controversy in our country on the appropriate strategy to be adopted for planned economic development. There was no clear strategy in the First Five-Year Plan. But when the second plan was being formulated Prof. P.C Mahalanobis prepared a growth model in which he showed that to achieve a self-sustained growth quickly in the country, it would be essential to devote a major part of the development outlay to building basic heavy industry, e.g. of capital goods industry like steel and the engineering industry for making different types of machines, the multipurpose river valley projects for irrigation and power.

According to Prof. Mahalanobis, the rate of real capital formation in a country like India did not depend merely on savings in the form of money but it depends on the capacity for making capital goods. He argued that even if the rate of savings was substantially raised and it was desired to accelerate economic growth and capital formation by investing it in the consumer goods industries, it would be futile. The reason is that the capital goods required for the consumer goods industries are not produced in the country in sufficient quantities.

Thus, Prof. Mahalanobis was of the view that if large investment is not made in the heavy basic and capital goods industry, the country will forever remain dependent on foreign countries for the imports of steel and capital goods like machinery for economic development and real capital formation. Since it is not possible for India to earn sufficient foreign exchange for the purpose by increasing exports, the capital goods cannot be imported in sufficient owing to foreign exchange constraints. The result will be that the rate of economic growth and the rate of real capital formation in the country will be slow indeed. Thus according to him, to achieve rapid economic growth and self-reliance, it would be necessary to give a high priority to basic and capital goods industries in the development strategy of a plan.

3.4 Planning Model adopted in India

The second five year was based on the Nehru-Mahalanobis strategy of development, which guided the planning practice for more than three decades until the end of the Seventh Five Year Plan. The draft outline of this plan was based on the Mahalanobis Model which was viewed as a variant of the Soviet Planning model and the Lewis model. The basic elements of this strategy can be summed up as:

- Raising the rate of investment since the rate of development is dependent on the rate of investment. It involved stepping up domestic and foreign savings also
- Rapid growth of the productive capacity of the economy by directing public investment toward development of industries. Simultaneously, promotion of labour-intensive small and cottage industries
- Import substitution for self-reliance
- An elaborate system of controls and industrial licensing
- Predominance of public sector in capital goods industries

3.4.1 Relevance of Planning in India:

Though Planning has been one of the basic pillars of the Indian state's approach to development since Independence, however in recent times the relevance of planning is much debated. One argument is that planning has failed to achieve its goals. The second argument is that planning has become irrelevant owing to globalization and liberalization. However, planning based on the Mahalanobis framework was fine during the first three plans. The problems that surfaced later were not due to planning but are the product of lack of appropriate planning and mismanagement by the government. Planning does not become irrelevant due to internationalization of capital. In a liberalized economy, the nature of planning changes corresponding to the changes in the nature of state intervention but it does not become irrelevant. Public investment will continue to have a major role in social sectors and rural economic infrastructure and the prioritization of the investment has to be properly planned. The role of planning in our federal system is to coordinate the activities of all levels in the government – center, states and local level – and that of the market and civil society actors. In this way, it has to evolve a shared commitment to national goals among all actors in the society. Further the inherent exclusionary tendencies of the market can only be limited by the State through proper planning. To make Planning successful, the country has to follow a more decentralized and participatory planning. The poor are to be placed in our economic planning. To remove regional disparities there is need for regional planning, town and country planning. It also needs to made contemporary and comprehensive by including not only the conventional issues but also the emerging areas, like critical environmental issues.

4 Infrastructure Investment Models

4.1 Financing of Infrastructure

The relationship between infrastructure development and economic growth is well established in the literature. While infrastructure development facilitates economic growth; economic growth increases demand for more infrastructure. Thus, development of adequate and quality infrastructure is a necessary, if not sufficient; condition to maintain growth momentum in any economy. However, infrastructure development is an arduous job for any country as it involves huge investments, long gestation periods, procedural delays and returns spread over a long period of time. These unique features of infrastructure development raise some issues which are specific to the financing of infrastructure.

To support the high economic growth, the investment requirements in the infrastructure sector is estimated to be around 41 lakh crore (revised to Rs 45 lakh crore in the Approach paper for the Twelfth Plan) during the Twelfth plan period. Let us look at the broad pattern of financing of infrastructure in our country before highlighting some of the issues involved in it.

- According to the Planning Commission, during the first three years of Eleventh Five Year Plan, funds from the Central Government budget financed around 45 per cent of the total investment in infrastructure.
- The remaining 55 per cent was divided between debt financing (41 per cent) and equity financing (14 per cent).
- It is noteworthy that within the debt financing, commercial banks alone financed around 21 per cent and another 10 per cent was financed by the NBFCs.
- Notably other sources of financing, such as, External Commercial Borrowings (ECBs), equity, FDI and insurance companies financed less than 10 per cent of the total infrastructure investment each.

4.1.1 Issues in Infrastructure Financing

- **Funding Gap** - Funding Gap is the most important issue that we face on this front. The slowdown in the economy has further aggravated this funding gap in the infrastructure sector. More recently, in the context of Eurozone debt crisis, accessing external resources by way of ECBs could also become difficult and this would also accentuate the funding gap.

- **Fiscal Burden** - We have already seen that almost half of the total investment in the infrastructure sector was done by the Government through budget allocations. Here the point to be noted is that Government funds have competing demands, such as, education, health, employment generation, among others.
- **Asset-Liability Mismatch of Commercial Banks** - After the budgetary support, next in line for financing infrastructure were funds from the commercial banking sector. However, it is a well known fact that these are institutions that primarily leverage on short-term liabilities and, as such, their ability to extend long-term loans to the infrastructure sector is limited. This is because, by doing so they get into serious asset-liability mismatches.
- **Takeout financing** - Takeout financing offers a window to the banks to free their balance sheet from exposure to infrastructure loans, lend to new projects and also enable better management of the asset liability position. In other words, takeout financing enables financing longer term projects with medium term funds. However, due to several factors the mechanism has not really emerged as a game-changer. One plausible reason is that the model does not envisage equitable distribution of risks and benefits. One of the oft repeated arguments is that banks assume credit and liquidity risk since the inception of the project but once the project is economically viable, taking out of the loan results in loss of opportunity of earning returns on seasoned loans.
- **Investment Obligations of Insurance and Pension Funds** - From the point of view of asset-liability mismatches, insurance and pension funds are one of the best suited institutions to invest in the infrastructure sector. This is because, in contrast to the commercial banking sector, these institutions leverage on long-term liabilities. However, they are constrained by their obligation to invest a substantial portion of their funds in Government securities. Of course, in a way, this facilitates the financing of gross fiscal deficit of the Central Government and hence enables the Central Government to make more investments. However, this limits the direct investment of these institutions in the infrastructure sector
- **Need for an Efficient and Vibrant Corporate Bond Market** - An active corporate bond market can facilitate long-term funding for the infrastructure sector. However, despite the various initiatives taken by the Reserve Bank, Securities & Exchange Board of India and Government of India, the corporate bond market is still a long way to go in providing adequate financing to the infrastructure sector in India.
- **Developing Municipal Bond Market for Financing Urban Infrastructure** -For large scale financing urban infrastructure which is assuming critical importance in the context of rapid urbanization, conventional fiscal transfers to the urban local bodies or municipals from governments are no longer considered sufficient. There have been some earnest experimentations by these bodies to tap unconventional methods of financing such as public private partnerships, utilizing urban assets more productively, accessing carbon credits, etc. but then these do not address the financing needs. One possible way of addressing the problem is developing a municipal bond market.
- **Insufficiency of User Charges** - It is a well known fact that a large part of the infrastructure sector in India (especially irrigation, water supply, urban sanitation, and state road transport) is not amenable to commercialization for various reasons, such as, regulatory, political and legal constraints in the real sector. Due to this, Government is not in a position to levy sufficient user charges on these services. The insufficiency of user charges on infrastructure projects negatively affect the servicing of the infrastructure loans. Generally, such loans are taken on a non-recourse basis and are highly dependent on cash flows. Hence, levy and collection of appropriate user charges becomes essential for financial viability of the projects.
- **Legal and Procedural Issues** - Infrastructure development involves long gestation periods, and also many legal and procedural issues. The problems related to infrastructure development range from those relating to land acquisition for the infrastructure project to environmental clearances for the project. Many a times there are legal issues involved in it and these increase procedural delays. The added uncertainty due to these factors affects the risk appetite of investors as well as banks to extend funds for the development of infrastructure.

4.1.2 Measures taken by the Government

- **Public-Private Partnership Projects in Infrastructure -** As Government faces a tight budget constraint in the context of a rule based fiscal policy framework, it was important to encourage the private sector to invest more in the infrastructure sector. Resultantly, the Government started encouraging Public-Private Partnership (PPP) projects in the infrastructure sector. PPP mechanism provides built in credit enhancement for improving project viability by way of buyback guarantee, escrow arrangement, substitution rights for the lenders, etc. Government has taken several initiatives, especially to standardize the documents and process for structuring and award of PPP projects. This has improved transparency in relation to the issues involved in setting up PPP projects.
- **Viability Gap Funding** Viability gap funding was introduced in 2006, which provides Central Government grants up to 20 per cent of the total capital cost to PPP projects undertaken by any central ministry, state government, statutory entity, or local body. The scheme aimed at providing upfront capital grant to PPP projects to enable financing of commercially unviable projects. The level of grant is the net present value of the gap between the project cost and estimated revenue generation over the concession period based on a user fee that was to be levied in a pre-determined manner.
- **Foreign Direct Investment and Infrastructure Development -** To facilitate infrastructure financing 100 per cent FDI is allowed under the automatic route in some of the sectors such as mining, power, civil aviation sector, construction and development projects, industrial parks, petroleum and natural gas sector, telecommunications and special economic zones. Further, FDI is also allowed through the Government approval route in some sectors such as civil aviation sector, Petroleum and Natural Gas sector – refining PSU companies; Telecommunications etc
- **Setting up of India Infrastructure Finance Company Limited (IIFCL) -** Another major development was the setting up of IIFCL by the Central Government for providing long-term loans to the infrastructure projects. IIFCL is involved both in direct lending to project companies and refinancing of banks and other financial institutions. IIFCL can provide funds to the infrastructure project up to 20 per cent of the total project cost as long-term debt
- **Setting up of Infrastructure Debt Funds -** Reserve Bank of India and the Securities and Exchange Board of India (SEBI) notified detailed guidelines for setting up of IDFs which can either be a mutual fund (trusts) (IDF-MF) or an NBFC (companies) (IDF-NBFC). The Scheduled commercial banks are allowed to act as sponsors to IDF-MFs and IDF-NBFCs with prior approval from RBI subject to certain terms and conditions. Further, to attract off-shore funds into IDFs, Government of India is contemplating the reduction of withholding tax on interest payments on the borrowings by the IDFs from 20 per cent to 5 per cent. Income of the IDFs is also expected to be exempt from income tax. The IDF-NBFC can raise resources through issue of either rupee or dollar denominated bonds of minimum five year maturity. IDFs are expected to channelize funds from insurance companies, pension funds and other long term sources into infrastructure sector. This will provide an alternative source of foreign currency funds for the infrastructure projects.
- **Tapping the retail investor base through Infrastructure Bonds -** To provide further impetus to infrastructure financing, Government of India has permitted IFCI, IDFC, LIC and infrastructure finance firms to issue long-term infrastructure bonds providing for tax benefit of up to Rs.20,000 in the year of investment, under the Income Tax Act. The tax-free status has been granted by the government to these bonds issued only by designated financial institutions. By introduction of such instruments, the retail base can be tapped for raising funds for infrastructure projects.
- **Use of Foreign Exchange Reserves for Infrastructure Development -** Although use of reserves for such purposes does not meet the criterion of reserve management objectives, a special and limited window has been created. Accordingly, IIFC (UK) Ltd. was incorporated in London and was set up in April 2008. Under this scheme, RBI invests, in tranches, up to an aggregate amount of USD 5 billion in fully government guaranteed foreign currency denominated bonds issued by this overseas Special Purpose Vehicles (SPV) of the IIFCL. The funds, thus raised, are to be utilized by the company for on-lending to the Indian companies implementing infrastructure projects in India and/or to co-finance the ECBs of such projects for capital expenditure outside India without creating any monetary impact.

- **Introduction of Credit Default Swaps -** Further, the introduction of Credit Default Swaps (CDS) would help banks to manage exposures while increasing credit penetration, and lending to infrastructure and large firms without being constrained by the extant regulatory prescriptions in respect of single borrower gross exposure limits.
- **Liberalisation & Rationalization of ECB policies -** Corporates implementing infrastructure projects were eligible to avail of ECB up to USD 500 million in a financial year under the automatic route. This limit has been raised to USD 750 million. Infrastructure Finance Companies (IFCs) i.e., Non Banking Financial Companies (NBFCs) categorized as IFCs by the Reserve Bank, are permitted to avail of ECBs, including the outstanding ECBs, up to 50 per cent of their owned funds, for on-lending to the infrastructure sector as defined under the ECB policy, subject to their complying with certain conditions

4.1.3 What more needs to be done?

- **Making the Infrastructure Project Commercially Viable -** This is the first and foremost thing we should do for financing infrastructure in a sustainable manner. As mentioned earlier infrastructure projects involve huge financing requirements, most of which are met by banks and other financial institutions directly and indirectly. Thus, it is very important to make the project commercially viable to ensure regular servicing of the loan. This will lead to sustainable development of infrastructure without jeopardizing the soundness of the financial sector. Project appraisal and follow-up capabilities of many banks, particularly public sector banks, also need focused attention and upgradation so that project viability can be properly evaluated and risk mitigants provided where needed.
- **Greater Participation of State Governments -** In a federal country like India, participation and support of the State governments is essential for developing high quality infrastructure. The State governments' support in maintenance of law and order, land acquisition, rehabilitation and settlement of displaced persons, shifting of utilities, and obtaining environmental clearances are necessary for the projects undertaken by the Central Government or the private sector. It is satisfying to know that many State governments have also initiated several PPP projects for improving infrastructure.
- **Improving efficiency of the Corporate Bond Market -** Vibrant corporate bond market will reduce the dependence on the banking sector for funds. Further, coordinated regulatory initiatives could be considered in the areas involving standardization of stamp duties on corporate bonds across the states, encouraging public issuance and bringing in institutional investors in a big way. It is also important to broad base the investor base by bringing in new classes of institutional investors (like insurance companies, pension funds, provident funds, etc.) apart from banks into this market.
- **Credit Enhancement -** One of the major obstacles in attracting foreign debt capital for infrastructure is the sovereign credit rating ceiling. Domestic investors are also inhibited due to high level of credit risk perception, particularly in the absence of sound bankruptcy framework. A credit enhancement mechanism can possibly bridge the rating cap between the investment norms, risk perceptions and actual ratings
- **Simplification of Procedures – Enabling Single Window Clearance -** It is well recognized that while funding is the major problem for infrastructure financing, there are other issues which aggravate the problems of raising funds. These include legal disputes regarding land acquisition, delay in getting other clearances (leading to time and cost overruns) and linkages (e.g. coal, power, water, etc.) among others. It is felt that in respect of mega-projects, beyond certain cut-off point, single window clearance approach could cut down the implementation period.

4.2 Public-private Partnership in Infrastructure

The partners in a PPP, usually through a legally binding contract or some other mechanism, agree to share responsibilities related to implementation and/or operation and management of an infrastructure project. This collaboration or partnership is built on the expertise of each partner that meets clearly defined public needs through the appropriate allocation of:

- Resources
- Risks
- Responsibilities, and
- Rewards

4.2.1 What advantages PPPs may provide?

Governments worldwide have increasingly turned to the private sector to provide infrastructure services in energy and power, communication, transport and water sectors that were once delivered by the public sector. There are several reasons for the growing collaboration with the private sector in developing and providing infrastructure services, which include:

- Increased efficiency in project delivery, and operation and management;
- Availability of additional resources to meet the growing needs of investment in the sector; and
- Access to advanced technology (both hardware and software).

4.2.2 How a PPP project is different from a conventional project?

There are significant differences between a conventional construction procurement project and a PPP project that need to be clearly understood. The main differences include:

- PPP projects are different from conventional construction projects in terms of project development, implementation, and management. The administrative and approval processes in the case of PPP projects are also different.
- A PPP project is viable essentially when a robust business model can be developed.
- The focus of a PPP project should not be on delivering a particular class/type of assets but on delivering specified services at defined quantity and levels.
- The risk allocation between the partners is at the heart of any PPP contract design and is more complex than that of a conventional construction project. Both partners should clearly understand the various risks involved and agree to an allocation of risks between them.
- A PPP contract generally has a much longer tenure than a construction contract. Managing the relationship between the private company and the implementing agency over the contract tenure is vital for the success of a PPP project.

4.2.3 Are there any limitations of PPPs?

There are many important economic, social, political, legal, and administrative aspects, which need to be carefully assessed before approvals of PPPs are considered by the government. PPPs have various limitations which should also be taken into account while they are being considered. The major limitations include:

- Not all projects are feasible (for various reasons: political, legal, commercial viability, etc.).
- The private sector may not take interest in a project due to perceived high risks or may lack technical, financial or managerial capacity to implement the project.
- A PPP project may be more costly unless additional costs (due to higher transaction and financing costs) can be off-set through efficiency gains.
- Change in operation and management control of an infrastructure asset
- through a PPP may not be sufficient to improve its economic performance unless other necessary conditions are met. These conditions may include appropriate sector and market reform, and change in operational and management practices of infrastructure operation.
- Often, the success of PPPs depends on regulatory efficiency.

4.2.4 Models of PPP

A wide spectrum of PPP models has emerged. These models vary mainly by:

- Ownership of capital assets;

- Responsibility for investment;
- Assumption of risks; and
- Duration of contract.

The PPP models can be classified into five broad categories in order of generally (but not always) increased involvement and assumption of risks by the private sector. The five broad categories are:

- Supply and management contracts
- Turnkey contracts
- Affermage/Lease
- Concessions
- Private Finance Initiative (PFI) and Private ownership.

A categorization of the PPP models together with their main characteristics is shown in table 1. While the spectrum of models shown in the table are possible as individual options, combinations are also possible such as, a lease or (partial) privatization contract for existing facilities which incorporates provisions for expansion through Build-Operate- Transfer.

Figure 1. Basic features of PPP models

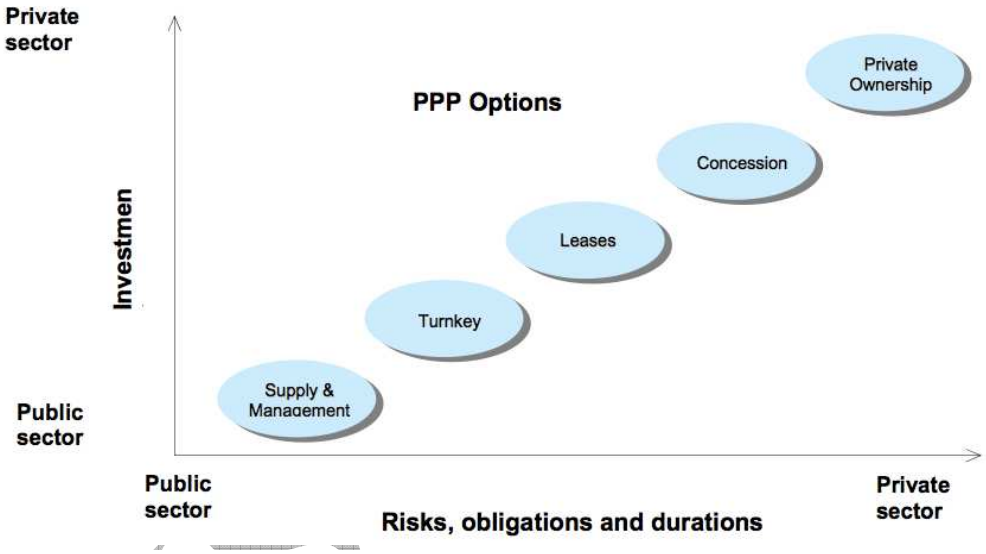


Table 1. Classification of PPP models

Broad category	Main variants	Ownership of capital assets	Responsibility of investment	Assumption of risk	Duration of contract (years)
Supply and management contract	Outsourcing	Public	Public	Public	1-3
	Maintenance management	Public	Public/Private	Private/Public	3-5
	Operational management	Public	Public	Public	3-5
Turnkey		Public	Public	Private/Public	1-3
Affermage/Lease	Affermage	Public	Public	Private/Public	5-20
	Lease*	Public	Public	Private/Public	5-20
Concessions	Franchise	Public/Private	Private/Public	Private/Public	3-10
	BOT**	Public/Public	Private/Public	Private/Public	15-30
Private ownership of assets and PFI type	BOO/DBFO	Private	Private	Private	Indefinite
	PFI***	Private/Public	Private	Private/Public	10-20
	Divestiture	Private	Private	Private	Indefinite

*Build-Lease-Transfer (BLT) is a variant.

**Build-Operate-Transfer (BOT) has many other variants such as Build-Transfer-Operate (BTO), Build-Own-Operate-Transfer (BOOT) and Build-Rehabilitate-Operate-Transfer (BROT).
***The Private Finance Initiative (PFI) model has many other names. In some cases, asset ownership may be transferred to, or retained by the public sector.

The main features of each of the broad categories of the PPP models are discussed next.

4.2.4.1 Supply and Management Contracts

A management contract is a contractual arrangement for the management of a part or whole of a public enterprise (for example, a specialized port terminal for container handling at a port or a utility) by the private sector. Management contracts allow private sector skills to be brought into service design and delivery, operational control, labour management and equipment procurement. However, the public sector retains the ownership of facility and equipment. The private sector is assigned specified responsibilities concerning a service and is generally not asked to assume commercial risk.

The private contractor is paid a fee to manage and operate services. Normally, the payment of such fees is performance-based. Usually, the contract period is short, typically three to five years. But the period may be longer for large and complex operational facilities such as a port or an airport.

Pros:

- Can be implemented in a short time.
- Least complex of all PPP models.
- In some countries, politically and socially more acceptable for certain projects (such as water projects and strategic projects like ports and airports).

Cons:

- Efficiency gains may be limited and little incentive for the private sector to invest.
- Almost all risks are borne by the public sector.
- Applicable mainly to existing infrastructure assets.

4.2.4.2 Turnkey

Turnkey is a traditional public sector procurement model for infrastructure facilities. Generally, a private contractor is selected through a bidding process. The private contractor designs and builds a facility for a fixed fee, rate or total cost, which is one of the key criteria in selecting the winning bid. The contractor assumes risks involved in the design and construction phases. The scale of investment by the private sector is generally low and for a short-term. Typically, in this type of arrangement, there is no strong incentive for early completion of the project. This type of private sector participation is also known as Design-Build.

Pros:

- Well understood traditional model.
- Contract agreement is not complex.
- Generally, contract enforcement is not a major issue.

Cons:

- The private sector has no strong incentive for early completion.
- All risks except those in the construction and installation phases are borne by the public sector.
- Low private investment for a limited period.
- Only limited innovation may be possible.

4.2.4.3 Affermage/Lease

In this category of arrangement, the operator (the leaseholder) is responsible for operating and maintaining the infrastructure facility (that already exists) and services, but generally the operator is not required to make any large investment. However, often this model is applied in combination with other models such as build- rehabilitate-operate-transfer. In such a case, the contract period is generally much longer and the private sector is required to make significant investment.

The arrangements in an affermage and a lease are very similar. The difference between them is technical. Under a lease, the operator retains revenue collected from customers/users of the facility and makes a specified lease fee payment to the contracting authority. Under an affermage, the operator and the contracting authority share revenue from customers/users.

In the affermage/lease types of arrangements, the operator takes lease of both infrastructure and equipment from the government for an agreed period of time. Generally, the government undertakes the responsibility for investment and thus bears investment risks. The operational risks are transferred to the operator. However, as part of the lease, some assets also may be transferred on a permanent basis for a period which extends over the economic life of assets. Fixed facilities and land are leased out for a longer period than for mobile assets. Land to be developed by the leaseholder is usually transferred for a period of 15-30 years.

Pros:

- Can be implemented in a short time.
- Significant private investment possible under longer term agreements.
- In some countries, legally and politically more acceptable for strategic projects like ports and airports.

Cons:

- Has little incentive for the private sector to invest, particularly if the lease period is short.
- Almost all risks are borne by the public sector.
- Generally used for existing infrastructure assets.
- Considerable regulatory oversight may be required.

4.2.4.4 Concessions

In this form of PPP, the government defines and grants specific rights to an entity (usually a private company) to build and operate a facility for a fixed period of time. The government may retain the ultimate ownership of the facility and/or right to supply the services. In concessions, payments can take place both ways: concessionaire pays to government for the concession rights and the government may pay the concessionaire, which it provides under the agreement to meet certain specific conditions. Usually, such payments by the government may be necessary to make projects commercially viable and/or reduce the level of commercial risk taken by the private sector, particularly in a developing or untested PPP market. Typical concession periods range between 5 to 50 years.

Pros:

- Private sector bears a significant share of the risks.
- High level of private investment.
- Potential for efficiency gains in all phases of project development and implementation and technological innovation is high.

Cons:

- Highly complex to implement and administer.
- Difficult to implement in an untested PPP market.
- May have underlying fiscal costs to the government.
- Negotiation between parties and finally making a project deal may require long time.
- May require close regulatory oversight.
- Contingent liabilities on government in the medium and long term

In a Build-Operate-Transfer or BOT type of concession (and its other variants namely, Build-Transfer-Operate (BTO), Build-Rehabilitate-Operate-Transfer (BROT), Build-Lease-Transfer (BLT) type of arrangement), the concessionaire makes investments and operates the facility for a fixed period of time after which the ownership reverts back to the public sector. In a BOT model, operational and investment risks can be substantially transferred to the concessionaire. In a BOT model, the government has, however, explicit and implicit contingent liabilities that may arise due to loan guarantees and sub-ordinate loans provided, and default of a sub-sovereign government and public or private entity on non- guaranteed loans.

By retaining ultimate ownership, the government controls the policy and can allocate risks to parties that are best suited to assume or remove them. BOT projects may also require direct government support to make them commercially viable. The concessionaire's revenue in a BOT project comes from managing and marketing of the user facilities (for example, toll revenue in a toll road project) and renting of commercial space where possible. Concessions for BOT projects can be structured on either maximum revenue share for a fixed concession period or minimum concession period for a fixed revenue share, a combination of both, or only minimum concession period.

4.2.4.5 Private Finance Initiative (PFI)

- In the private finance initiative model, the private sector remains responsible for the design, construction and operation of an infrastructure facility. In some cases, the public sector may relinquish the right of ownership of assets to the private sector.
- In this model, the public sector purchases infrastructure services from the private sector through a long-term agreement. PFI projects, therefore, bear direct financial obligations to the government in any event. In addition, explicit and implicit contingent liabilities may also arise due to loan guarantees provided to the lenders and default of a public or private entity on non-guaranteed loans. A PFI project can be structured on minimum payment by the government over a fixed contract tenure, or minimum contract tenure for a fixed annual payment, or a combination of both payment and tenure.

- In the PFI model, asset ownership at the end of the contract period is generally transferred to the public sector. Setting up of a Special Purpose Vehicle (SPV) may not be always necessary. A PFI contract may be awarded to an existing company. For the purpose of financing, the lenders may, however, require the establishment of an SPV. The PFI model also has many variants.
- In a PFI project, as the same entity builds and operates the services, and is paid for the successful supply of services at a pre-defined standard, the SPV / private company has no incentive to reduce the quality or quantity of services. This form of contractual agreement reduces the risks of cost overruns during the design and construction phases or of choosing an inefficient technology, since the operator's future earnings depend on controlling the costs. The public sector's main advantages lie in the relief from bearing the costs of design and construction, the transfer of certain risks to the private sector and the promise of better project design, construction and operation.

Pros:

- Private sector may bear a significant share of the risks.
- High level of private investment.
- Potential for efficiency gains and innovation is high.
- Attractive to private investors in an untested or developing PPP market.
- Most suitable for social sector infrastructure projects (schools, dormitories, hospitals, community facilities, etc.).

Cons:

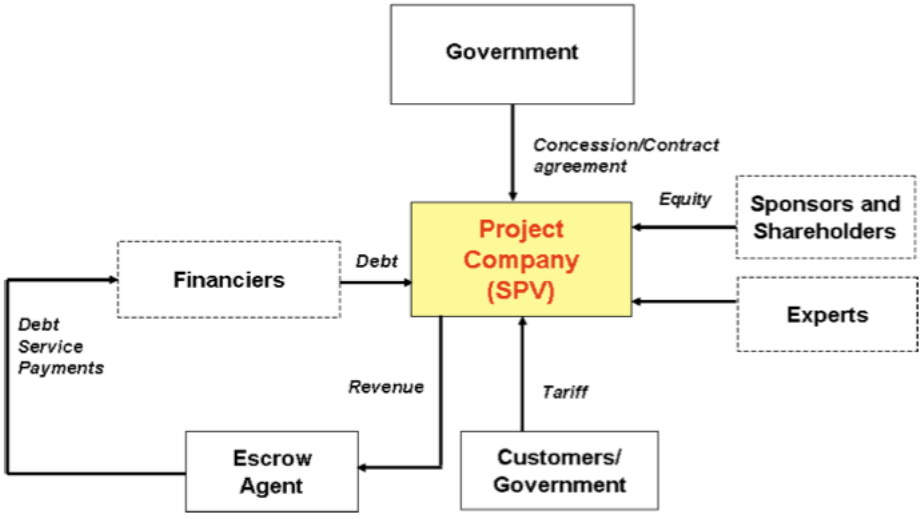
- Complex to implement and manage the contractual regimes.
- Government has direct financial liability.
- Negotiation between parties may require long time.
- Regulatory efficiency is very important.
- Contingent liabilities on the government in the medium and long term.

4.2.5 Understanding the basic structure of a PPP arrangement

A typical PPP structure can be quite complex involving contractual arrangements between a number of parties, including the government, project sponsor, project operator, financiers, suppliers, contractors, engineers, third parties (such as an escrow agent5), and customers. The creation of a separate commercial venture called a Special Purpose/Project Vehicle (SPV) is a key feature of most PPPs. The SPV is a legal entity that undertakes a project and negotiates contract agreements with other parties including the government. An SPV is also the preferred mode of PPP project implementation in limited or non-recourse situations, where the lenders rely on the project's cash flow and security over its assets as the only means to repay debts

- Figure 2 shows a simplified PPP structure. The actual structure of a PPP, however, depends on the type of partnership model and can be quite complex involving contractual arrangements between a number of parties including the government, project sponsor, project operator, financiers, suppliers, contractors, engineers, third parties (for example, an escrow agent), and customers
- An SPV is usually set up by the private concessionaire/sponsor(s), who in exchange for shares representing ownership in the SPV contribute the long-term equity capital, and agree to lead the project. The SPV may not always be directly owned by the sponsors. They may use a holding company for this purpose.
- An important characteristic of an SPV as a company is that it cannot undertake any business that is not part of the project. An SPV as a separate legal entity protects the interests of both the lenders and the investors. The formation of an SPV has also many other advantages. A project may be too large and complicated to be undertaken by one single investor considering its investment size, management and operational skills required and risks involved. In such a case, the SPV mechanism allows joining hands with other investors who could invest, bring in technical and management capacity and share risks, as necessary

Figure 2. Typical structure of a PPP project[7]



- The government may also contribute to the long-term equity capital of the SPV in exchange of shares. In such a case, the SPV is established as a joint venture company between the public and private sectors and the government acquires equal rights and equivalent interests to the assets within the SPV as other private sector shareholders.

- Sometimes, governments want to ensure a continued interest (with or without controlling authority) in the management and operations of infrastructure assets such as a port or an airport particularly those which have strategic importance, or in assets that require significant financial contribution from the government. In such a case, a joint venture may be established. A joint venture is an operating company owned by a government entity and a private company (or multiple companies including foreign companies if permitted by law), or a consortium of private companies.
- Often, an SPV is formed as a joint venture between an experienced construction company and a service operations company capable of operating and maintaining the project.
- Other than its strategic, financial and economic interest, the government may also like to directly participate in a PPP project. The main reasons for such direct involvement may include:
    - To hold interest in strategic assets;
    - To address political sensitivity and fulfil social obligations;
    - To ensure commercial viability of the project;
    - To provide greater confidence to lenders; and
    - To have better insight to protect public interest.

Direct government involvement in a PPP project is usually guided by the legal and regulatory regime of the country and the government policy on PPPs. For example, the government may hold certain defined percentage of the stake in a strategic project such as an airport or a port.

4.2.6 PPP Initiatives in india

The Government of India is promoting PPPs as an effective tool for bringing private-sector efficiencies in creation of economic and social infrastructure assets and for delivery of quality public services. India in recent years has emerged as one of the leading PPP markets in the world, because of several policy and institutional initiatives taken by the central government. By end December 2012 there were over 900 PPP projects in the infrastructure sector. These projects are at different stages of implementation, i.e. bidding, construction, and operational.

4.2.6.1 Approval of Central-sector PPP projects

Since its constitution in January 2006, the Public Private Partnership Appraisal Committee (PPPAC) has approved 307 central project proposals. These include NHs (242 proposals), ports (29 proposals), airports (2 proposals), tourism infrastructure (1proposal), railways (1 proposal), housing (27 proposals), and sports stadia (5 proposals).

4.2.6.2 VGF for PPP Projects

Under the Scheme for Financial Support to PPPs in Infrastructure (Viability Gap Funding Scheme), 145 projects have been granted approval. Thirteen new sub-sectors have been included in the list of sectors eligible for VGF support under the Scheme. These include:

- Capital investment in the creation of modern storage capacity including cold chains and post-harvest storage.
- Education, health, and skill development.
- Internal infrastructure in National Investment and Manufacturing Zones.
- Oil/gas/liquefied natural gas (LNG) storage facility [includes City Gas distribution (CGD) network]; oil and gas pipelines (includes CGD network); irrigation (dams, channels, embankments, etc); telecommunication (fixed network) (includes optic fibre/ wire/cable networks which provide broadband /internet); telecommunication towers; terminal markets; common infrastructure in agriculture markets; and soil-testing laboratories.

4.2.6.3 Support for Project Development of PPP Projects

The India Infrastructure Project Development Fund (IIPDF) was launched in December 2007 to facilitate quality project development for PPP projects and ensure transparency in procurement consultants and projects.

4.2.6.4 Capacity Building and Strengthening of State and Central Institutions

The National PPP Capacity Building Programme was launched by the Finance Minister in December 2010, and was rolled out last year in 15 States and two central training institutes, viz. the Indian Maritime University and Lal Bahadur Shastri National Academy of Administration. A comprehensive curriculum has been prepared and 11 training programmes conducted to train 154 trainers, who have trained over 1975 public functionaries, who deal with PPPs in their domain.

Online toolkits for PPP projects for five sectors were developed and were launched by the Finance Minister. These are available on this Department's website on PPPs, i.e. www.pppinindia.com. The PPP toolkit is a web-based resource that has been designed to help improve decision-making for infrastructure PPPs in India and to improve the quality of the infrastructure PPPs that are implemented in India. In the past one year, 720 national and international users have availed of this one-of-a-kind web-based resource to structure better PPP projects.

4.2.6.5 Monitoring of PPP Projects

With an increasing reliance being placed on PPP projects across many wings of the government, it has become necessary to adopt a well-defined institutional structure for overseeing contract performance effectively. The Institutional Framework requires project authorities to create a two-tier mechanism for monitoring the performance of PPP projects:

- A PPP Projects Monitoring Unit (PMU) at the project authority level
- A PPP Performance Review Unit (PRU) at the Ministry or State Government level, as the case may be.

The PMU is to prepare a report to be submitted to PRU within 15 days of the close of the relevant month. The report is to cover compliance of conditions, adherence to time lines, assessment of performance, remedial measures, imposition of penalties, etc. The PRU is to review the reports submitted by the different PMUs and oversee or initiate action for rectifying any defaults or lapses.

4.2.6.6 PPP Rules and PPP Policy:

Following the recommendations of the Committee on Public Procurement, the Prime Minister's announcement regarding transparency and accountability in procurement, and preparation of the Public Procurement Bill, and to ensure that PPP projects are procured and implemented by following laid down processes and observing principles of transparency, competitive bid process, affordability, and value for money, the draft PPP Rules and PPP Policy have been prepared. These have undergone extensive consultation process at central and state government levels for finalization.

Global experience indicates that PPPs work well when they combine the efficiency and risk assessment of the private sector with the public purpose of the government sector. They work poorly when they rely on the efficiency and risk assessment of the government sector and the public purpose of the private sector. India should be careful not to undertake PPPs that do not apportion risks and responsibilities sensibly. Moreover flexibility needs to be built into arrangements so that the contract can be withdrawn and put up for rebid when the private party underperforms. The government needs to study the PPP experience and build some central capacity to help ministries, authorities, and states structure contracts and renegotiate troubled ones.

5 Models of Foreign Investment

5.1 Why the need for foreign investment?

- In most developing countries like ours, domestic capital is inadequate to meet the purpose of economic growth.
- The inflow of foreign capital helps in removing the balance of payment over time.
- By taxing the profits of foreign enterprise, the developing countries mobilize funds for development projects.

- Foreign capital contributes to the generation of employment.
- Foreign investment fills the gaps in management, entrepreneurship, technology and skill.

5.2 Forms of Foreign Investment

- It includes foreign direct investment (FDI) and foreign portfolio investment (FPI)
- Foreign direct investment is the investment in physical assets by foreign individuals, companies or financial institutions.
- Foreign portfolio investment in the investment made in financial assets. It includes investments made by foreign institutional investors.

5.3 Foreign Direct Investment

- Investment in the businesses by foreign citizens usually involving majority stock ownership of the enterprise
- Joint ventures between the foreign and domestic companies

5.3.1 Forms of FDI

There are two types of FDI

- **Greenfield Investment:** It is the direct investment in new facilities or the expansion of existing facilities. It is the principal mode of investing in developing countries.
- **Mergers and Acquisition:** It occurs when a transfer of existing assets from local firms takes place.

5.3.2 Why FDI preferred?

- It is of non-debt creating nature.
- It is also less prone to quick reversals. South-east Asian crisis emanated due to the reversals of short-term capital inflows.

5.3.3 Forbidden Territories

FDI is not permitted in the following industrial sectors:

- Arms and ammunition
- Atomic Energy
- Railway Transport
- Coal and lignite
- Mining of iron, manganese, chrome, gypsum, sulphur, gold, diamonds, copper, zinc
- Retail trading, except single brand product retailing
- Gambling & Betting
- Lottery

5.3.4 Foreign Investment Promotion Board

- It offers a single window clearance for foreign direct investment proposals in India that are not allowed access through the automatic route.
- It comprises Secretaries from Department of Commerce, Department of Industrial Policy & Promotion and Ministry of External Affairs as members, with Secretary in Department of Economic Affairs in the Ministry of Finance as the chairperson.

- To expedite flow of foreign investment into the country, the Union government has allowed the FIPB to clear proposals from overseas entities worth up to Rs. 1,200 crore. Earlier the limit was Rs. 600 crore.

5.3.5 Invest India to promote FDI

Invest India has been constituted to promote FDI. The company with Rs. 10,000 million will have 49 percent share from government and 51 percent from FICCI. The principles of the company are to promote FDI in the country, to provide processing facilities to foreign investors and act as coordinator among various ministries and also to provide feedback to the government on industrial policy.

5.4 Foreign Institutional Investors

- Foreign Institutional Investors (FII s) means an entity established or incorporated outside India which proposes to make investment in India. Positive tidings about the Indian economy combined with a fast-growing market have made India an attractive destination for FIIs.
- FII inflows are called 'hot money' because they can be taken out any time.

5.4.1 Entry Options

A foreign company planning to set up business operations in India has the two following options.

5.4.1.1 Incorporated Entity

- By incorporating a company under the Companies Act,1956 through Joint Ventures; or Wholly Owned Subsidiaries
- Foreign equity in such Indian companies can be up to 100% depending on the requirements of the investor, subject to equity caps in respect of the area of activities under the Foreign Direct Investment policy.

5.4.1.2 Unincorporated Entity

- As a foreign Company through liaison office/representative office, project office and branch office.
- Such offices can undertake activities permitted under the Foreign Exchange Management Regulations, 2000.

5.5 Recent Initiatives to promote Foreign Investment

5.5.1 Expansion of Qualified Foreign Investors (QFIs) Scheme:

- In Budget 2011-12, the government, for the first time, permitted Qualified Foreign Investors (QFIs), who meet the know-your-customer (KYC) norms, to invest directly in Indian MFs.
- In January 2012, the government expanded this scheme to allow QFIs to directly invest in Indian equity markets.
- Taking the scheme forward, as announced in Budget 2012-13, QFIs have also been permitted to invest in corporate debt securities and MF debt schemes subject to a total overall ceiling of US$ 1 billion.
- In May 2012, QFIs were allowed to open individual non interest-bearing rupee bank accounts with authorized dealer banks in India for receiving funds and making payment for transactions in securities they are eligible to invest in.

- In June 2012, the definition of QFI was expanded to include residents of the member countries of the Gulf Cooperation Council (GCC) and European Commission (EC) as the GCC and EC are the members of the Financial Action Task Force (FATF).

5.5.2 Initiatives to attract FII Investment

- As regards FII investment in debt securities, there has been progressive enhancement in the quantitative limits for investments in various debt categories.
- The FII limit for investment in G-Secs (government securities) has been enhanced by US $ 5 billion, raising the cap to US $ 20 billion.
- The scheme for FII investment in long-term infra bonds has been made attractive by gradual reduction in lock-in and residual maturity periods criteria.
- In November 2012, the limits for FII investment in GSecs and corporate bonds (non-infra category) have been further enhanced by 5 billion each, taking the total limit prescribed for FII investment to US$ 25 billion in G-Secs and US$51 billion for corporate bonds (infra+non-infra).
- FII debt allocation process has also been reviewed for bringing greater certainty among foreign investors and helping them periodically re-balance their portfolios in sync with international portfolio management practices.

5.5.3 Liberalization in External Commercial Borrowings Policy during 2012-13

The important steps taken in the arena of external commercial borrowings (ECB) policy liberalization include:

- Enhancing the limit for refinancing rupee loans through ECB from 25 per cent to 40 per cent for Indian companies in the power sector
- Allowing ECB for capital expenditure on the maintenance and operation of toll systems for roads and highways so long as they are a part of the original project subject to certain conditions, and also for low cost housing projects.
- Reducing the withholding tax from 20 per cent to 5 per cent for a period of three years (July 2012- June 2015) on interest payments on ECBs.
- Introducing a new ECB scheme of US $10 billion for companies in the manufacturing and infrastructure sectors.
- Permitting the Small Industries Development Bank (SIDBI) as an eligible borrower for accessing ECB for on-lending to the micro, small, and medium enterprises (MSME) sector subject to certain conditions.
- Permitting the National Housing Bank (NHB)/ Housing Finance Companies to avail themselves of ECBs for financing prospective owners of low cost / affordable housing units.

5.5.4 Impact:

- Improved capital flows in recent months, particularly FII flows
- The resulting increase in capital flows has more than balanced the widening current account deficit in recent months.
- Volatility remains high because of high share of FII flows in total capital flows and the week-to-week variation in such flows
- The share of ECB's has increased substantially for a long time now. However the increase in ECB's in the recent period caused some concern given the depreciation of rupee as it would mean a higher debt service burden in rupee terms that could impact profitability and balance sheets of corporate borrowers.

References:

- International Financial Management by P G Apte
- Modern Economic Theory by K. K Dewett
- Economic Survey: 2012-2013
- FDI in India and its Growth Linkages by National Council of Applied Economic Research
- Contemporary India by Neera Chandoke and Praveen Priyadarshi
- FDI in Developing Countries by C.P Chanfrasekhar and Jayati Ghosh
- A guidebook on public private partnership in infrastructure - http://www.unescap.org/ttdw/common/TPT/PPP/text/ppp_guidebook.pdf
- Infrastructure Financing in India – Progress & Prospects - http://rbi.org.in/scripts/BS_SpeechesView.aspx?Id=655
- Economic Survey 2012-13 – Chapter 11.