THE INDIAN AGRICULTURE SECTOR: INVESTMENTS, GROWTH AND PROSPECTS

January 2013
CONTENTS

FOREWORD ................................................................................................................................................. 3

1. INDIA’S PAST AND CURRENT FOCUS ON THE AGRICULTURE SECTOR ........................................... 4
   1.1 Key developments in the 11th Five Year Plan .................................................................................. 6
   1.2 Major programmes implemented in agriculture and its allied sectors ........................................... 7
   1.3 Performance of critical factors essential for agricultural production ........................................... 9

2. WAY FORWARD: THE 2012-13 UNION BUDGET AND AN APPROACH FOR THE 12TH FIVE YEAR PLAN ...................................................................................................................... 14
   2.1 Approach to 12th Five Year Plan and other government initiatives .............................................. 15

3. CONCLUSION ........................................................................................................................................... 18
FOREWORD

The agriculture sector is a prominent part of the Indian economy. It supports about 50 per cent of India’s workforce, and occupies more than one third of the country’s total geographical area.

The sector continues to be the single largest contributor to the Indian economy even though its contribution to GDP has declined since the country’s independence in 1947. Agriculture is an essential link in the supply chain of the manufacturing sector, and plays an important role in the rural development of the country. Some of the major agricultural crops produced in India are rice, coarse cereals, pulses, oilseeds, sugarcane, cotton, jute and mesta.

Given the importance of the sector, the Government of India has focused on offering schemes and incentives to various stakeholders. These schemes have helped the sector to improve food grain production from 52 million tons in FY52 to 244.78 million tons in FY11.

Over the past five years, the agriculture sector has seen significant increase in production of food grains, oil seeds commercialised crops, fruits, vegetables, poultry and dairy. Overall, agriculture and agri based products have become the largest consumption category in India. In addition, India is one of the major re exporters of cashews and spices as well as one of the major producers of milk in the world.

This report broadly analyses key policy initiatives taken by the Indian Government over the course of the 11th Five Year Plan, while simultaneously assessing the factors that are critical to agricultural production. We then proceed to assess the key policy initiatives from the Union Budget of 2012–13 that are expected to contribute to agricultural development, and then provide a perspective on the expected implementation of policies during the 12th Five Year Plan.
1. INDIA’S PAST AND CURRENT FOCUS ON THE AGRICULTURE SECTOR

The agriculture sector continues to be the major source of employment for more than 50 per cent of India’s population. However, its share in GDP has declined from more than 30 per cent in FY91 to nearly 14.5 per cent in FY11. This is primarily a consequence of India’s progression from an agrarian economy to an industry and service based economy. Further, there has also been low public investment on agriculture (including investment on irrigation), and lower crop diversification practices (area under fruits and vegetables) adopted by farmers. Figure 1 below highlights the size of the market for agricultural products in India in volume terms.

Figure 1
Market volume of agricultural products in India (in million tons)

Source: Datamonitor, Agricultural Products in India, October 2011

Figure 2 explains the correlation between India’s GDP growth and agri GDP.

Figure 2
Correlation between India’s GDP and agri GDP and growth comparisons (FY01–11)

Source: Central Statistics Office, Press Information Bureau, India, 2012

1 Press Information Bureau, India, 2012
In terms of gross capital formation (GCF), investment in agriculture as a percentage of GDP in agriculture and allied services increased considerably over 1999–08. The share of public sector GCF in the total GCF increased from 17 per cent in FY00 to 28 per cent in FY09. GCF as a percentage of agri GDP (a key investment indicator) increased considerably in the 11th Five Year Plan (2007–12). Over 2007–10, GCF increased to 19.7 per cent of agri GDP.

GCF performance is shown in Figure 3 below.

In order to promote private sector participation, the Indian government has allowed 100 per cent foreign direct investment (FDI) in several segments of the agriculture sector. These include fertilisers, agricultural machinery, horticulture, development of seeds, animal husbandry, pisciculture and the cultivation of fruits and vegetables. Drawing these private sector investments is expected to greatly benefit Indian farmers as a majority of them engage in small scale businesses and struggle to attain profitability. These investments can be used to propagate agricultural R&D, develop technologies for energy saving, and protect the environment, which could help increase yield. As a consequence of permitting 100 per cent FDI, the agricultural services sector witnessed foreign investments of US$ 1.5 billion over 2000–2012. Figure 4 highlights the split between public and private sector investments made over the last decade.

---

2 Impact of FDI on Agriculture Economy
3 The Economic Times – Rejuvenating India’s Agriculture Sector
4 Department of Industrial Policy and Promotion
In order to understand the government’s current focus on the agriculture sector, it is essential to analyse the actionable initiatives taken during the course of the 11th Five Year Plan that enhance the pace of development.

1. Key developments in the 11th Five Year Plan

The 11th Five Year Plan (2007–12) emphasised ‘Inclusive growth’ to achieve a target growth of 4 per cent per annum in GDP from agriculture and allied services. Globally, studies indicate that a higher GDP in agriculture is more effective in alleviating poverty in comparison with higher GDP in other sectors.

To achieve ‘Inclusive growth’, the 11th plan aimed at the following:

- Improving accessibility of technology to farmers to increase production and ensure optimum use of natural resources
- Attracting higher public investments and ensuring efficacy of such investments
- Promoting diversification for higher value crops and livestock
- Addressing issues pertaining to food security
- Decentralising decision making to come up with customised solutions to specific local problems and to improve the accessibility of land, credit, skills and scale to the poor

Based on the above strategy, the sector recorded an average annual growth rate of 3.5 per cent over FY08–11 over the growth rate of 2.1 per cent witnessed during the 10th Plan. This was slightly lower than the targeted growth rate of 4 per cent.

---

5 Planning Commission: Mid Term Appraisal of the 11th Five Year Plan

6 A viewpoint on inclusive growth
predicted in the 11th Five Year Plan. A lower growth could be attributed to drought conditions experienced in FY10 and FY11. Nonetheless, the sector witnessed slight improvement in the 11th Five Year Plan compared with the last two five year plans.

1.2. Major programmes implemented in agriculture and its allied sectors

The central government has sponsored a number of schemes intended to increase agricultural production and overall income of farmers. Some of these programmes are as follows:

**National Food Security Mission (NFSM)**

In 2007, the Government of India launched the National Food Security Mission (NFSM) initiative to improve the country’s overall crop production, especially that of rice, wheat and pulses. The primary objective of NFSM is to introduce technological components that include farm machines/implements as well as improved variants of seeds, soil ameliorants, plant nutrients and plant protection measures.

The government aims to increase production of rice, wheat and pulses by 10 million tons, eight million tons and two million tons, respectively, by end 2012. It had allocated Rs 4,883 crore (US$ 915.7 million) to NFSM, of which Rs 3,381 crore (US$ 634 million) was spent until 31 March 2011. Through NFSM, 25 million tonnes of additional food grain was produced in the 11th Five Year Plan.

The following are the major achievements of the initiative:

- Implemented in about 312 districts, spread across 17 states
- Wheat production increased from 71.3 million tons in FY07 (terminal year of 10th plan) to 80.3 million tons in FY10
- Rice production increased from 89.4 million tons in FY07 to 99.2 million tons in FY09; however, it declined to 87.6 million tons in FY10
- Pulse production increased from 13.6 million tons in FY07 to 14.7 million tons in FY10
- Different districts were able to increase the food basket of the country

---

1 Planning Commission: Mid Term Appraisal of the 11th Five Year Plan
2 India Budget – Agriculture and Food, 2012
**Rashtriya Krishi Vikas Yojana (RKVY)**

In FY08, the government introduced Rashtriya Krishi Vikas Yojana (RKVY), with an outlay of Rs 25,000 crore (US$ 4.7 billion), to encourage states to increase public investment in agriculture and allied services. The programme enables adoption of national priorities as sub schemes, thereby providing flexibility in project selection and implementation to state governments. Various sub schemes under RKVY are as follows:

- Green revolution in the Eastern region
- Combining development of 60,000 pulses villages in rain fed areas
- Encouraging the use of palm oil
- Initiative on vegetable clusters
- Nutri cereals
- National Mission for Protein Supplements initiative
- Accelerated Fodder Development Programme
- Rain fed Area Development Programme
- Saffron Mission

As per the RKVY programme, the government has already allocated Rs 14,598 crore (US$ 2.7 billion) over FY08–11. The government intends to spend about Rs 7,811 crore (US$ 1.5 billion) on the programme during FY12.

![Figure 5](image)

**Source:** Planning Commission: Mid Term Appraisal of the 11th Five Year Plan
Macro Management of Agriculture (MMA)

The Macro Management of Agriculture (MMA) scheme was initiated during the 10th Five Year Plan with an investment of Rs 4,154 crore (US$ 777.4 million), and modified in 2008 to help states improve agricultural production. The original scheme achieved the treatment of vast amounts of degraded land, and the large scale distribution of farm equipment. The revised scheme launched recently reduces the overlaps between the NFSM and RKVY, and rationalises cost and subsidy norms. As per the modified scheme, assistance to state governments will be based on allocation criteria of 90:10, wherein 90 per cent of the total assistance will be a grant and 10 per cent will be loans to states/union territories. However, in case of North Eastern states, the central government’s entire share (100 per cent) is in the form of a grant.

In the 11th Five Year Plan, the government allocated a total of Rs 5,500 crore (US$ 1 billion) for MMA, of which Rs 3,845 crore (US$ 721 million) was given to different states and union territories over the first four years of the plan.

Integrated Scheme of Oilseeds, Pulses, Oil Palm, and Maize (ISOPOM)

Integrated Scheme of Oilseeds, Pulses, Oil Palm, and Maize (ISOPOM) programme is primarily targeted at small and marginal farmers who raise oilseeds under rain fed conditions in the arid and semi arid areas of the country. In the 11th plan period, the programme has been implemented across 14 states for oilseeds and pulses, 15 states for maize and nine states for palm oil.

National Mission for Sustainable Agriculture (NMSA)

NMSA programme was founded after the approval of The Prime Minister’s Council on Climate Change in September 2010. The primary objective of the programme is to ensure food security as well as protect various resources such as land and water and biodiversity and genetic resources. The programme is also aimed at enabling the Indian agriculture to face challenges and threats such as climate change.

1.3. Performance of critical factors essential for agricultural production

The following sections assess the performance of some critical factors essential for the agriculture sector:

Technology

India’s current R&D spending on agriculture is only 0.6 per cent of the total agri GDP, which is less than the average R&D spending (1 per cent of agri GDP)

9 Guidelines for Revised MMA Scheme
10 Planning Commission: Mid Term Appraisal of the 11th Five Year Plan
among developing countries. The main reasons for low investment in technology is lack of investible resources, lower priorities across crops, regions and lack of incentives and autonomy in major public research institutions.

The following factors are responsible for low penetration of technology in agriculture:

- **Public sector dominance:** Technologies developed by the public sector for the agriculture often fail to cater to the needs and perceptions of the average rural farmer.

- **Private sector:** On the contrary, the private sector varieties and seeds such as Bt Cotton, hybrids of maize, rice and sunflower have gained the acceptance of farmers.

- **Extension systems:** In the public sector, commercialisation of technology depends on extension systems, which is the weakest link in the chain. Moreover, extension systems do not have adequate workforce that could cater to a vast range of farmer needs. As a result, input dealers operate as extension workers and advice farmers on the use of technology. However, they do not have requisite skill sets that may help them in addressing technological issues.

**Seeds**

The Indian agriculture sector faces the challenges of timely availability of seeds and lower seed replacement rate (SRR). Moreover, insufficient supply of seeds, due to shortages in production by certified agencies, continues to be a problem.

While the sector has witnessed considerable progress in the production of certified and breeder seeds, the supply of breeder seeds is consistently higher than the varieties released by the central and state governments. This indicates that breeder seeds are not utilised as per their potential in the production of certified seeds.
Table 1 provides a detailed overview of the agriculture sector’s performance in the production of breeder seed and foundation seeds.

<table>
<thead>
<tr>
<th>Year</th>
<th>Breeder seed production</th>
<th>Foundation seed production</th>
<th>Distribution of certified/ quality seeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY05</td>
<td>0.665</td>
<td>6.90</td>
<td>113.10</td>
</tr>
<tr>
<td>FY06</td>
<td>0.687</td>
<td>7.40</td>
<td>126.74</td>
</tr>
<tr>
<td>FY07</td>
<td>0.738</td>
<td>7.96</td>
<td>155.01</td>
</tr>
<tr>
<td>FY08</td>
<td>0.920</td>
<td>8.22</td>
<td>179.05</td>
</tr>
<tr>
<td>FY09</td>
<td>1.000</td>
<td>9.69</td>
<td>190.00</td>
</tr>
<tr>
<td>FY10</td>
<td>1.05</td>
<td>10.5</td>
<td>257.11</td>
</tr>
<tr>
<td>FY11</td>
<td>1.19</td>
<td>17.53</td>
<td>277.30</td>
</tr>
</tbody>
</table>


Irrigation

The area under irrigation grew by more than four million hectares from 2004–05 until 2006–07. This increased the irrigated ‘Net Sown Area’ from 40 per cent in 2003–04 to 43 per cent in 2006–07. However, the increase in the area under irrigation is considerably smaller in comparison to the increase in private and public investments in agriculture. Moreover, about 80 per cent of the public investments are directed towards improving the irrigation set up in the country.

According to ‘The Technical Committee on Watershed Programmes’ report, irrigated agriculture has already reached a peak in India, but agriculture in areas dependent on rainfall (rain fed agriculture) has suffered. The report highlights the importance of improving productivity in rain fed agriculture in order to meet food security demands in 2020. In view of these issues, the committee laid out some key reforms and guidelines to execute a watershed programme.

As per the common guidelines, new watershed projects were supposed to be implemented from 1 April 2008. For the same purpose, the Desert Development Program (DDP), Drought Prone Areas Program (DPAP), and the Integrated Watershed Development Program (IWDP) were combined to form Integrated Watershed Management Program (IWMP). A standard cost of Rs 12,000 (US$ 225) per hectare was allocated under IWMP, while in case of hilly and difficult terrains a standard cost of Rs 15,000 (US$ 281.3) per hectare was allocated.

Fertilisers

Chemical fertilisers have played an important role in making India self reliant in terms of production of food grains. However, the imbalanced use of nutrients and micronutrients has destabilised the optimum combination of fertiliser.
consumption and food grain production. Consumption of fertilisers increased from 151 kg/hectare in FY10 to 166 kg/hectare in FY12.

![Figure 6: Production and consumption of fertiliser](image)

Further, fertiliser subsidy has increased considerably, primarily due to the growing fertiliser consumption and increasing per unit subsidy element. Fertiliser subsidy, defined as a ratio to the value of crop output, increased from 3.5 per cent in 2000–06 to 4.8 per cent in 2007–08, and to more than 10 per cent in 2008-09. This increase is attributable to the rise in the price of imported fertilisers.

In 2010–11, the Government of India launched a nutrient based subsidy system, according to which fertiliser subsidy, except for urea, will be based on the composition of nutrients. Retail prices of fertilisers will be fixed by manufacturers/importers.
Agricultural Credit

Credit is essential to ensure inclusive growth in agriculture. Therefore, offering credit to farmers has become a priority for the government.

The government has focused on improving the flow of credit through a system of Kisan Credit Cards (KCC), introduced in 1998–99. The banking system issued more than 87.8 crore KCCs, resulting in the sanctioning of Rs 381,070 crore (US$ 71.5 billion) until November 2009.

Under the 11th plan, consistent progress was witnessed in the formation of Self Help Groups (SHGs). According to the SHG bank linkage programme, 6,121,147 SHGs, with saving bank accounts, had savings of Rs 5,546 crore (US$ 1 billion) on 31 March 2009, whereas, 5,009,794 SHGs accounted for savings of Rs 3,785 crore (US$ 709.7 million) on 31 March 2008.

Figure 7
Target and achievement of agricultural credit

Source: *State of Indian Agriculture, 2011–12*
2. WAY FORWARD: THE 2012–13 UNION BUDGET AND AN APPROACH FOR THE 12TH FIVE YEAR PLAN

The Union Budget 2012–13 has extensively focused on improving agricultural credit through various initiatives such as interest subvention scheme, setting up of short term Regional Rural Bank (RRB) Credit Refinance Fund and extending the capitalisation of weak RRBs. Such measures can certainly increase the probability of improving agricultural output; however, they will need synergistic support from related services. For example, reforms in Agriculture Produce Marketing Committee (APMC) Act are essential for ensuring high quality and quantity of farm output, along with improved remuneration.\textsuperscript{11}

The following are the key highlights of the Union Budget, 2012-13:\textsuperscript{12}

- **Agricultural credit**: Target increased by Rs 100,000 crore (US$ 18.7 billion), to Rs 575,000 crore (US$ 107.8 billion)
- **Interest subvention scheme**: The scheme will continue to offer short term loans to farmers at 7 per cent interest per annum
- **Establishment of short term RRB refinance fund**: It helps improve the capacity of RRBs in giving out short term loans to small farmers and agricultural labourers.
- **Kisan Credit Card (KCC)**: The KCC scheme is modified to launch KCC smart cards, which can be used at ATMs.
- **Extension of capitalisation of weak RRBs**: The budget granted additional two years to all states to be able to contribute their share.
- **Bringing Green Revolution to Eastern India (BGREI)**: Budget allocation increased from Rs 400 crore (US$ 75 million) in FY12 to Rs 1,000 crore (US$ 187.5 million) in FY13.
- **Investment linked deduction**: The budget increased investment linked deduction for capital expenditure in cold chains and warehouses from the current rate of 100 per cent to 150 per cent.

The overall impact of the budget on agriculture is expected to be positive, as the budget is focused on tackling agriculture issues pertaining to extension services, distress selling, higher input costs and agriculture credit. The budget also aims to improve the level of private investments in cold chains as well as irrigation and extension services.\textsuperscript{13}

\textsuperscript{11} Union Budget – Impact Analysis, D&B, 2012-13
\textsuperscript{12} Union Budget – Impact Analysis, D&B, 2012-13
\textsuperscript{13} Union Budget, FICCI, 2012-13
2.1 Approach to the 12th Five Year Plan and other government initiatives

The 11th plan initiated the process of reversing deceleration in agricultural growth, which started in the 9th plan and continued until the 10th plan. Various government schemes and programmes under the 11th plan had a positive effect on the sector and helped it to register an annual average growth of about 3.3 per cent in comparison to a lower average growth of 2.2 per cent in the 10th plan.

However, various challenges, such as inefficient extension lines, poor availability of credit, lack of technological acceptance, imbalanced use of fertilisers, and inadequate support in rain fed areas continue to persist in the sector.

In the 12th plan, the Indian government intends to continue with the introduction of new programmes, and the modification and implementation of existing plans and programmes. The following areas are expected to be the key focus areas in the agriculture sector:

**Demand for food items**

As India’s population continues to grow, the country will need to produce more efficiently to meet the rising food demand. Although the food consumption basket has gradually become more diversified, cereals continue to dominate the food consumption pattern. In addition, the components of food baskets may change as consumers have started preferring other food items such as fruit, vegetables, milk, eggs, meat and fish. The demand for cereals will continue to rise due to its widespread use in animal feed.

In the 12th plan, the government intends to identify and address issues, which will eventually help in improving the overall farm output. In addition, long term food security will be possible if the government strives to increase the production of cereals at a rate faster than the population growth rate.

**Water management**

Improvements in farm output can be achieved through an effective and improved water management system. The following are the major steps that the government intends to introduce in the 12th plan:

- Improvement in the governance of water management by leveraging the expertise of water user associations, such as Pani Panchayats
- Comprehensive rainwater harvesting with the help of space based maps
- Extensive aquifer mapping and recharge of ground water
- Increased focus on sprinkler and drip irrigation techniques
• Increasing the land area under irrigation

Other major focus areas include micro irrigation schemes to improve water accessibility and institutional changes through unification of various agencies involved in watershed management and rain fed area agriculture.

**Soil nutrient management**

The Indian agriculture sector is characterised by the uneven use of chemical fertilisers across different states. In addition, overuse of fertilisers has degraded soil quality.

In the 12th plan, the government intends to focus on soil renewal and soil health restoration through the inclusion of solid organic matter and micronutrients in bulk quantities. Although balanced nutrient management is covered under different schemes, the government will focus on greater clarity, along with improved assessment of soil health and nutrient needs.

**Technology**

As per studies, nearly one third of the future growth in agriculture is expected to be achieved through innovations in crop technologies. So far, technology development in the public sector has not been able to cater to farmers’ needs, perceptions and local crop conditions. This has created significant gaps between the varieties offered by public sector institutions and varieties actually used by the farmers. The private sector offers varieties that have the probability of achieving higher sales in the market. This may result in reduced focus on research for other crops, which do not exhibit high sales potential. Climate change is another critical factor that can be countered with the help of technology.

In the 12th Five Year Plan, the government intends to increase the share of expenditure on agricultural R&D and education in the total agri GDP. The government will focus on strengthening the Agricultural Technology Management Agencies (ATMA) concept through improved integration with Krishi Vikas Kendras (KVKs).

**Rain fed agriculture**

Rain fed agriculture is a major obstacle to the overall agricultural output, as 200 million hectares of India’s land, which is 62 per cent of the total geographical area, is considered a part of rained areas. The government has planned to focus on water management to address the issues of rain fed agriculture. In addition, the National Rain fed Areas Authority – an expert advisory body set up to interact with the Ministries of Agriculture, Rural Development, Water Resources, Environment
and Forests, Panchayati Raj systems is now attached with the Planning Commission of India.

**Seed systems**

The government intends to focus on a programme that will help establish seed banks in villages to ensure the availability of different varieties of seed material. Community level seed banks with buffer stock for a range of crops will also be set up. Initially, seed banks will be integrated with the common infrastructure for rain fed farms. They will gradually start operating in an autonomous manner.
3. CONCLUSION

The key performance indicator for the agriculture and allied services sector, GCF as a percentage of the agricultural GDP, has grown substantially over the past years from 7 per cent in the 1st Five Year Plan to 19.7 per cent in the first three years of the 11th Plan. This has been possible due to various schemes and programmes offered by the Indian government. The green revolution has made India self reliant in meeting its food demand. However, the growth rate of the agricultural sector decelerated in the 9th and 10th plans due to non agricultural sectors receiving a larger share of investments.

However, the sector recorded higher growth rate in the 11th plan, primarily due to increased government focus.

The relatively robust performance of the sector is primarily due to the steps taken by the government to improve agricultural output. The following factors are expected to drive growth in the future:

- **Efficient extension systems:** Smooth functioning of extension systems by ramping up of skilled workforce to fill in vacant positions will enable dissemination of technologically advanced crops among farmers. As a result, productivity and overall farm output will increase.

- **Rain fed areas:** Lower agricultural output can be attributed to lower output in rain fed areas, which are still predominantly dependent on monsoons for a good harvest. Therefore, focus on water management systems, especially watershed development, will have a positive impact on a farm’s output in rain fed areas.

- **Technologically advanced crops:** Penetration of technologically superior variants of crops will help farmers to improve the quality, productivity, and the overall farm output.

- **Management of soil nutrients:** Rebalancing soil usage through optimum application of fertilisers in overused and underused regions will help in improving the soil quality and overall agricultural output of the country.

- **Agricultural credit:** Extension of credit to farmers will help in providing necessary financial support to small farmers and agricultural labourers, which in turn will result in improved farm output.

The government already has various programmes and schemes that cater to the needs of the agriculture sector. After launching the 12th Five Year Plan, the impact of government policies and initiatives will become more visible.

---

14 State of Indian Agriculture report
DISCLAIMER

India Brand Equity Foundation (IBEF) engaged Evaluserve to prepare this report and the same has been prepared by Evaluserve in consultation with IBEF.

All rights reserved. All copyright in this report and related works is solely and exclusively owned by IBEF. The same may not be reproduced, wholly or in part in any material form (including photocopying or storing it in any medium by electronic means and whether or not transiently or incidentally to some other use of this presentation), modified or in any manner communicated to any third party except with the written approval of IBEF.

This report is for information purposes only. While due care has been taken during the compilation of this report to ensure that the information is accurate to the best of Evaluserve and IBEF’s knowledge and belief, the content is not to be construed in any manner whatsoever as a substitute for professional advice.

Evaluserve and IBEF neither recommend nor endorse any specific products or services that may have been mentioned in this report and nor do they assume any liability or responsibility for the outcome of decisions taken as a result of any reliance placed on this presentation.

Neither Evaluserve nor IBEF shall be liable for any direct or indirect damages that may arise due to any act or omission on the part of the user due to any reliance placed or guidance taken from any portion of this report.