

Human Resource and Skill Requirements in the Agriculture & Allied Activities

Executive Summary



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National
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Overview and trends

Agriculture is a critical sector of the Indian economy, with India holding the second largest agricultural land in the world. Its economic contribution to India's GDP has fallen with the country's broad-based growth, but still remains a key sector for many reasons. In terms of demographics, agriculture is the broadest sector and plays an important role in the overall socio-economic make up of India.

India is the among the world's largest producer of spices, pulses and milk. It also has the largest cattle herd as well as the largest area under wheat, rice and cotton. It is the second largest producer of rice, wheat, cotton, sugarcane, farmed fish, sheep & goat meat, fruit, vegetables and tea and is a large producer of dry fruits and agriculture-based raw materials (for textiles in particular). India ranked within the world's five largest producers of crops, livestock and poultry meat, with one of the fastest growth rates.

Demand drivers

A key demand-growth factor of the country's agriculture sector is the large and rapidly rising population, which ensures a high demand for agricultural products. According to IBEF (August 2013), India's consumption expenditure is likely to reach USD3.6 trillion by 2020

Supply drivers

India's agricultural production quantity has increased substantially over the years due to increased irrigation potential. Another important supply-side driver of growth is the increased mechanization of farming. Usage of hybrid seeds itself has increased agricultural production

Policy drivers

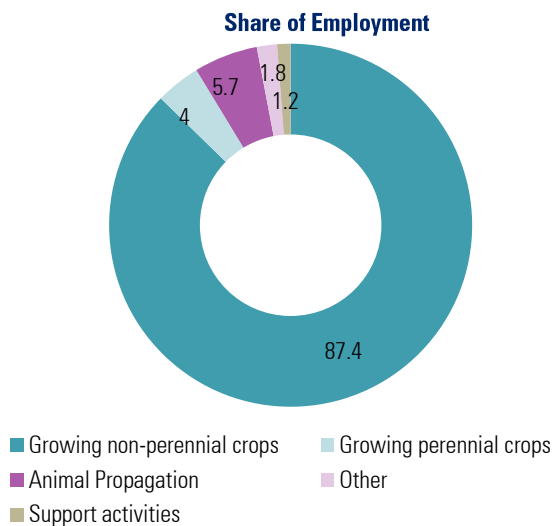
A conducive policy environment is a key driver for growth in the agriculture sector. Institutional credit to the sector has been on a rise, having increased at a CAGR of 17.4% during FY07 – 12. As a result, farmers are able to avail crop loans at an interest of 7%.

Several favorable policy initiatives have been designed to further growth of the Sector including

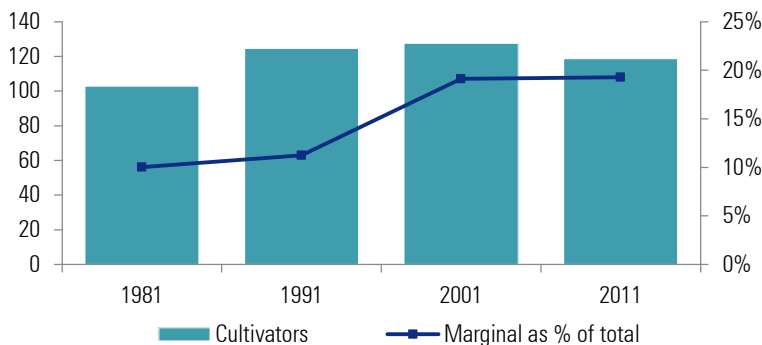
- **Minimum Support Prices (MSP) for FY13:** As per the recommendations by Commission for Agricultural Costs and Prices, the Government has set MSPs
- **100% FDI legislation:** this was made effective in 2011 and is applicable to the development and production of seeds and planting material, floriculture, horticulture, cultivation of vegetables and mushrooms and animal husbandry under controlled conditions
- **Bringing Green Revolution in Eastern India (BGREI):** A scheme that was launched in 2011 under the RKVY to enhance agricultural productivity in the Eastern states by promoting technological interventions and collaborations among farmers, and institutions.
- **Rashtriya Krishi Vikas Yojana (RKVY):** A state-plan scheme launched in 2007 as part of the 11th Five Year Plan by the Government, which aims to achieve 4% annual growth in agriculture by providing states and territories the autonomy to construct plans for increased public investment in agriculture based on local indicators and conditions.
- **Agri Export Zone (AEZ):** the Government introduced a policy in 2001 with the main objective of boosting agricultural exports from India. A total of 60 AEZs comprising about 40 agricultural commodities has been sanctioned by the central government. AEZs are spread across 20 states in the country.

Demographic characteristics of workforce

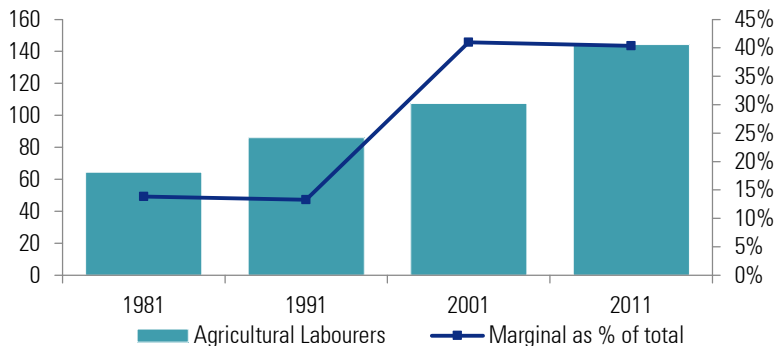
Sub segments in Agriculture Sector, with share of employment)



Trends in workforce engaged as Cultivators (Millions)



Trends in workforce engaged as Agricultural Labourers (Millions)



State wise number of workforce (per 10,000 workforce) engaged in Agriculture and Allied Activities – 2012

Andhra Pradesh	6398
Arunachal Pradesh	7111
Assam	5860
Bihar	6665
Chhattisgarh	8142
Gujarat	6992
Haryana	5050
HP	3980
J&K	3590
Jharkhand	5215
Karnataka	6592
Kerala	2818
MP	6901
Maharashtra	6947
Manipur	5594
Meghalaya	6080
Mizoram	7649
Nagaland	6872
Odisha	5926
Punjab	4354
Rajasthan	4991
Sikkim	6234
TN	5160
Tripura	3515
Uttarakhand	4196
UP	5722
West Bengal	5685
All India	5936

- The past decade has witnessed decrease in number of workforce involved in agriculture
- For the first time, the total number of cultivators has fallen behind the number of agricultural labourers
- This also ties in with the pattern of reducing size of land holdings. With a number of land holdings too small for viable cultivation, a number of the workforce are agricultural labourers

Incremental Human Resource Requirement (2013-22)

The requirement of manpower for the Agriculture sector in 2022 is estimated to be ~ 2155 lakhs...

Overview of Manpower Demand Projections

- The manpower demand estimation has been developed in consideration of
 - The sub sector growth rates in line with output demand drivers
 - Labour elasticity for each sub segment has been estimated based on historical trend and inputs from stakeholders
 - Sector level projections from the 12th Five year plan have been cross referenced with the projections at a sub sector level to validate the estimation
 - Appropriate split between skilled and unskilled, and between specific education levels within the former
 - The projections have been tested with scenarios on the overall economic growth/ sector value add to build flexibility
- The total requirement of manpower for the Agriculture sector (Division 1) in 2022 is estimated to be ~ 2156 lakh. Of this, ~ 1733 lakhs are expected to be skilled **(from a competency perspective as defined under NCO)**
- Significant demands on skill are expected in two categories
 - Higher education (graduate and above) for specialist roles
 - Diploma and short term vocational training for on ground support roles focusing on the direct farmer interface

Projected Employment for Sector and key segments - Lakhs

Group	FY13	FY17	FY22
Agriculture Net	2404	2290	2156
Growing of non perennial crops	2103	1991	1860
Growing of perennial crops	97.6	94.4	90.4
Animal production	139	139	139
Support activities to agriculture and post harvest crop activities	64.4	65.6	66.6

- The projections show contraction in the labour demand for cereals and pulses (staples). This is in line with the observed exodus from staple crops to other economic sectors
- Animal production, horticulture and support activities are expected to witness relatively higher growth. However, given significant scope for efficiency and yield, there is expected to be little employment additions on this count

Source: NSSO 12th Plan Commission report, IAMR Agriculture Sector Employment Assessment, market research, team analysis

Agricultural Extension Programs (AEP) – Government Scheme

The Agriculture Extension Service is an institution that aims to close the knowledge gap existing between agriculturalists and agriculture research scientists. By spreading information to farmers about new technologies and methods, the farmer is able to utilize the latest agricultural developments. AES does this by enhancing farmers' knowledge about crop techniques, increasing productivity and transferring latest technical know-how through training courses, on farm trials, kisan clubs and advisory bulletins.

Private Schemes:

GCS Group Venture - GCS Computer Tech Pvt Ltd

An ISO certified Group with over 11 years experience in conducting government sponsored courses. GCS has imparted quality education and training in Agriculture, amongst other areas. It is affiliated with Agriculture Sector Skill Council of India (ASCI)

Basix Academy for Building Lifelong Employability (B-ABLE)

Was set up in 2009 to be a sustainable, nation-wide model for building high quality workforce, and connecting workers with employment – both in the unorganized and the organized sectors. B-ABLE works with youth primarily from the disadvantaged sections of society. The ASCI is an associated sector skill council

Select Agricultural Universities in India

S.No	State	University
1	Andhra Pradesh	Acharya N G Ranga Agricultural University
2	Assam	Assam Agriculture University
3	Bihar	Bihar Agricultural University, Rajendra Agricultural University,
4	Gujarat	Anand Agricultural University, Junagadh Agricultural University, Navasari Agricultural University, Sardar Krushinagar Dantiwada Agricultural University
5	Haryana	Ch Charan Singh Haryana Agricultural University
6	Himachal Pradesh	Ch Sarwan Kumar Krishi Vishwa Vidyalaya
7	Karnataka	University of Agricultural Sciences – Bengaluru, Dharwad, Raichur
8	Punjab	Punjab Agricultural University
9	Madhya Pradesh	Jawaharlala Nehru Krishi Vishwa Vidyalaya, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya
10	Maharashtra	Dr. Balasahed Sawant Konkan Krishi Vidyapeeth, Marathwada Agricultural University, Mahatma Phule Krishi Vidyapeeth,
11	Rajasthan	Rajasthan Agricultural University, Maharana Pratap Agriculture & Technology Univ
12	Uttar Pradesh	Chandra Shekar Azad University of Agriculture and Technology, Narendra Dev University of Agriculture and Technology, Allahabad Agriculture University
13	West Bengal	Bidhan Chandra Krishi Vishwa Vidyalaya, Uttar Banga Krishi Vishwavidyalaya

Recommendation	Implications
<p>Educate cultivators on best practices for skills such as spoilage reduction, usage of machinery/mechanization for farming, trade and commercial aspects and emerging use of hybrid crops</p>	<ul style="list-style-type: none"> ▪ Building capacities of cultivators on aspects of mechanisation-oriented roles at a field level in subjects such as repair and maintenance, etc. ▪ Greater market integration of farmers on both inputs (procurement of crop inputs like seeds, fertilizers, pesticides etc.) and outputs (joint marketing, crop planning and scheduling etc.) ▪ Underscore the economic benefits of improved farming practices
<p>Encourage on-the-job training and apprenticeships in relevant value chain segments</p>	<ul style="list-style-type: none"> ▪ Upgrade agriculture universities' curriculum ▪ Encourage greater industry-interaction with universities and training programmes
<p>Focus on downstream market activities skilling which can enable greater consumption</p>	<ul style="list-style-type: none"> ▪ Focus more on skilling for downstream market activities which can enable more consumption. E.g.: Potential areas of skill building are in the roles of technicians and salesmen. They are a crucial role since they act as ambassadors for the company by providing right advice to the farmers (buyers) for the right model of tractors. (from John Deere)
<p>Design industry-relevant training modules especially in supply chain logistics and precision farming are some of the emerging areas</p>	<ul style="list-style-type: none"> ▪ Upgrade agriculture universities' curriculum ▪ Encourage greater industry-interaction with universities and training programmes ▪ Vocational training institutes can be setup for field level tasks like drying, cleaning and packaging. Entrepreneurs can setup leasing service for automated machines (for cleaning / drying of produce). Operators will be needed to operate this hi tech machinery (from NCDEX)
<p>Establish standards for certifying specialists</p>	<ul style="list-style-type: none"> ▪ Specialist roles (e.g. machinery operator) could witness standards in the future ▪ ISAP certified Agronomist can be a point of reference
<p>Encourage employment of women in the industry</p>	<ul style="list-style-type: none"> ▪ The success of self-employment-based cooperative organisation — Shri Mahila Griha Udyog can be replicated in other sectors of agriculture and in other parts of the country ▪ The government can develop employment guarantee schemes specifically for women in this sector



cutting through complexity

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