Human Resource and Skill Requirements in the Agriculture & Allied Activities

Executive Summary
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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.

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.
The past decade has witnessed a decrease in the 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

<table>
<thead>
<tr>
<th>Group</th>
<th>FY13</th>
<th>FY17</th>
<th>FY22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture Net</td>
<td>2404</td>
<td>2290</td>
<td>2156</td>
</tr>
<tr>
<td>Growing of non perennial crops</td>
<td>2103</td>
<td>1991</td>
<td>1860</td>
</tr>
<tr>
<td>Growing of perennial crops</td>
<td>97.6</td>
<td>94.4</td>
<td>90.4</td>
</tr>
<tr>
<td>Animal production</td>
<td>139</td>
<td>139</td>
<td>139</td>
</tr>
<tr>
<td>Support activities to agriculture and post harvest crop activities</td>
<td>64.4</td>
<td>65.6</td>
<td>66.6</td>
</tr>
</tbody>
</table>

- 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
Supply and Training Infrastructure
Current manpower-supply infrastructure of Agriculture sector

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

<table>
<thead>
<tr>
<th>S.No</th>
<th>State</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Andhra Pradesh</td>
<td>Acharya N G Ranga Agricultural University</td>
</tr>
<tr>
<td>2</td>
<td>Assam</td>
<td>Assam Agriculture University</td>
</tr>
<tr>
<td>3</td>
<td>Bihar</td>
<td>Bihar Agricultural University, Rajendra Agricultural University,</td>
</tr>
<tr>
<td>4</td>
<td>Gujarat</td>
<td>Anand Agricultural University, Junagadh Agricultural University, Navasari Agricultural University, Sardar Krushinagar Dantiwada Agricultural University</td>
</tr>
<tr>
<td>5</td>
<td>Haryana</td>
<td>Ch Charan Singh Haryana Agricultural University</td>
</tr>
<tr>
<td>6</td>
<td>Himachal Pradesh</td>
<td>Ch Sarwan Kumar Krishi Vishwa Vidyalaya</td>
</tr>
<tr>
<td>7</td>
<td>Karnataka</td>
<td>University of Agricultural Sciences – Bengaluru, Dharwad, Raichur</td>
</tr>
<tr>
<td>8</td>
<td>Punjab</td>
<td>Punjab Agricultural University</td>
</tr>
<tr>
<td>9</td>
<td>Madhya Pradesh</td>
<td>Jawaharlala Nehru Krishi Vishwa Vidyalaya, Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya</td>
</tr>
<tr>
<td>10</td>
<td>Maharashtra</td>
<td>Dr. Balasahed Sawant Konkan Krishi Vidyapeeth, Marathwada Agricultural University, Mahatma Phule Krishi Vidyapeeth,</td>
</tr>
<tr>
<td>11</td>
<td>Rajasthan</td>
<td>Rajasthan Agricultural University, Maharana Pratap Agriculture &amp; Technology Univ</td>
</tr>
<tr>
<td>12</td>
<td>Uttar Pradesh</td>
<td>Chandra Shekar Azad University of Agriculture and Technology, Narendra Dev University of Agriculture and Technology, Allahabad Agriculture University</td>
</tr>
<tr>
<td>13</td>
<td>West Bengal</td>
<td>Bidhan Chandra Krishi Vishva Vidyalaya, Uttar Banga Krishi Vishwavidyalaya</td>
</tr>
<tr>
<td>Recommendation</td>
<td>Implications</td>
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</tbody>
</table>
| 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 | - 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 |
| Encourage on-the-job training and apprenticeships in relevant value chain segments | - Upgrade agriculture universities’ curriculum  
- Encourage greater industry-interaction with universities and training programmes |
| Focus on downstream market activities skillling which can enable greater consumption | - Focus more on skillling 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) |
| Design industry-relevant training modules especially in supply chain logistics and precision farming are some of the emerging areas | - 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) |
| Establish standards for certifying specialists | - Specialist roles (e.g. machinery operator) could witness standards in the future  
- ISAP certified Agronomist can be a point of reference |
| Encourage employment of women in the industry | - 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 |
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