

Human Resource Management And Agriculture Economic Growth In India

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Abstract

HRM in Indian agriculture is transitioning from a traditional administrative role to a strategic function aimed at up-skilling the rural workforce for a high-value, tech-enabled agricultural economy. While overall production remains high, HRM is key to addressing productivity gaps in the labour-intensive sector. As India enters several themes will shape the next phase of growth and demand the same level of pragmatism. They are expected to receive significant attention and investment, driving growth and development. Every common man is looking forward to relief in tax slabs, affordable housing, healthcare, employment and education. The Budget might be on defense, infrastructural development such as railway, MSMEs, rural development and green economy. The full fiscal year growth to be revised substantially upward, as third-quarter numbers is likely to remain strong due to festive spending. Growth is expected to stand between 7.5% and 7.8% in fiscal 2025 to 2026, and then between 6.6% and 6.9% in fiscal 2026 to 2027, buoyed by the rollout of new goods and services tax (GST) rules and slowing inflation. Intricately connected to global value chains, India, the world's fourth-largest economy and a major global trading partner, faced external shocks and acute effects from these global policy changes, including tariff escalations and volatile capital flows. Yet, despite headwinds, demand resilience, a reset in trade and investment outlook, and policy reforms stood out. India focused squarely on its biggest strength, domestic demand, to keep growth buoyant as inflation levels stayed low at 1.8% on average through the fiscal year. With slowing global demand, rising trade frictions, and a delicate domestic consumption environment, India deployed a carefully sequenced set of fiscal, monetary, and trade reforms that not only cushioned the economy but also laid the foundation for future growth.

Key Words: *Economics growth, Employment, Education, Infrastructure development etc.*

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I. Introduction

Human resources constitute the most critical inputs relying on the use of science and technology for development. Agriculture being the backbone of Indian economy, the human resource needs to meet various activities related to agricultural development which is critical to attain country's goals towards rural development, employment generation and host of related activities leading to sustainable growth and development. The growth achieved in Indian agricultural sector has been attributed to the consorted efforts of available skilled human resource. But over the years the scenario has changed. The growth in agriculture sector slowed down and the job opportunities declined leading to increased unemployment. Compounding to this problem, the job requirement of other economic sectors of development has also undergone major transformation encouraging stiff competition from graduates of other disciplines. The present Indian economy plays a vital role and for sustainable growth can look forward with optimism. The government of India is prioritising areas such as job creation, agricultural development, inclusive manufacturing, digital transformation, rural-urban integration and the green economy. The government may announce measures to address these concerns and provide relief to the common man. By focusing on these priority sectors, India can achieve sustainable growth nationwide. As of early the intersection of Human Resource Management (HRM) and agricultural growth in India is critical for managing a sector that employs approximately 45-46% of the workforce, despite contributing only about 16%–18% to the national GDP. Agriculture is the primary source of livelihood for about 58 per cent of India's population. Gross Value Added by agriculture, forestry and fishing is estimated at Rs 17.67 trillion (US\$ 274.23 billion) in FY18. The Indian food industry is poised for huge growth, increasing its contribution to world food trade every year due to its immense potential for value addition, particularly within the food processing industry. The policy overhauls across Western economies particularly in

trade, investment and industrial policy triggered spill over effects across all major global markets. India was not immune to these shifts. The Indian food and grocery market is the world's sixth largest, with retail contributing 70 per cent of the sales. The Indian food processing industry accounts for 32 per cent of the country's total food market, one of the largest industries in India and is ranked fifth in terms of production, consumption, export and expected growth. It contributes around 8.80 and 8.39 per cent of Gross Value Added (GVA) in Manufacturing and Agriculture respectively, 13 per cent of India's exports and six per cent of total industrial investment.

II. HRM And Agricultural Productivity

Skill Gaps and Workforce Management: HRM practices are becoming essential to address low skill levels, seasonal unemployment, and the lack of motivation among agricultural workers. Improving productivity in 2026 relies on systematically managing human capital through training, welfare, and performance management.

Technology Adoption: HRM functions such as training, development, and labor allocation are increasingly tied to the adoption of labor-saving technologies, which are necessary to improve efficiency in agricultural operations.

Capacity Building: Institutions like the Indian Council of Agricultural Research (ICAR) are focusing on the modernization of their personnel, with Assistant Director General-level personnel (e.g., SK Sharma) coordinating with initiatives like Mission Karmayogi to upskill staff and improve organizational productivity.

III. Agricultural Growth Trends (2025–2026)

Production and Value: India achieved record foodgrain production of 357.73 MMT and horticulture output of 362.08 MT in 2024-25, indicating a strong shift towards high-value crops.

Growth Slowdown: While the average annual growth rate over the last five years was 4.4%, the second quarter of the 2025-26 financial year saw a dip in growth to 3.5%, according to the Economic Survey released in January 2026.

Diversification Drivers: Growth is being driven by strong performances in livestock (7.1%) and fishing/aquaculture (8.8%).

Budgetary Support: The government has increased budget allocation for agriculture to ₹1.30 lakh crore for 2026-27, demonstrating a sustained focus on growth and rural development.

IV. Market Size

During 2017-18 crop year, food grain production is estimated at 279.51 million tonnes, as per third advance estimates while rice and wheat production in the country is estimated at 111.52 MT and 98.61 MT, respectively in the same period. Milk production was estimated at 165.4 million tonnes during FY17, while meat production was 7.4 million tonnes. Total area in India, sown with rabi crops reached 64.29 million hectares in February 2018. India is the second largest fruit producer in the world. Production of horticulture crops is estimated at record 307.16 million tonnes (mt) in 2017-18 as per second advance estimates. Total agricultural exports from India grew at a CAGR of 16.45 per cent over FY10-18 to reach US\$ 38.21 billion in FY18. In April-May 2018 agriculture exports were US\$ 6.43 billion. India is the largest producer, consumer and exporter of spices and spice products. Spice exports from India reached US\$ 3.1 billion in 2017-18. Tea exports from India reached a 36 year high of 240.68 million kgs in CY 2017 while coffee exports reached record 395,000 tonnes in 2017-18. Food & Grocery retail market in India was worth US\$ 380 billion in 2017.

V. Investments

According to the Department of Industrial Policy and Promotion (DIPP), the Indian agricultural services and agricultural machinery sectors have cumulatively attracted Foreign Direct Investment (FDI) equity inflow of about US\$ 2.02 billion and US\$ 466.31 million, respectively, during April 2000 to December 2017. The food processing sector attracted FDI of US\$ 8.37 billion in the same period. Some major investments and developments in agriculture are as follows:

- The first mega food park in Rajasthan was inaugurated in March 2018.
- Sugar production in India is expected to reach 27.2 million tonnes in 2017-18 season (October-September).
- In January 2018, India Agri Business Fund II (IABF-II), co-sponsored by Rabobank, the UK's CDC Group and Asian Development Bank (ADB), made an investment worth US\$ 10 million for a minority stake in Global Gourmet Pvt Ltd, a frozen food products exporting company.

- A loan agreement of US\$ 318 million was signed between the Government of India, Government of Tamil Nadu and the World Bank in December 2017 for the 'Tamil Nadu Irrigated Agriculture Modernization Project' through which is expected to benefit around 500,000 farmers in the state.
- Cotton output in India is expected to increase by 9 per cent in 2017-18* to 37.7 million bales.

VI. Government Initiatives

Some of the recent major government initiatives in the sector are as follows:

- ❖ In March 2018, the Government of India extended the urea subsidy to the farmers till 2020 with the aim of ensuring supply of urea at statutory controlled prices. Urea subsidy for 2018-19 is estimated at Rs 45,000 crore (US\$ 6.95 billion).
- ❖ As of March 2018, the Government is working on a plan to provide air cargo support to promote agriculture exports from India.
- ❖ The implementation of Pradhan Mantri Fasal Bima Yojana (PMFBY) will be made faster and the government is aiming to increase the coverage under the scheme to 50 per cent of gross cropped area in 2018-19.
- ❖ The Government of India is going to provide Rs 2,000 crore (US\$ 306.29 million) for computerisation of Primary Agricultural Credit Society (PACS) to ensure cooperatives are benefitted through digital technology.
- ❖ Around 100 million Soil Health Cards (SHCs) have been distributed in the country during 2015-17 and a soil health mobile app has been launched to help Indian farmers.
- ❖ With an aim to boost innovation and entrepreneurship in agriculture, the Government of India is introducing a new AGRI-UDAAN programme to mentor start-ups and to enable them to connect with potential investors.
- ❖ The Government of India has launched the Pradhan Mantri Krishi Sinchai Yojana (PMKSY) with an investment of Rs 50,000 crore (US\$ 7.7 billion) aimed at development of irrigation sources for providing a permanent solution from drought.
- ❖ The Government of India plans to triple the capacity of food processing sector in India from the current 10 per cent of agriculture produce and has also committed Rs 6,000 crore (US\$ 936.38 billion) as investments for mega food parks in the country, as a part of the Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters (SAMPADA).
- ❖ The Government of India has allowed 100 per cent FDI in marketing of food products and in food product e-commerce under the automatic route.
- ❖ A new platform for selling agricultural produce named e-RaKam has been launched by the Government of India and will operate as a joint initiative of Metal Scrap Trade Corporation Limited and Central Railside Warehouse Company Limited (CRWC).

VII. Model Validation And Simulation

To develop confidence in the model, it was validated following scheme proposed by Mohapatra et al, (1994). The structure of the model was validated through detailed discussion with the experts from university and employers. Simulation process requires defining initial values for the base year i.e.1991. The initial values of model parameters were compiled and computed from secondary sources or decided considering historical growth scenario. Basic data for the model on stock, enrolment, intake, drop out, and growth rate of agri-education.

VIII. Generation Of Future Scenario

The supply and demand scenario of trained agricultural human resource for the period 2001 –2020 is developed. Model uses time lag of four years for graduating. The curriculum adopted by the agricultural universities was revised during 1995 keeping in view the employment opportunities at that point of time (ICAR 1995). Analysis of this representative syllabus suggests that about 80 per cent of the total credits are devoted to imparting technical (subject specific) skills; where as about 20 per cent are marked for developing soft skill. The long-term impact of continuing with same syllabus is as under.

Supply of HRM

The supply of human resource is projected to be around 16000 in 2020 against a demand of nearly 15000. Though the growth in government sector is assumed to be modest at 2.5 per cent, positive and healthy growth in other sectors drives the model to reduce demand supply gap with time.

Demand Supply

The annual supply-demand gap, declines from 27.1 per cent in 2001 to a minimum of 93 per cent in 2019 and there after registers a slow growth to 6.1 per cent in 2020. In absolute numbers the gap reduces from 3562 in 2001 to the minimum of 933 in 2018 and then increases to 966 in 2020. This increase in the supply-demand gap towards the tail end of the simulation period reflects the cyclic behavior of the supply and demand

sub-sectors, i.e., with increased demand (reduction of the gap) supply (intake) increases resulting in increased supply demand gap in latter years i.e. during 2018-2020. During this period annual intake would go up by about 14 per cent, whereas the outturn will increase by 20 per cent. Correspondingly, the dropout rate reduces from 26 to 22 percent. This is because of increased interest in the courses due to improved employment opportunity.

Stock of Agricultural Human resource

The total stock increase from 290 thousands in 2001 to about 474 thousands in 2020 out of this nearly 380 thousands will be employed, leaving about 20 per cent unemployed. These estimates are comparable with the projections made by other similar studies. The unemployed stock accumulates to the maximum of 101.8 thousands in 2013 and declines gradually thereafter to a level of 100.2 thousands in 2020. This variation follows the pattern of annual supply-demand gap reflecting level of annual unemployment. Even though the unemployment increases in absolute numbers till 2013, the overall unemployment ratio (ratio of unemployed to total stock) declines during this entire period from 28.9 per cent in 2001 to 20.6 per cent in 2020 depicts the composition of employed stock in various sectors of employment. The Private sector comprising of fertilizer, pesticide, seeds, agricultural machinery and processing industries will take-over government sector as major employers of agricultural human resource by 2007, and this sector accounts for nearly 42.1 per cent of employment by 2020 as against 24.6 per cent in government sector. Financial institutes follow these two sectors in terms of providing employment to the agricultural human resource. With reducing job opportunities in government and academic sectors, graduates would opt for employment in other sectors. Private sector would become major employment creation source and, hence, it would keep reducing unemployment at rather slow rate.

IX. Investment In Agriculture Sector

As a result of initiatives taken by Government, share of public investment in Gross Capital Formation in agriculture and allied sectors has been going up in recent years. During 2004-05 to 2007-08, total investment in agriculture increased in the range of 8% to 14.2% per annum. Public sector investment increased faster, in range of 17.6% to 22.5%. This trend continued in subsequent years. The Plan Outlay on various schemes of Department of Agriculture & Cooperation (DAC) has increased substantially from Rs. 9865.68 crore in 2008-09 (RE) to Rs.20208.00 crore in 2012-13 (BE). Increase is mainly due to substantially higher allocation under Rashtriya Krishi Vikas Yojana (RKVY), which was launched in 2007-08 with aim to boost agricultural growth rate and to incentivize states to increase public investment in agriculture and allied sector. Out of total outlay of Rs.66577 crore for the Eleventh Plan, the actual expenditure was Rs.61065.80 crore.

X. Allocation Of Funds

The proposed Plan Outlay on various schemes of the Department for the year 2013-14 is Rs. 26164.21 crore including State Plan Schemes.

Flagship and Major Programmes of Department of Agriculture Rashtriya Krishi Vikas Yojana (RKVY)

This scheme was launched in 2007-08 with the aim to incentivize states to increase public investment in agriculture and allied sector to boost agricultural growth rate. RKVY has become exceedingly popular with States on account of flexibility and autonomy provided in process of planning and execution of agriculture and allied sector schemes. Funds utilization under the Scheme by states has improved remarkably. The outlay under RKVY is proposed at Rs. 12,500 crores for 2013-14.

Extending Green Revolution to the Eastern States

This new initiative was announced in Budget 2010-11 with an allocation of Rs 400 crore under RKVY and is continuing. This programme envisages adoption of new seed varieties, farm machinery, integrated nutrient & pest management, and knowledge based interventions developed for different agro climatic zones. The programme is under implementation in Bihar, Chhattisgarh, Jharkhand, Eastern Uttar Pradesh, West Bengal & Odisha. Recently, Assam has also been included under this initiative.

Pulses and Oilseeds villages

Another initiative with allocation of Rs. 300 crore under RKVY has been announced for increasing production of oil seeds and pulses in 60000 'Pulses and Oilseeds villages' in rainfed areas to provide an integrated intervention of water harvesting, watershed management and soil health, to enhance the productivity of dry land farming areas. This initiative is also continuing.

Other Sub-Schemes announced under RKVY.

Eight sub-schemes were introduced in 2011-12 under RKVY, viz (i) Saffron Mission in J&K; (ii) Promotion of Oil Palm; (iii) Initiative on Vegetable Clusters; (iv) Nutri-cereals; (v) National Mission for Protein Supplements; (vi) Accelerated Fodder Development Programme; (vii) Rainfed Area Development Programme and (viii) Vidarbha Intensive Irrigation Development Project (VIIDP).

National Food Security Mission (NFSM)

Presently NFSM-Rice covers 210 districts, NFSM-Wheat covers 166 districts and NFSM-Pulses covers 468 districts. From Kharif 2010, pulses component of Integrated Scheme of Oilseeds Pulses Oilpalm and Maize (ISOPOM) has been merged under NFSM Pulses to intensify efforts for production of pulses. Thus, NFSM is being implemented during 2012-13 in 561 identified districts of 27 States of the country.

Accelerated Pulses Production Programme

A new initiative 'Accelerated Pulses Production Programme (A3P)' was launched as part of NFSM Pulses from 2010-11. One million hectares of potential areas for the major pulses crops - *tur*, *urad*, *moong*, gram and lentil has been taken up for large scale demonstration of production and protection technologies in compact blocks.

Initiation of Management Information System (MIS)

Management Information System (MIS) for online submission of progress report at state, district levels has been initiated to capture real time data. Regular updating of state and district level data is under progress.

National Horticulture Mission

Horticulture is being promoted by DAC in mission mode for improving farm income and livelihood security and enhancing employment generation. India is the second largest producer of fruits and vegetables. All States and UTs are covered under Mission except the states that are covered under the Horticulture Mission for North East & Himalayan States (HMNEH). The Mission endeavors for holistic development of horticulture sector duly ensuring forward and backward linkages by adopting cluster approach, with active participation of all stake-holders. At present, 380 districts in 18 States and 3 Union Territories have been covered under NHM.

Horticulture Mission for North East and Himalayan States (HMNEH)

Technology Mission for North Eastern States, including Sikkim aimed at holistic development of all horticulture crops has now been renamed as Horticulture Mission for North East and Himalayan States (HMNEH). Cost norms under the scheme have been revised from 2010-11. Major thrust areas under Mission are setting up nurseries for production and distribution of quality planting materials, area expansion, rejuvenation of old / unproductive orchards, precision farming, organic farming, creation of water resources, promotion of INM and IPM, cold storage units and market infrastructure development.

National Mission on Micro Irrigation (NMMI)

This Scheme aims to improve water use efficiency that also leads to reduced requirement of fertilizers due to improvement in fertilizer use efficiency on account of fertigation, and savings in water can be used to augment area under irrigation and thereby increase productivity. Assistance is provided @ 60% of total cost of the system to small and marginal farmers and @ 50% to general category farmers.

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

This scheme is being implemented in 14 major states for oilseeds and pulses, 15 states for maize and 8 states for the Oil palm. The pulses component of ISOPOM has been merged with NFSM-Pulses w.e.f 1.4.2010 to provide focused approach for pulses production programme.

Support to State Extension Programmes for Extension Reforms

Objective of Scheme is to make extension system farmer-driven and farmer-accountable by way of new institutional arrangements for technology dissemination. 588 Agricultural Technology Management Agencies (ATMAs) have been established at district level to operationalize extension reforms. With the approval of CCEA, the scheme has been modified in 2010 to provide for following activities:

- Provision of specialist and functionary support at different levels.
- Innovative support through 'Farmer Friend' at village level.
- Revision in ATMA Cafeteria.
- Farmers' Advisory Committees at State, District and Block levels.

Summary of Expenditure during Eleventh Five Year Plan and 1st year i.e. 2012-13 of Twelfth Five Year Plan

For Eleventh Five Year Plan, Department of Agriculture & Cooperation (DAC) had proposed an outlay of Rs. 51052.12 crore keeping in view the thrust areas identified for the Eleventh Plan. Though Planning Commission approved Plan outlay of Rs.66577 crore including 25000 crore for Rashtriya Krishi Vikas Yojana for DAC for the Eleventh Plan, year-wise allocation and expenditure is as under:-

(Rupees in crore)

Sl. No.	Year	BE	RE	Expenditure
1	2007-08	5560.00	6927.94	7058.50
2	2008-09	10105.67	9865.68	9530.30
3	2009-10	11307.07	10965.23	10870.15
4	2010-11	15042.00	17254.00	17052.59
5	2011-12	17122.87	16515.05	16554.33
	Total	59137.61	61527.90	61065.87*

***Provisional**

For the 1st year of Twelfth Five Year Plan i.e. 2012-13, BE and RE is Rs. 20208.00 crores and Rs. 17867.32 crores respectively. The expenditure during the year is Rs. 13478.19 crores as on 31.12.2012 (provisional).

Minimum Support Prices

In order to achieve a balance between production of cereals and non-cereals, the Government offers Minimum Support Prices (MSPs) so that farmers get remunerative prices. MSP of kharif crops of 2012-13 have been announced which has been raised: paddy by Rs.80 per quintal, ragi by Rs.85 per quintal, jowar, bajra and maize by Rs. 100 per quintal. Minimum Support Price of arhar (tur) moong and urad has been increased by Rs.200, Rs. 330 and Rs. 400 per quintal, respectively. Additional incentive at the rate of Rs.5 per kg of tur, urad and moong sold to the procurement agencies during the harvest /arrival period of two months has also been provided. MSP for groundnut-in-shell and sunflower seed has been increased by Rs.400 and 450 per quintal, respectively. MSP of soyabean and sesamum has been increased by Rs. 250 per quintal and that of niger seed by Rs. 450 per quintal. MSP of cotton has also been increased by Rs. 300 per bale, as compared to last year price.MSP of Rabi crops of 2011-12 season to be marketed in 2012-13, have been announced. MSP for wheat has been fixed at Rs.1285 per quintal from Rs. 1120 per quintal during the previous year. MSP for barley has been increased by Rs.200 per quintal. MSP for gram and safflower has been increased by Rs.700 per quintal.

XI. Annual Plan 2013-14

The scheme-wise break-up of proposed outlay of 26,164.24 crore under Central Sector Schemes, Centrally Sponsored Schemes and State Plan Scheme is placed at Annexure – 2.1. Out of proposed outlay of Rs.26,164.24 crore, 10 per cent of Central Plan has been earmarked for the North Eastern States, 16.2 per cent to Scheduled Caste Sub Plan (SCSP), 8 per cent to Tribal Sub Plan (TSP), as per the standing guidelines. The Planning Commission is yet to finalize the Twelfth Five Year Plan. The proposed Plan outlay of Department of Agriculture & Cooperation for the Annual Plan 2013-14 is Rs. 26,164.24 crores inclusive of State Plan Scheme. The details of the proposed outlay for the Annual Plan 2013-14, scheme-wise is given in Annexure 2.1. As against the proposed outlay of Rs. 26,164.24 crore for the Annual Plan 2013-14, Planning Commission conveyed its approval to an outlay of Rs. **21,609 crore (Rs. 11,655 crore for Central Plan and Rs. 9954 crore for State Plan – Rashtriya Krishi Vikas Yojana)**. The scheme-wise break-up of approved outlay of 21,609 crore under Central Sector Schemes, Centrally Sponsored Schemes and State Plan Scheme is placed at Annexure – V & VI. Out of approved outlay of Rs. 21,609 crore, 10 per cent of approved Central Plan has been earmarked for the North Eastern States, 16.2 per cent to Scheduled Caste Sub Plan (SCSP) and 8 per cent to Tribal Sub Plan (TSP), as per the standing guidelines. Planning Commission has also informed tentatively allocation for XII Five Year Plan of Department of Agriculture & Cooperation in the tune of Rs. 1,34,746 crore (Rs. 71,500 crore for Central Plan and Rs.63,246 crore for State Plan - Rashtriya Krishi Vikas Yojana).

XII. Conclusion:

India is expected to achieve the ambitious goal of doubling farm income by 2022. The agriculture sector in India is expected to generate better momentum in the next few years due to increased investments in agricultural infrastructure such as irrigation facilities, warehousing and cold storage. Furthermore, the growing use of genetically modified crops will likely improve the yield for Indian farmers. India is expected to be self-sufficient in pulses in the coming few years due to concerted efforts of scientists to get early-maturing varieties of pulses and the increase in minimum support price. The government of India targets to increase the average income of a farmer household at current prices to Rs 219,724 (US\$ 3,420.21) by 2022-23 from Rs 96,703 (US\$

1,505.27) in 2015-16. Going forward, the adoption of food safety and quality assurance mechanisms such as Total Quality Management (TQM) including ISO 9000, ISO 22000, Hazard Analysis and Critical Control Points (HACCP), Good Manufacturing Practices (GMP) and Good Hygienic Practices (GHP) by the food processing industry will offer several benefits. The growth achieved in Indian agricultural sector has been attributed to the concerted efforts of available skilled human resource. But over the years the scenario has changed. The growth in agriculture sector slowed down and the job opportunities declined leading to increased unemployment. Agriculture provides livelihood to majority of population and thus remains linchpin of Indian economy. Though agriculture sector's contribution to national GDP has declined to 13.9% in 2011-12 due to relatively higher growth experienced in industries and services sectors, agriculture remains the principal source of livelihood for more than 58% of country's population. The unemployed stock accumulates to the maximum of 101.8 thousands in 2013 and declines gradually thereafter to a level of 100.2 thousands in 2020. The methods adopted included the use of high yielding varieties (HYV) of seeds. Navdanya is a network of seed keepers and organic producers spread across 17 states in India.

References

- [1]. The Economic Survey 2025-26, Agricultural And Processed Food Products Export Development Authority (APEDA), Department Of Commerce And Industry, Union Budget 2025-26,
- [2]. Union Budget 2017-18, Press Information Bureau, Ministry Of Statistics And Programme Implementation, Press Releases, Media Reports, Ministry Of Agriculture And Farmers Welfare, Crisil.
- [3]. AFFC (2000), Study On Assessment Of Human Resource Needs And Development, A.F. Ferguson & Co, New Delhi
- [4]. CMIE (2004), Industry Market Size And Shares, Economic Intelligence Service, Center For Monitoring Indian Economy, Mumbai
- [5]. DES (2004), Agricultural Statistics: At A Glance, Directorate Of Economics And Statistics, New Delhi
- [6]. DGET (2002), Occupational – Educational Pattern Of Employees In India (Public Sector- 1996), Directorate General Of Employment And Training, Ministry Of Labour, Government Of India, New Delhi
- [7]. DST (1999) Research And Development Statistics 1996-97 , NSTMIS Division, Department Of Science And Technology(MST, GOI), New Delhi
- [8]. DST (2000) Data Book, NSTMIS Division, Department Of Science And Technology(MST, GOI), New Delhi
- [9]. IAMR (2001), Assessment Of Human Resource Needs In Agriculture And Allied Sectors, Institute Of Applied Human Resource Research Report
- [10]. ICAR (1995) Report Of Third Deans' Committee On Agricultural Education In India, ICAR, New Delhi.
- [11]. Mohapatra,P.K.J., Mondal,P., And Bora, M.C, (1994) Introduction To System Dynamics Modeling, University Press, Hyderabad
- [12]. Rao,D.R, And Muralidhar U, (1994) A Study On Agricultural University Information System (AGRIUNIS), National Academy Of Agricultural Research Management, Hyderabad,
- [13]. TCS (2000) Study Of Human Resource Needs Of The Agriculture Sector In Tamilnadu, Tata Consultancy Services Report
- [14]. Williams, E. (1996) Human Resource Forecasting And Modelling Replacement Demand : An Overview ROA-W-1996/4E. Research Centre For Education And The Labour Market, Maastricht University, Maastricht.
- [15]. "Library Of Congress Country Studies". U.S. Library Of Congress (Released In Public Domain). Retrieved 2007-10-06.
- [16]. Amartya Sen. 1981. Poverty And Famines: An Essay On Entitlement And Deprivation. Oxford University Press.