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A Survey of Agricultural Higher Education for the Creation of Sustainable Development

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Abstract:

India is a predominantly agricultural nation, as we all know. Even though India is largely an agricultural nation, it faces issues such as food shortages, poverty, financial deficits, and poor nutrition. The continued employment of modern agricultural techniques has decreased traditional agriculture. In our country, agriculture has been diminishing recently. The percentage of small farmers in India has decreased from 16% to 11%. Only 40% of the country is engaged in farming. Most of the farmers' children chose to work in other industries. The number of farmers is consequently steadily declining. Economic recession is a topic of significant discussion. Increased participation in farming activities is necessary to combat poverty and the food deficit. Low nutrition has to be aware of appropriate eating habits. If India takes action, pays close attention to our traditional vocation of agriculture, and increases the number of participants in it, it can fulfil its full potential. Only Agricultural Universities can truly benefit from agricultural education. The importance of agricultural education should be highlighted for college students. Few persons with advanced degrees in the arts, sciences, engineering, or diplomas are interested in farming or operate a farm as a business. Thus, the research examines the potential of higher education in agriculture for long-term development and prosperity in India.

Keywords: Agriculture, Higher Education, Sustainable development.

1. Introduction

Economic and political stability cannot be achieved without ensuring that people have access to the food they need on a consistent basis (food security). Frequent food shortages are causing hunger and harming a part of the inhabitants in many emerging nations. Regional conflicts have their roots in the influx of refugees into neighbouring nations, which is upsetting the worldwide social order. Stable food production and supply are major economic concerns for nations that import food, especially in efforts to stop a currency outflow. In order to achieve food security, developing nations look for assistance in a variety of other areas, such as market distribution, the promotion of food processing and sales, as well as policies pertaining to agriculture. These other areas include strengthening their base of production, disseminating production technology, and conducting research and development. In order to pursue "human security," it is also necessary to support "agricultural in rural development," with a focus on reducing poverty. This will be covered in more detail in the next response.

India faces a major challenge for agriculture and rural development after Independence. This requires the availability of trained human resources. India's First Education Commission (1949), headed by Sarvepalli Radhakrishnan was nominated for setting up Indian Rural Universities in the model of American Lands. In 1950s, the Indian Parliament established the specialized Engineering Universities. Parliament was limited in establishing special institutions for agricultural education.

India's first State Agricultural University, G. B. Bund Agricultural and Technology University, Bandhnagar, UP was opened on 17 November 1960 by India's first Prime Minister, Jawaharlal Nehru. The model of establishing the Punganar University supports universities that are assigned to the State Agricultural University, ie Agricultural Education in India. During the year 1960-61, there were about 46 universities and 51 agricultural colleges. There are 54 State Agricultural Universities in India and enrolment in the agricultural colleges numbered 5,574. The stream is divided into 4 sub-streams which are Agriculture, Horticulture, Forestry and Sericulture.In the year

2013-14, for the first time all graduate courses of agriculture and related courses are announced as professional studies, where agricultural graduates can get the best opportunity from professional jobs in the future.

1.2. Need for the Study

Study is necessary As the agricultural industry has been in decline over the last 20 years, agricultural education has grown recently. In recent years, agriculture's share of the nation's Gross Domestic Product (GDP) has been less than 30%. In order for the Indian economy to thrive sustainably, agriculture education is required.

1.3. Objectives

1. To study the number of agricultural universities and colleges in India.
2. To find out the enrolment pattern for agricultural in universities and colleges.
3. To suggest the significance of Agricultural Education for Sustainable Development.

PM Tamboli1 and YL Nene (2013) the situation in Higher Agricultural Education (HAE) is even worse. A large number of agricultural universities/colleges exist in India. There are more than forty-five State Agricultural University (SAUs), one Central Agricultural University, and five deemed (to be) universities. Between them these cover a wide range of subjects. These institutions attract a large number of students -UG 11,000; PG-MS and PhD 7,500.

Asha Kanwar et al (2015), Agricultural Higher education (AHE) in developing countries was introduced in colonial times. The traditional style of indigenous education was transformed into an institutionalized form which provided a link between primary, secondary and tertiary education through schools, colleges, training institutions and universities. The brick and mortar, didactic mode of education began during the 19th century in many developing countries as an important tool for economic growth and social development.

"It is our main objective to attract youth including school children towards agricultural education. To maximize the use of advanced technologies, it is important to provide adequate strengthening of agricultural education", Union Minister of Agriculture and Farmer's **Welfare, Radha Mohan Singh (2017).** He expressed that Indian Council of Agricultural Research (ICAR) has initiated many new programmes to enhance the quality of higher agricultural education in the country. “Higher agricultural productivity will help India respond to several challenges such as persistent malnutrition, increased water scarcity and climate change,” said Junaid Ahmad, World Bank Country Director in India. “By focusing on innovation, research and improving skills of students, agricultural universities can become the engine for increasing agricultural productivity.”

1.4. Agricultural Education in India

In spite of engaging nearly 60% of working population, Indian Agricultural sector has not been able to keep pace with the other two sectors of the Indian economy.

In India, Yashwantrao Savan Maharashtra Open University (YCMOU) has been established in 1993 by its Agricultural Science Corporation and maintains Horticulture Certificate, Diploma and Bachelor Degree. Indira Gandhi National Open University (IGNOU) started her Agricultural School in 2005 - Certification, diploma and doctor programs pointing to the development education.

In 2020, according to All India Survey on Higher Education in 2019-20, there are 1,043 Universities, 42,343 Colleges and 11,779 Stand Alone Institutions listed on All India Survey Higher Education (AISHE) web portal. Out of 1,043 universities only 63 Agriculture & Allied Universities are available for improvement of agricultural education.

Table No.1: Number of Educational Institutions

	Universities	Colleges	Standalone
Listed for AISHE 2019 – 20	1043	42,343	11,779

Response in AISHE 2019 – 20	993 (95.2%)	38,102 (90.0%)	8,631(73.3%)
Total number of Institutions after pooling data from AISHE 2017 – 18 and AISHE 2019 – 20	1019 (97.7%)	39955 (94.4%)	9599 (81.5%)

Source: All India Survey on Higher Education- AISHE (2019 – 2020)

The agricultural education is scoring its mass in competition with Arts, Science, Engineering and other disciplines. The following Table shows enrolment of students for under graduate agriculture discipline is very less in number and percentage compared to overall arts and science and other streams. The enrolment of female students towards agriculture as education is also comparatively less.

Table 2: Enrolment at Under Graduate Level in Major Disciplines/ Subjects (Based on actual response) 2019-20

	Male	**Female**	**Total**
Agriculture	1,91,514 (71%)	78,309 (29%)	2,69,823

Source: All India Survey on Higher Education- AISHE (2019-20)

At Post graduate (PG) level , there are 30,222 students enrolled in Agriculture and Allied sector with 61.9% male and 38.1% female students. Total number of Ph.D. students in Agriculture and Allied courses is 7,292 out of which 54.9% are male students. The stream is divided into 4 sub-streams which are Agriculture, Horticulture, Forestry and Sericulture.

Table number 3 shows the enrolment of students for the four streams of agriculture at Post graduation, M.Phil, and Ph.D. level during the year 2019- 20. It depicts the number of male and female students enrolment which needs special attention for sustainable development in terms of employment opportunities and career growth that reflects economic growth of our country.

Table 3: Enrolment at Ph.D.,M.Phil. & Post Graduate Level in Major Disciplines/ Subjects (based on actual response) 2019-20

Discipline		**Ph.D**			**M.Phil**			**Post- Graduate**		
		Male	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
Agriculture	**Agriculture**	3,543	2,782	6,325	10	14	24	15,518	9435	24,953
	Horticulture	327	401	728	5	5	10	2,662	1,619	4,281
	Forestry	121	97	218	3	4	7	497	404	901
	Sericulture	10	11	21	-			33	54	87
Agricultural Total		4,001	3,291	7,292	18	23	41	18,710	11,512	30222

Source: All India Survey on Higher Education- AISHE (2019 -20)

1.5. National Agricultural Higher Education Project

New World Bank Project had been focused on Better Quality Higher Education in Agricultural Universities to enhance the quality of higher education. The World Bank Board of Executive Directors was approved $ 82.50 million for **National Agricultural Higher Education Project** to help the Indian Council of Agricultural Research (ICAR) and participate in agricultural universities for relevant and better quality higher education to students. The project will support ICAR's efforts to transform the agricultural universities into Centres of Excellence for higher education by improving student learning outcomes; raising their prospects for future employability, particularly in the private sector; and aligning their academic curricula with the skill sets being demanded in the agriculture and allied services sector.

1.6. Decisions regarding agricultural education

Government of India decided to celebrate National Agricultural Education Day on December 3 because it is the birthday of our first Union Agriculture Minister and Former President of India, Dr Rajendra Prasad. For the very first time in India all Graduate Level Courses of Agriculture and its related subject have been declared professional courses, in which agricultural graduates will be able to get a better opportunity from professional work in the future. Agricultural graduates will benefit more by declaring their professional degrees as this degree has now become similar to the engineering degree and they will get more opportunities to go abroad for higher education.

In order to adopt quality and holistic approach to higher agricultural education, the Fifth Dean Committee Report has been implemented in all the Agricultural universities. The guidelines of the report have been prepared for required administrative educational standards for the construction and implementation of contemporary courses for the subjects covered in agricultural education. The Student READY (Rural Entrepreneurship Awareness Development Yojana) programme has been launched to ensure better employability for entrepreneurship development of graduates in agricultural and allied subjects.

Under this programme, there is also a provision for working with the farmers in the fourth year of the Bachelor's degree. Apart from this, the system of training has also been widely given in the production industries. The stipends given to students under Student READY (Rural Entrepreneurship Awareness Development Yojana) have been increased from Rs.750 to Rs.3000 per month. There are 4 new colleges to be started under the Rani Lakshmibai Central Agricultural University, Jhansi.

1.7. Scholarships

The government announced many schemes and scholarships to boost the Education in Higher Level in agriculture. The various scholarships /fellowships available in agricultural higher education are governed by IARI (Indian Agricultural Research Institute). The Indian Agricultural Research Institute sponsors Junior and Senior Scholarship that shall be awarded to M.Sc. and Ph.D. students admitted under General Open Competition Scheme. The normal duration of junior scholarships for M.Sc. course will be two years and that of senior scholarships for Ph.D. course will be three years. In the case of SC / ST / PH students, the scholarships are extendable upto a period of six months/one year, respectively. The value of the M.Sc. and Ph.D. scholarship will be Rs.7,560/- and Rs.13,125/- per month, respectively.

The scholarship will be inclusive of all fees and other charges of the teaching institution. In addition to the monthly amount of junior/senior scholarship a contingent grant of Rs.6,000/- per academic year for M.Sc. students, and Rs.10,000/- per academic year for Ph.D. students will be paid towards the cost of experimental material, books, the thesis and the study tours required for the study as recommended by the Chairperson/Professor concerned.

1.8. Agricultural Higher Education Colleges in Tamil Nadu

In Tamil Nadu, there are 2,628 colleges including Government colleges, Private Colleges or Institutes and other professional institutes providing education in arts, science, commerce, engineering and other professional courses institutions. Out of the total colleges there are 20 Government Agriculture colleges and 30 Private Agriculture colleges in Tamil Nadu. All of them are University Grants Commission (UGC) recognised, National Assessment

and Accreditation Council (NAAC) accredited, All India Council for Technical Education (AICTE) approved, National Board of Accreditation (NBA) accredited, National Council for Teacher Education (NCTE) approved, and Department of Technical Education (DTE) approved.

1.9 Suggestions

The Government should expand agricultural higher education through states and district wise. The need to build employment for youth is to encourage students to secure agricultural land and the importance of agricultural production. The main objective of attracting young people towards agriculture education is to increase the use of advanced technologies and accelerate the adequate strength of agriculture education. The Indian Agricultural Corporation (ICAR) has to accelerate many new projects to improve the quality of higher agricultural education in the country.

1.10. Conclusion

Without urban beautification, mineral resource exploitation, factory construction, or the construction of high-speed motorways, the Central Government should enhance agriculturally based schooling district and state-wide. The extension of all graduate agricultural and associated courses to professional courses is necessary. There needs to be a new strategy for fostering entrepreneurship in the agricultural sector. Everyone should support widespread employment in the agricultural industries. Working with farmers should be agreed upon and arranged. To ensure the long-term prosperity of our nation, increasing agricultural education and young employment must become a common practise across all sectors.

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