

World Class Agricultural University & Inter Institutional Collaboration for Capacity Building of Human Resources – A Road Map

Invited Article

Why we need World Class University (WCU)

Creation of competitive manpower and global knowledge is essential for building the national economy and for sustaining the economic productivity. Universities are considered to be a knowledge generators and disseminators of ideas, innovations, and social reformation. Thus, creating WCUs will be added advantage to bring desirable transformation in the country's economy. Meanwhile, university is the proprietor of culture, society, technology, institution and an ideal place to boost one's knowledge, attitude and skill in a changing economy of the world. Tertiary education (Universities) plays a crucial role in creating more adaptable labor force and enables the country to adopt new technologies (Altbach and Salmi, 2011).

According to the former Prime Minister of India, Dr. Manmohan Singh, Creation of World Class University would become Launch Pads for country's entry into the "Knowledge economy". WCU per se is not new for India as India in the past history had a few World Class Universities (WCU) namely Nalanda, Ujjain and Takshashila. Students from across the globe had come to these universities and pursued their Higher Studies (Ramaprasad, 2011). However, these universities were ruined over a period of time. These examples show that, creating a WCU is not impossible for India. Recently, several countries have attempted to develop a WCU, a few of them have succeeded in their endeavour to WCU and got benefit out of it, e.g. China (University: Shanghai Jiao Tong University); Hong Kong (Hong Kong University of Science and Technology (HKUST)); Singapore (The National University of Singapore) and others (Ramaprasad, 2011). This endeavour helped these universities break into the World Top 100 Universities. Meanwhile, none of the Indian Universities has been featured in the recent QS World University within 100 Rankings, in particular, Agricultural Universities. Hence, the dream of becoming World Class University (WCU) should become a national movement like Swachh Bharat Abhiyan. In this context, the conference on strategic approaches for developing World Class Agricultural Universities" would facilitate a lot of deliberations and develop strategies / mechanisms for Indian Agricultural Universities to transform into World Class Universities (WCUs)



V Usha Rani

IAS, Director General, MANAGE

Smt. V. Usha Rani, IAS, assumed charge as Director General, Manage with effect from 1st August 2015. Smt. V. Usha Rani belongs to the 1995 batch of Indian Administrative Service (Andhra Pradesh).

Prior to taking over charge as Director General MANAGE she was the Commissioner and Secretary, Horticulture, govt. of Andhra Pradesh. She has been Commissioner, School Education; State Project Director, Sarva Shiksha Abhiyan; Commissioner, Agriculture and Commissioner, Women & Child Welfare. She was also the District Collector and District Magistrate of Mahboobnagar and Khammam districts of present Telangana state.

“The Highest education is that, which does not merely give us information but makes our life in harmony with all existence”

-Rabindranath Tagore

Background

Studies show that, for the Universities to become World Class, it must emulate the models and examples of existing World Class Universities. Therefore, it is essential to examine the factors that have led to the academic excellence, while, considering the socio-economic and cultural context of India. Thus, the paper presents an elucidation of strategies/action points that are indispensable to create a World Class

QS World University Ranking (2019)

| S.No. | University | Country | Continent | QS ranking |
|-------|--|-----------|---------------|------------|
| 1 | Massachusetts Institute of Technology | USA | North America | 1 |
| 2 | Stanford University | USA | North America | 2 |
| 3 | Harvard University | USA | North America | 3 |
| 4 | National University of Singapore (NUS) | Singapore | Asia | 11 |
| 5 | Hong Kong University of Science and Technology (HKUST) | Hong Kong | Asia | 37 |
| 6 | Shanghai Jiao Tong University | China | Asia | 59 |
| 7 | IIT, Bombay | India | Asia | 162 |
| 8 | Indian Institute of Science, Bangalore | India | Asia | 170 |

Source: QS Top Universities <https://www.topuniversities.com/>

University, in addition, the paper has discussed the experiences of various Universities, Institutions and Organisations, concerning interlinking of institutions for capacity building of human resources with a few illustrations.

Strategies for Developing World Class Agricultural Universities

I. Bringing desirable Change in policy

Although India has a vision of creating World Class Universities (WCU), yet, most of the Universities in India are influenced by the policies of the government. Whereas the Universities in most of the developed countries have their fullest autonomy to decide their vision, mission and mandates concerning research, education and Extension. Similarly, the Indian universities need to be free from the political interference, bureaucratic clutches and red-tapism of the government. While developing of WCU the aspirant universities should show the spirit of “meritocracy”.

(a) Admission Policy

Student admission policy play a crucial role in creating elite university. Most of the global ranked universities such as Massachusetts Institute of Technology (MIT), Stanford University, Harvard University, California Institute of Technology (Caltech), University of Oxford to name just a few, have an admission policy which attract and accommodate about 25-30 % international students. Indian Universities may also devise admission policy to attract international students. The influx of foreign students will lift the image of the University, facilitate cross learnings, generate income and improve the cultural composition of campus life. Moreover, the Universities need to adopt a Common Test to screen “the talented pools” for admitting in the Higher Education, as one of the strategies.

(b). Student Faculty Ratio

The University policy should facilitate to maintain optimum student - faculty ratio. A lesser student to faculty ratio will result in optimum output. According to the Times Higher Education World University Rankings, the universities which are counted among the top 20 rankings had about the student to faculty ratio of 11.7:1, meanwhile, the Universities ranked among the top 400 had the student to faculty ratio of 12.5:1. Whereas, most of the Agricultural Universities in India have wider student - faculty ratio (Upto 60-100 student in class), even in post-graduation, the students to faculty ratio is higher. It is therefore, reducing the student to faculty ratio is one of the essential parameters, while moving towards a WCU status, which would help the Agricultural Universities to optimise the learning atmosphere.

II. Transformation in Vision

Change must come within the university. Among several factors, the vision will act a guiding principle to mission, governance, research, education, extension and outreach. Absence of clear vision or lingering to the past vision of University will not yield any result. For example, Clemson University in South Carolina (USA) has its vision statement as “will be one of the nation’s top 20 public Universities (<https://goo.gl/zAz5b1>). Today, it ranks 24th best public university by U.S. News and World Report.

a) Transformative leaders

One of the important criteria to be successful is leadership. Therefore, finding a right leader will also influence the visions and missions of the University. The leader must have the managerial, technical, social skills to persuade and demonstrate the visions in action.

(III) Revamping Governace

It is essential to include wider representation of various stakeholders in organisational structure and

Board of Management of University such as Corporates, Executives of agri start-ups, innovative farmers, etc., to get the holistic perspective in decision making. For example, The University of Cambridge in its governance includes, The Regent House, The Senate, The Council, The General Board of the Faculties, The Board of Scrutiny, thus the Cambridge University ensures that the governance structure is adequately represented and cater to the needs of each stakeholder.

IV. Finance

Finance is one of the important element for establishing WCU. The country with the aspiration of establishing a WCU without means (finance) is said to be a dream rather than a reality. The university requires a billions of rupees to establish a WCU. Inclusive and exclusive finance is another way of meeting the financial requirement of Universities. E.g. University need to mobilise funds from multiple sources rather than depending on public funds alone. The Universities may crowd source the funds from Philanthropists / social entrepreneurs / Corporate House / Business tycoons / Alumni etc. The campuses of the universities should be engineered to showcase the breakthrough technologies and innovations which could attract farmers, entrepreneurs and other public, thereby generating revenue to the University. Similarly, patenting technologies could help the University to generate revenue.

MIT Sandbox Innovation Fund – Ideate, innovate and impact

MIT Sandbox Innovation Fund initiative aims to provide seed funds to the students of MIT (Massachusetts Institute of Technology) with the inspiring ideas that could lead to entrepreneurship and social reformation. The seed funds are provided by a number of Corporates and Individuals such as Accel, Amazon, Tata Group, Nour B. Afeyan (faculty at MIT), etc. the seed funds would motivate the students to ideate the concept, innovate the product and impact society.

V. Conducive infrastructure

Budget is the direct correlation to Infrastructure, which results in creating a better eco system for both students and faculty to pursue their goals. The Top ranking Universities in the world spend a large portion of budget for building a world class infrastructure be it class room, research labs, library, extension models, hostel, sport complex etc. Furthermore, Agricultural Universities could bolster the potential opportunities to strengthen their infrastructure such as of public-private partnership for creating incubation, MOOCs platforms, Media Labs, Audio and

Visual labs, Video Conferencing facilities, uninterrupted internet facilities, etc.

VI. Prioritising the “Potential Universities” within the country

The government needs to identify and select the “Able/Elite Universities” to provide more funds, incentives, infrastructure, pool of talents etc., E.g. Germany initiated a programme of selecting potential universities way back. The selected universities were then provided with the grants and financial assistance to become WCU. The National Institutional Ranking Framework (Ministry of Human Recourse and Development- Government of India) released top 100 Universities in the country in 2018, according to the report, the universities such as Indian Institute of Science, Bangalore; Institute of Chemical Technology, Mumbai, Jawaharlal Nehru University, Delhi were ranked first, second and third respectively and Tamil Nadu Agricultural University ranked 40th out of 100 Universities.

VII. Attracting the best talents

(a) Attracting the talented students

Merit based Admission has to be strengthened to ensure quality of education and to enhance the core competencies. For Example, a country like China had initiated a policy of attracting the best talents from each of its province to the top Universities, thereby enabling the University to nurture the best minds in the country. Even in India, Indian Institute of Technology (IIT) select the best talents through a high level competitive exam. The students passed in IITs are preferred by top Corporates in the Globe and Today, IITians are occupying the highest positions in education, research, business and innovations. For example, Sundar Pichai alumni of IIT, Kharagpur, Raghuram Govind Rajan, IIT-Delhi (Before, becoming the Governor of Reserve Bank of India, Rajan was the chief Economist and Director of Research at the International Monetary Fund) and among others. IITs have long been known for their ability to enrol the best minds in the country and to transform them into innovative leaders in every domain. Moreover, the brain drain of IITians today brings back the social remittances from abroad to origin country. The Massachusetts Institute of Technology (MIT) is known for attracting more number of International students, e.g. According to QS World University Ranking, 2018, MIT has about 33 % of international students both in UG and PG as of 2019; The Stanford University has about 22.71 % (3,665 Nos) of international students to its total student strength (16,135 Nos); Harvard has about 24.17 % (5,495 Nos) international students to its total student capacity (22,727 Nos).

Attracting the diaspora

Attracting Diaspora is a way of sharing the “experiences of brain drain”. The Diaspora may be called to the origin university as a “Visiting Faculty” or Lecturer, which would help the universities to reap the potential benefits of the diaspora and to identify the future areas to work with. For example, IIT-Kharagapur called its Alumni Mr.SundarPichai who is presently the CEO of Google LLC and held an interactive session with the students of IIT-Kharagpur. Such efforts would result in “creative thoughts” and inspiration among the students to aspire for higher positions. For this to happen, Universities need to establish a Diaspora Cell in its campus with the required infrastructure and manpower.

(b) Attracting the best faculty

Faculty are considered to be the stewards of the University and should have the capacity to guide their students in a highly liberalised knowledge economy. Indian Agricultural Universities are continued to suffer due to inadequate qualified faculty. The existing staffs’ creativity and modern knowledge need to be improved, which could translate into efficient students/scholars. The QS methodology has included citation per faculty’ research paper as one the important indicators in QS World University Rankings. In this context, the University need to adopt this methodology as a way of recruiting the faculty and not only based on the number of papers published.

Universities need to enhance the ratio of international staff to domestic staff for a better outreach and a quality output. A provision of attracting foreign researchers or a talented research pool is totally dependent on creating a micro climate and competent salary, which the foreigners enjoy in their origin country be it physical mobility, interactive environment, etc. The ratio of talented and international faculty to the domestic faculty is the critical factor to competitive research and is considered as one of the prominent indicators in the World University Rankings. The world’s top universities attract, more number of International faculty. The world’s first ranking University (according to QS rankings) MIT has more number of international staffs than domestic staffs. Of the total staff strength of 3009, about 56.36 % (1,696 Nos) of the staff are from international community, which in turn results in high “quality education” and “proficient research”.

VIII. Innovative curricula

There is a mismatch between the curricula offered in the Agricultural Universities and the demand side of the market. Although, the universities are

considered to be creators of “Competent manpower”, the static course content has become a deterrent to the” development of core competencies of the students”. The curriculum is the base for effective teaching and learning. The course content of agriculture need to be revised at regular intervals to meet the changing demands. Student/faculty exchange programme should be integrated with curricula. The Agricultural Universities must embark on MoUs with foreign universities to create the Student Exchange Programme.

IX. Research outreach

The researches of most of the Indian Universities are of routine in nature. To be counted among the World Class University, the research activities have to be aligned to the changing needs and to address the burning problems of the society as a whole. In the same way, research should create a breakthrough in technology, education and extension, which will help the universities to attract the awards/recognition external funds, etc. Thus, both intrinsic and extrinsic motivation to the researchers are inevitable part of developing a WCU. Internal motivation should seek to encourage commitment and spirit of the scholars/faculty towards World Class Research. Universities need to fund each of the research undertaken by faculty/students in the pursuit of winning the awards or publishing in the world class research journals. The research has its own merit in the University Rankings (UR) and has a highest weightage among the global University Rankers be it QS or Times Higher Education. More often, the research is an indicator of “Academic Reputation” and “Quality of academicians”. Hence, agricultural universities need to focus on applied research and bring out quality research papers rather than quantity of research papers, otherwise, these Universities will merely become store houses of “masses”.

Collaborative research is another area of interest in partnership. Most of the Indian Universities lack partnership in the area of research and outreach. The research should be done with the relevant stakeholders and can also include beneficiaries for whom the research is carried out either communities or corporates. Likewise, the Universities should also identify its potential area of achievement, which the university sees as achievable, the continued efforts in that area may bring a top quality research and technological breakthrough.

X. Campus Life

Professionalism begins here! The characteristics of the students’ life are shaped and moulded by the ecosystem in which, they are brought

up. The campus should have the ability to integrate the commonality of students and should seek to eliminate hostility among students/faculty. It should also be an abode to various culture. The accessibility of campus to various activities, communities, national and international affairs, recreation, sports (indoor and Outdoor), farms, etc., are equally important in nurturing the “person as a whole”.

XI. Markets’ opinion

What the employers perceive about the students who have passed out from the University is an important indicator, which influences the reputation of the academic and its ability to develop students whose intuitions, researches, projects, knowledge would meet the requirement of employers and Corporates.

Inter institutional collaboration for capacity building of manpower

Several institutes at national (MANAGE, NIPHM, ICAR institutes etc.), state (Agricultural Universities, SAMETIs, department of agriculture etc.), regional (Agricultural Research Stations, EEIs, etc.), district (Agricultural Technology Management Agency, KVKs, Farmers Training Centres etc.) and grassroots level (Agripreneurs, NGOs, agri business companies etc.) are involved in capacity building related to agriculture and allied sector in India. Though these institutes spend a lot of funds, resources, time, manpower, etc., the efforts are not significantly visible in the field, due to compartmentalised efforts. Hence, there is a need for Inter institutional collaboration to avoid duplication and to harness synergy.

MANAGE experiences in inter-institutional collaboration of capacity building of human resources

National Institute of Agricultural Extension Management (MANAGE), the experiences of MANAGE show that the interinstitutional partnership can lead to maximising of capacity manpower.

Addressing the global human and institutional capacity gaps

MANAGE work with USAID in Feed the Future India Triangular Training Programme (FTF ITT), which aims to address the human and institutional capacity gaps pertaining to food and nutritional security in 17 African and Asian countries during 2016-2020. It is proposed cover about 1400 executives through 44 training. The programmes are designed in consultation with partner countries and partner institutes like ICAR, Agricultural Universities, etc.

MANAGE and MSU

MANAGE and MSU faculty has made an exchange visit to study the innovations at each institute and to explore the possible areas of collaboration between MANAGE and MSU. Both the institutes have worked out a roadmap to undertake collaborative research and academic activities.

MANAGE has recently partnered with Michigan State University (MSU), a team professors are handling a course on Supply Chain Management, which will help the students to acquire “competitive advantage” over latest concepts, ideas, emerging trends, etc., in the field of “Supply Chain Management” and reshape their capacity to match the international standard.

National level collaborative approach

District Pest Management Project (DPMP), a joint pilot project of MANAGE and the National Institute of Plant Health Management (NIPHM) and Department of Agriculture, which aims to impart capacity among extension functionaries to provide a better advisory services to the management of pests in paddy, cotton and chillies in Warangal district (Telangana State). Similarly, MANAGE in collaboration with Telangana state University for Veterinary Sciences (PVNR), Hyderabad is developing an ICT enabled Sustainable Information Resource Centre (SIRC) for animal husbandry to disseminate the livestock information to the farmers.

Accelerating capacity of agri startups

The institutional collaboration of MANAGE with IIIT-Hyderabad in Agri-Tech Startup Accelerator Programme would help the agri start-ups to grapple with new ideas and innovations in agriculture and possible ways of upscaling to solve the agrarian crisis.

Capacity building through Internet of Things (IoT)

NICE-The Network for Information on Climate Change was developed under ProSoil Project. The proSoil Project is a part of the global initiative of the Federal Government of Germany. The project has its collaboration with NABARD, NGOs such as Foundation for Ecological Services, BAIF Research and Development Foundation and Watershed Organisation Trust (WOTR). MANAGE focuses on capacity building, technical guidance and overall network management at national as well as state levels. MANAGE ensures the capacity needs of various stakeholders participating in NICE so as to provide location specific and validated advisory services to farmers. MANAGE has adopted a strategy facilitating the network approach as National Consortium Facilitating Agency (NCFA).

Schemes led institutional convergence for the development of human resources

The flagship programmes such as Post Graduate Diploma in Agricultural Extension Management (PGDAEM), Agri Clinics and Agri Business Centre (AC&ABC), Diploma in Agricultural Extension Services for Input Dealers (DAESI), Certified Farm Advisor (CFA) and Skill Training for Rural Youth (STRY) are considered to be “the best fit” models in fostering inter institutional convergence. PGDAEM, AC&ABC, DAESI, CFA and STRY establishes a inter institutional convergence with institutes such as ICAR-institutes, State Agricultural Universities (SAUs), SAMETIs, KVKs, ATMAs, Private organisations, agri input companies and NGOs in implementing capacity building programmes for extension functionaries, agripreneurs/prospective professionals, input dealers and farmers across the country, with which MANAGE has been implementing various mega schemes effectively with a limited manpower and cover a large number of stakeholders in capacity building activities.

CONCLUSION

It is more applicable to Agricultural University to develop a World Class University as it is the heart of

economic growth for a country like India. It will ensure the development of manpower with global standards who can think innovatively and generate breakthrough technologies, which will help the growing economy to sustain and address the emerging challenges.

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Received on 26.04.2019 and revised on 13.05.2019