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## Higher Agricultural Education in Ethiopia: Current status and future prospects

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### ABSTRACT

Higher Education quality and relevance is an increasingly important issue in Ethiopia. Previous reforms have significantly increased financing, access and enrollment as well as transformed governance of the higher education system. This study assessed the status of higher agricultural education in Ethiopia and identified key issues for improving its relevance, quality and contribution to national development objectives. The study involved a desk review of literature, key informant discussions, focused group discussions and analysis. The findings revealed that although access to higher education in Ethiopia has improved significantly in the last two decades, important gaps, including those of quality and relevance, equity, leadership and governance remain. There are currently 176 undergraduate and more than 300 postgraduate academic programs in Ethiopia, with 35% female, and 15% private students enrolment. Of these, 50 undergraduate, 74 Masters, and 22 Doctoral programs are related to agriculture in public universities. Discussions with key informants revealed that there was a low perception of agriculture as a program of study. University programs need to be aligned to employment opportunities and relevant staff employed to support program delivery. Facilities for teaching, particularly the science subjects require improvement. The Ethiopian government should consider mechanisms to support the improved transition of graduates to employment, job creation and other opportunities.

Key words: Agricultural development, Agricultural education, Ethiopia, Higher education

### RÉSUMÉ

La qualité et la pertinence de l'enseignement supérieur est une question de plus en plus importante en Éthiopie. Les réformes précédentes ont significativement augmenté le financement, l'accès et l'inscription ainsi que transformé la gouvernance de l'enseignement supérieur. Cette étude évalue l'état de l'enseignement supérieur agricole en Éthiopie et cerne les questions clés pour améliorer sa pertinence, sa qualité et sa contribution aux objectifs de développement nationaux. L'étude comportait un examen de la littérature, des discussions avec les informateurs clés, de groupes de discussion et d'analyse. Les résultats ont révélé que bien que l'accès à l'enseignement supérieur en Éthiopie s'est sensiblement amélioré au cours des deux dernières décennies, d'importantes lacunes, y compris ceux de la qualité et la pertinence, de l'équité, du leadership et de la gouvernance demeurent. Il y a actuellement 176 programmes de premier cycle et plus de 300 programmes d'études postuniversitaires en Éthiopie, avec 35% de femmes, et 15 % élèves privés d'inscriptions. De ce nombre, 50 programmes de premier cycle, 74 maîtres, et 22 programmes de doctorat sont liés à l'agriculture dans les universités publiques. Les discussions avec les informateurs clés ont révélé qu'il y avait une faible perception de l'agriculture comme un programme d'étude. Les programmes universitaires doivent être alignés sur les possibilités d'emplois pertinents pour appuyer la prestation des programmes. Les équipements pour l'enseignement, en particulier des sujets scientifiques nécessitent des améliorations. Le gouvernement éthiopien doit envisager des mécanismes pour appuyer l'amélioration de transition des diplômés à l'emploi, la création d'emplois et autres possibilités.

Mots clés : Développement agricole, Enseignement agricole, Éthiopie, Enseignement supérieur

### INTRODUCTION

Ethiopia, with an area of about 1.1 million square km, an estimated population of over 90 million is one of the largest countries in Africa. Its economy is experiencing

one of the highest growth rates in the World, with an annual growth rate averaging 10.9% over the past ten years, twice the Sub Saharan Africa (SSA) and triple the world average although from a very low starting

position (World Bank, 2009). The Agricultural sector remains the primary source of employment for the majority of the population and accounts for 46% of GDP, 73% of employment, and nearly 80% of foreign export earnings, despite its decreasing share in GDP (CSA, 1998; CSA, 2013). The sector like in many SSA countries is mainly operated by smallholder farmers, with farms of less than two hectares. Agriculture spending has remained at 14.7% of its overall budget.

Ethiopia's vision is to be a middle-income economy by 2025 with development policy directed at specific targets towards the total eradication of poverty, fast and sustainable development in the context of regional and global states of political economy. The current role of the university sector in the development process within the agricultural sector is not well articulated. The wider concept of university-industry linkage is a recent practice in Ethiopia as in many African countries (Calestous, 2012). There is a need to enhance the current understanding of Ethiopia's higher education system, and recommend actions to maximize the impact of agriculture through science, technology and innovation (STI) for economic growth and development. The objective of this study was to assess the status of Ethiopian higher education system, identify the challenges and gaps with special emphasis to the agricultural education programs, and make specific recommendations to enhance the performance and the contributions of higher education to agricultural growth in line with the Malabo 2014 Declaration.

## RESEARCH APPROACH

A desk study was undertaken to review available literature on higher education in Ethiopia. Group discussions were held with key Higher Education experts such as from the Higher Education Relevance and Quality Assurance Agency (HERQA) and the Education Strategy Center (ESC). Information was gathered from universities using a checklist to gather data on institutional, organizational, resources (facilities, staff, etc) and challenges of higher education programs. Additional data were collected from the Ministry of Agriculture and Rural Development, the Ethiopian Institute of Agricultural Research (EIAR), and from the Ministry of Finance and Economic Development (MOFED), among others. Key informants' interviews were organized with senior scholars in the Higher Education system and university leaders. Availability, Access and Utilization (AAU) of higher education service was used as an approach.

## RESULTS AND DISCUSSIONS

### *Higher Education Policy*

Higher learning institutions have missions of supplying demand driven, professionally competent, skilled and attitudinally mature graduates, supplying relevant and

client/problem oriented technologies through innovative research, and contribute to the realization of the national vision of attaining a middle income economy by 2025. The Ministry of Education (MOE) has implemented successive five year education sector development plans (ESDP), including the ESDP I, ESDP II, ESDP III and ESDP IV, with the latest ending in 2014/15. ESDP IV coincided with the first national GTP. Following the GTP, the STI policy implementation identified 17 sectors in which universities are required to establish bilateral partnerships with industries in their respective domain areas. The first four successive ESDP were criticized for not being inadequately reviewed during annual education development plan preparation. In general, strategic thinking or practical long-term planning culture was only initiated at the development of the first GTP. The current ESDP V tactical plan and the education sector GTP II for the five year period from 2015/16 are focused on consolidating the existing universities and establishing 11 new universities, improving equity, relevance and quality of tertiary education, strengthening research and technology transfer, and institutional leadership, collaboration and internationalization. In addition, development of leadership, good governance, and performance improvement tools, such as the Business Process Re-engineering, Balanced Score Card, Kaizen and the Education Development Army backed by public interest centered attitudinal changes have been practiced in the higher education institutions. They have contributed to improve operational efficiency, although at the same time reduced the perception of institutional ownership by the staff.

The Government views higher education and particularly the STI development program as the engine of economic growth. In this regard, the government enacted the Higher Education Proclamation No. 650 in 2009, following a series of legislations of education sector development<sup>1</sup>. The proclamation directs to expand higher education, provides legal framework to ensure relevance and quality of education and research, provided bylaws and system of governance, among others (FDRE, 2009).

### *Higher Education Institutions*

There are currently 36 public and four private universities in Ethiopia in the four regional states. There are over 176 undergraduate academic programs and 25 public universities and 4 private universities run postgraduate programs (MSc/MA and PhD). Although 10 universities are administering PhD programs, almost all established universities have started or planned to run postgraduate programs.

Addis Ababa University (AAU), which was established in 1950, is the largest university in Ethiopia, currently

with 48,673 students (33,940 undergraduate, 13,000 MSc/MA and 1733 PhD candidates) and 6043 staff (2,408 academic and 3,635 support staff). At its 14 campuses, the University runs 70 undergraduate and 293 different post graduate programs (72 PhD and 221 Masters Programs), and various specializations in Health Sciences. Over 222,000 students have graduated from AAU since its establishment.

Following an agreement between the Government of Ethiopia and the Technical Cooperative Administration of the United States of America, signed on May 16, 1952, Oklahoma State University started its collaboration to establish and provide technical backstopping to the Alemaya College, to conduct a nationwide system of Agricultural Extension and to set up an agricultural research and experimental station. Haremaya (the then Alemeya) University, as the second university, was accredited in 1986. Today, Haremaya University has 33 MSc and 15 PhD programs, all agricultural, in addition to a number of other programs. Other universities followed, including Awasa University, Arbaminch University, Gondar University, Jima University, Mekele University, Bahir Dar University, and Dilla University.

The Higher Education Proclamation of 2003 introduced greater autonomy, cost sharing, establishment of the Quality and Relevance Assurance Agency (HERQA) and the Higher Education Strategy Center (HESC). This led to establishment of the ‘second generation’ universities that included 13 universities- Adama, Debrebirhan, Debremarkos, Aksum, Jigjiga, Semera, Medawelabu, Wellega, Wollo, Mizan, Wellayta-sodo, Ambo, and Dire Dawa.

A third set of universities were created in 2010. These are Addis Ababa Science and Technology, Adigrat, Asosa, Bulehora, Debretabor, Metu, Wachamo, Woldia, Wolkite, Civil Service University, Defense University, Kotebe University Gambella, and Arsi.

**UNIVERSITY RELEVANCE AND QUALITY**

Universities are monitored for effectiveness through local forums, including higher education academic programs, administrative programs, ICT, research programs, and the Public Universities consortium, and the education sector level transformation forum. The study revealed that there was inadequate attention on practical skills in most educational curricula which focus on theoretical or knowledge attributes. In 2011/12, all undergraduate program curricula at universities were revised and harmonized to ensure minimum competencies in the respective disciplines, despite limitations in the implementation process. In addition, the ESC has developed the National Qualifications Framework (NQF) for universities and the TVET by benchmarking experiences from regional and international education systems to ensure the standards of education quality. The qualifications framework had previously been implemented only by the TVET subsector since 2006.

Proper implementation of the curricula is also affected by the availability of staff and facilities particularly the adequacy and quality of library/ literature, laboratory facilities and teachers. In 2014/15 there were about 27,752 academic staff at universities, out of which about 11% were females and about 4.5% were expatriates. The staff to student ratio has remained below the 1:19 national target in the last decade and requires critical attention (Figure 1). Shortage of qualified academic staff is serious problem for most universities. Incentives are required such as ensuring adequate living conditions for academic staff.

**ACCESS TO HIGHER EDUCATION SERVICES**

In 2014/15 academic year, the higher education system had a total of 755,244 undergraduate students in more than 176 programs of which 35% were female and, private students accounted for 15%. The proportion of females continues to increase, but is still lower than

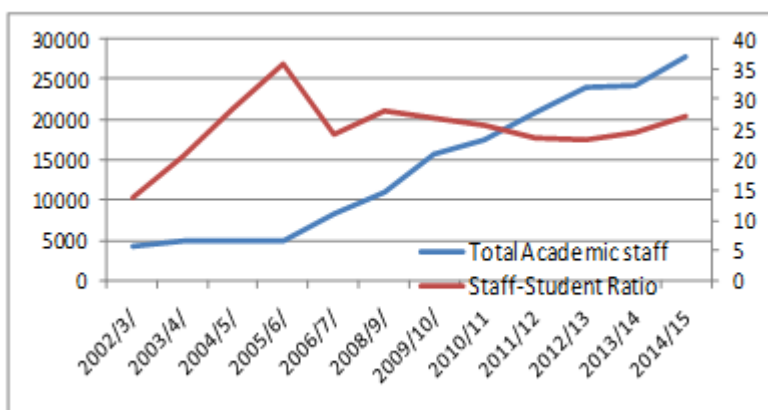


Figure 1: Staffing in Ethiopian Universities during the period 2002-2015

Source: Education Statistical Abstract

the average for developing countries (55%). Parallel programs including the summer, the evening, and the Distance programs enroll more than 45% of the students. Gross enrollment rate of higher education has been increasing, and it is about 9.4%, which is very low as compared to the World average, i.e., 30% (Figure 2).

Approximately 20% of students from secondary school system transition to universities, with the rest largely joining TVET colleges. A key challenge had been the lack of access to Higher Education due to lack of space in the universities for students that qualify. The Ethiopian government policy calls for a 70:30 intake into Science, Technology and Engineering programs and Social sciences and Humanity programs, respectively. Allocation of students to the different universities and programs is managed centrally by the government by considering the space available for each program in the universities and students' preferences. Students may or may not get their choices depending on their relative grade point as compared to that of other students who have chosen to join the same field. Most students prefer to join health related programs, and some fields of Technology and Engineering programs, while most students do not have as first choice disciplines such as agriculture, languages, mathematics, and physics. Private universities primarily take those students who have the capacity to pay tuition fees, and often those unable to obtain their first choice subjects.

The distribution of undergraduate students in 2014/15 over the key disciplines was closely aligned to Government policies with total Science, engineering and technology accounting for 62% (Figure 3). Engineering and Technology, Natural and Computational Sciences, Medicine and Health Sciences, Agriculture, Business and Economics, and Social

Science and Humanities had shares of 33%, 12%, 9.5% 7.5%, 16% and 22%, respectively.

Postgraduate enrollment is increasing as shown in Figure 4. Currently, there are more than 34,000 postgraduate students, of whom 11% are PhD candidates. Although this number has increased significantly, the share of postgraduate students is less than 5%, a significant increase from the year 2000, when there were less than 1500 postgraduate students. The increment in the period 2000 to 2005 was 5000, and from 2010/11 to 2014/15 by 14000.

### FINANCING HIGHER EDUCATION IN ETHIOPIA

Education sector development is financed by the government. About quarter of the national budget has been allocated to the Education sector on average, and, out of which, about 15 to 20 % is allocated for Higher Education programs and 45 to 60% is allocated to the Education subsector. The budget of Higher education has increased from less than half a million Birr in 2000/1 to about 6 billion Birr.

The government has also implemented students' cost sharing scheme for undergraduate program, where students are subjected to pay 15% of all costs incurred by the government. Some Ethiopian universities, including Addis Ababa, Haremaya, Mekele, Bahir Dar, Jimma, etc. often provide scholarships to selected students of the neighboring countries, such as Eritrea, Somalia, Rwanda, etc.

Proclamation No. 650 permitted the Higher education institutions to generate their own income, and use it to strengthen their institutional capacity. Financial dependence of the universities on the government has been partly argued as a limitation due to a perception that it decreases competition, and hampers institutional

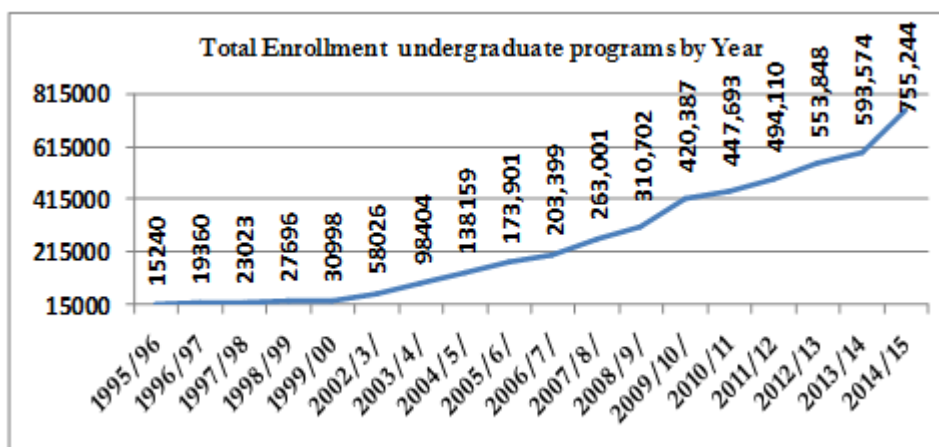


Figure 2: Trend of the number of undergraduate students' enrollment

Data Source: Education Statistical Abstract

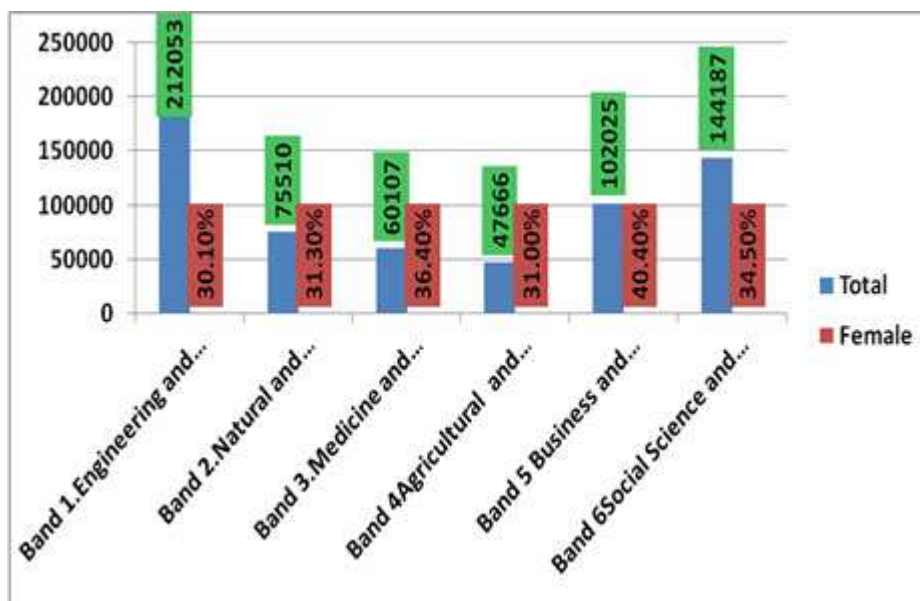


Figure 3: Distribution of undergraduate students of public universities by colleges or Bands

Data Source: Education Statistical Abstract

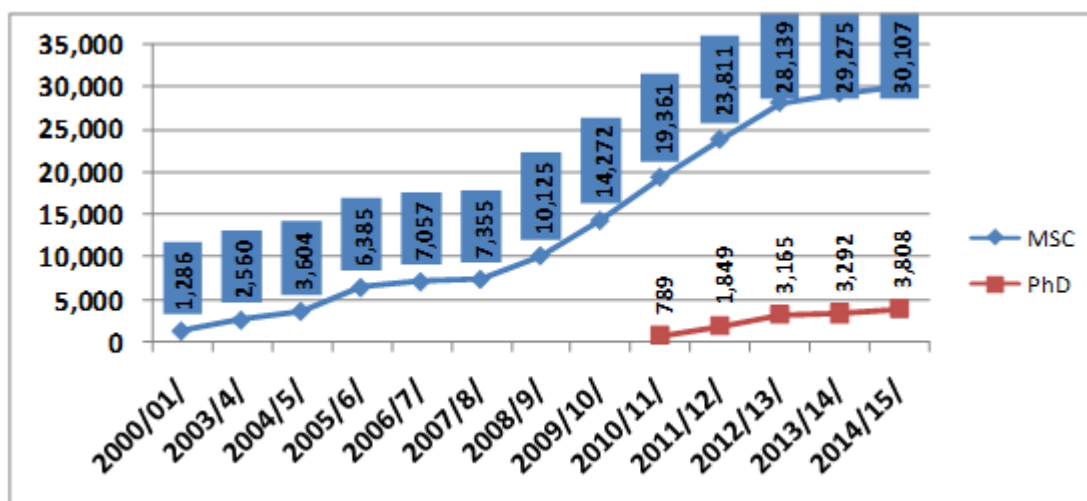


Figure 4: Trend of the number of students enrolled under post graduate programs

Data Source: Education Statistical Abstract

innovation (The World Bank, 2000). On the other hand, universities are expected to satisfy public interests, and this can only be ensured through the enforcement of the state. Therefore, it can be justifiable at early stage of development to have more control of higher education system by the state; however, with growth and development, it would be of advantageous to have access for differentiated universities, in terms of ownership, sophistication and finance sources. Specifically, the social benefit above and beyond the private return provides an economic justification for government’s action and control over the institutions.

A large proportion of research funding is obtained from development partners from outside Ethiopia. In such

cases, externally sourced research budget could be greater than the amount allocated by the government.

### AGRICULTURAL HIGHER EDUCATION PROGRAMS IN ETHIOPIA

All public universities, except Dire Dawa and Adama Science and Technology Universities, have a college of Agriculture. The universities are also considering Agricultural programs to access community development engagements. The share of students of the Agricultural programs out of the total in undergraduate programs is about 7.5% as indicated in Figure 2. There are about 50 undergraduate agricultural programs in public universities. In addition, there are 74 thesis based Masters and 22 Doctoral programs in



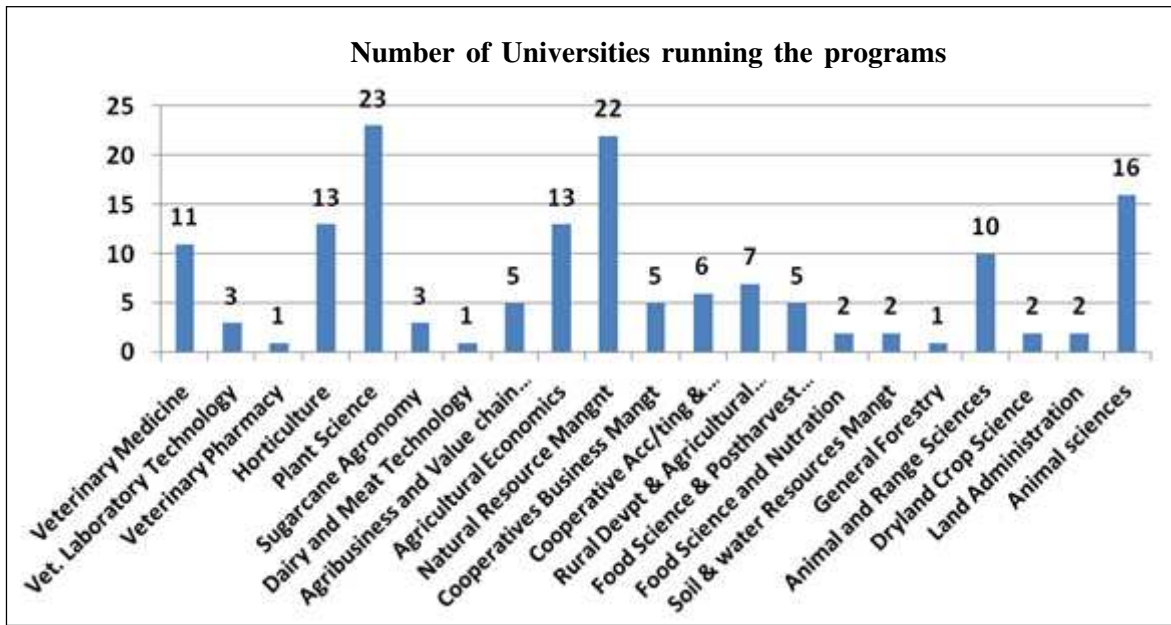


Figure 5 a: Number of Universities running agricultural programs

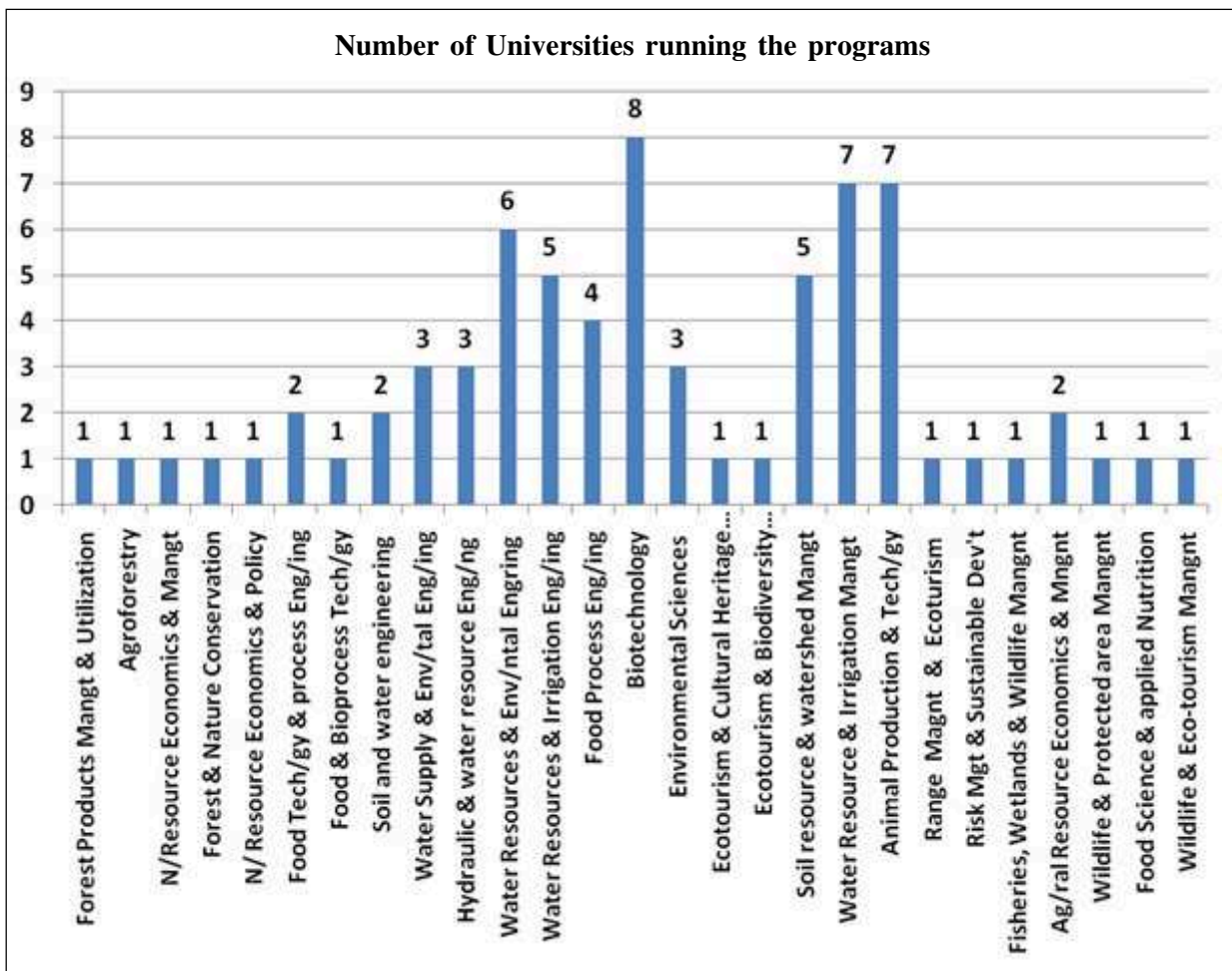


Figure 5 b: Number of Universities running agricultural programs

Haremaya University, Awassa University, Jimma University, Addis Ababa University, Bahir Dar University, Mekele University, Ambo University, Dilla University, etc. As indicated in Figure 5, programs such as Plant Science, Natural Resource Management, Animal Science, Agricultural economics, Horticulture, Veterinary Medicine and Animal and Range Sciences are administered in more than 10 universities. Biotechnology, Rural development and Agricultural Extension, Water Resource and Irrigation Management, Animal Production and Technology, Water Resource and Environmental Engineering, etc. are also administered in more than five universities.

A number of universities have more than 10 agriculture related fields. For example, Awassa University, 20; Haremaya University, 18; Aksum University, 12; Bahir Dar University, 12; Ambo University, 11; Jimma University, 10; Wolkite University, 10; Woldia University, 9; Gondar University, 9, etc.

Agricultural programs are least preferred by students, except for very few programs, such as Agricultural Economics. As a result, most of the Agriculture faculty students are the least performers in their secondary schools, many of whom are assigned by the government. The least preferred nature of the field is due to the status of agriculture professionals, with tiresome job and least incentive, living in undeveloped rural areas with difficulty of getting alternative market, health, and education services. As a result, a number of graduates, especially in the lower level structure are considering agriculture related jobs as a transitional job.

## DISCUSSION

Effectiveness of higher education cannot be ensured just by the number of graduates. The academic programs are expected to be opened after a series of situation analysis with stakeholders and be approved by the senate and the administrative board of the university, despite the universities having the right to commence, upgrade or close an academic program. The presence of unemployed groups of graduates in the country is partly associated with the practice of certain universities who are opening programs without a critical assessment of the employment opportunities for the graduates. Academic program commencement and development should also be in line with the national development path, as the change in the structure of national economic system demands special patterns of development programs and skill set.

It is also necessary to ensure that a graduate obtains a minimum competence in the respective profession. The education system has implemented education quality package components including the revision and modularization of academic programs, despite its

suboptimal implementation. Higher number of students per class and heavy load on the academic staff also compromises the quality of education. Critical areas of intervention includes, the development of efficient governance system, supply of necessary educational facilities, quality teachers' recruitment, training and retention system, practice based teaching and learning, critical assessment technique, establishing quality standards, etc. Implementation of the NQF may correct some of these challenges.

Careful selection of students and strengthening the relevance of academic programs need attention to increase the employability of graduates. Advising and supporting professionals for employment or job opportunities is economical for a country as the generated economies do have potential forward and backward multiplier effects on the national economy. Therefore, governments should work hard to improve employability of graduates, otherwise they become a source of social unrest. In addition, improving policies of labor mobility across different regions could increase employability of graduates. As development is primarily a function of innovative power of citizens, governments should critically reconsider the system of use of professionals in development programs and in policy formulation, or, in general, in their sense of national ownership. Intellectual value of professionals should be recognized and promoted.

## CONCLUSION AND RECOMMENDATIONS

The Higher Education sector in Ethiopia has grown in all dimensions. Although access has improved significantly in the last two decades, important gaps, including quality and relevance, equity, leadership and governance, and financing system remain. There are 176 undergraduate and more than 300 postgraduate academic programs in Ethiopia. Most students prefer to join health related programs, and some fields of Technology and Engineering, while most students decline to choose Agriculture related fields, Teaching fields including Languages, Mathematics, Physics, etc. Gross enrollment rate of higher education is about 9.4%, which is still lower than the World average of 30%. Enhancing Agricultural productivity is critical in Ethiopia, however, Agricultural fields are least preferred by students, attracting most weak candidates. The following are recommendations to the higher education system performance in Ethiopia:

1. **Academic program development:** There is need to review and develop academic programs that respond to key capacity challenges of graduates in line with market needs and demands. University graduates should be harnessed to provide input to the program development. Opportunities such as the World Bank supported African Centers of



Excellence initiative should be harnessed and the Government of Ethiopia should consider funding from its own envelope capacity building in areas of strategic importance;

2. **Ensuring competence of graduates:** - The National Qualifications Framework can be enforced better by endorsing regional qualifications framework. In addition, regional competition for excellences in academic programs may also help to develop productivity and innovation.
3. **Mechanism of attracting and developing academic staff:** Incentives need to be put in place to ensure recruitment and retention of high quality academic staff, especially at PhD level.
4. **Developmental attitude of professionals:-** Management of academic staff should consider the factors that hamper them from contributing their maximum possible benefit, such as divergence in terms of sharing national vision because of loosely managed academic politics, professional incompetence, assignments outside of merits, and unsatisfactory salary.
5. **Cost of replicating programs versus specialization:** Geographic and climatic similarities of the locations of universities motivates them to have similar academic programs, particularly in the colleges of agriculture. Although the programs could facilitate the development of related subsector economy in their surrounding through research and community development, it is difficult to capacitate each campus with quality e laboratory facilities. Therefore, establishing centers of excellences in different universities can be economical in certain programs that demand expensive laboratory facilities.
6. **Strengthening private sector engagement:** There is need to enhance the linkages between the university and the private sector, particularly to ensure greater responsiveness of the university to the private sector needs. The private sector should be incentivized to increase investment in higher education.
7. **Enhancing regional collaboration:** Ethiopia should consider how to benefit from expertise in the region as means to strengthen quality of local training programs, and also to enhance collaboration with other African countries. For example, the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) of which a number of Ethiopian universities have membership could be harnessed to improve staff capacity and competence.

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#### STATEMENT OF NO CONFLICT OF INTEREST

We the authors of this paper hereby declare that there are no competing interests in this publication.

#### REFERENCES

- African Development Bank/ African Development Fund. 2011. Eastern Africa Regional Integration Strategy Paper 2011 – 2015.
- Agricultural Transformation Agency, 2014. Transforming Agriculture in Ethiopia. Annual Report 2013/14. Addis, Ethiopia
- Demese Chanyalew, Berhanu Adenew and Mellor, J. 2010. Ethiopia's Agriculture Sector Policy and Investment Framework: Ten Year Road Map (2010-2020). A Consultancy report, conducted for the Federal Democratic Republic of Ethiopia Ministry of Agriculture and Rural Development ([http://gafspfund.org/sites/gafspfund.org/files/Documents/Ethiopia\\_5\\_of\\_6\\_CAADP\\_Post\\_compact\\_Investment\\_Plan\\_%28PIF%29\\_0.pdf](http://gafspfund.org/sites/gafspfund.org/files/Documents/Ethiopia_5_of_6_CAADP_Post_compact_Investment_Plan_%28PIF%29_0.pdf))
- Dercon, S. and Zeitlin, A. 2009. Rethinking agriculture and growth in Ethiopia: A Conceptual Discussion Paper prepared as part of a study on Agriculture and Growth in Ethiopia ([http://users.ox.ac.uk/~econstd/ethiopia%20paper%202\\_v2.pdf](http://users.ox.ac.uk/~econstd/ethiopia%20paper%202_v2.pdf))
- Ethiopian Science and Technology Agency (ESTA). 2006. National Science, Technology and Innovation (STI) Policy of Ethiopia (Draft). Addis Ababa
- Federal Democratic Republic of Ethiopia (FDRE). 2009. Higher Education Proclamation No. 650/2009; No. 64 Addis Ababa. 9
- Federal Democratic Republic of Ethiopia Ministry of Agriculture and Rural Development (FDRE/MOARD).2010. Ethiopia's Agricultural Sector Policy and Investment Framework (PIF) 2010-2020. Final Report, 15 September 2010.
- Juma, Calestous. 2012. Building New Agricultural Universities in Africa. Faculty Research Working Paper Series. Harvard Kennedy School.
- Ministry of Education (MOE). 1994. Federal Democratic Republic Government of Ethiopia Education and Training Policy. St. George Printing Press; Addis Ababa, Ethiopia.
- United Nations Development Programme (UNDP). 2014. *Country Economic Brief*. Analysis Issue No. 1.
- World Bank. 2000. Higher Education in Developing Countries: Peril and Promise. Washington, D.C. 20433, U.S.A.
- World Bank. 2009. Accelerating Catch-up: Tertiary Education for Growth in Sub-Saharan Africa. Directions in Development, Human Development. Washington, D.C. 20433, USA.