



REENVISIONING HIGHER EDUCATION AND RESEARCH IN ETHIOPIA

PROCEEDINGS OF THE SECOND
SCIENCE CONGRESS

THE ETHIOPIAN ACADEMY OF SCIENCES
26 – 27 November 2015
United Nations ECA - Africa Hall
Addis Ababa

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Africa Hall
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Ethiopian Academy of Sciences
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Ministry of Science
and Technology



Ministry of Education



Copies of this report are available at the Ethiopian Academy of Sciences.



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ACRONYMS

AAU	Addis Ababa University
ADC	Academic Development Centers
EAS	Ethiopian Academy of Sciences
EPRS	European Parliamentary Research Service
ESC	Education Strategy Center
ESDP	Education Sector Development Program
GTP	Growth and Transformation Plan
GER	Gross Enrolment Rate
HERQA	Ethiopian Higher Education Quality and Relevance Assurance Agency
HESO	Higher Education System Overhaul
INQAAHE	International Network for Quality Assurance Agencies in Higher Education
MOE	Ministry of Education
MoST	Ministry of Science and Technology
MSEs	Macro and Small Enterprises
SSA	Sub-Saharan Africa
ILO	International Labour Organization
TVET	Technical Vocational Education and Training in Ethiopia



ABOUT EAS

The Ethiopian Academy of Sciences (EAS) is an autonomous, non-profit, non-governmental organization established by Proclamation 783/2013 in March 2013. The Academy was first founded on March 27, 2010 by a group of prominent scholars drawn from a variety of disciplines and was launched on April 10, 2010. The initiative to establish the Academy began in 2007 through informal discussions among concerned scientists who felt the need for promoting a culture of science and science-based development in the country.

EAS aims to provide evidence-based advice to the Government and to promote the development of the sciences and their applications. It plans to do this by undertaking consensus studies, organizing conferences and workshops on significant national issues, awarding prizes in recognition of excellence and publishing reports in its own journal as well as other periodicals and books. EAS also aspires to promote literature and the arts and make a contribution to cultural revival through the cultivation of the arts and generation of public interest and engagement.

GOVERNANCE

The General Assembly is composed of Fellows of the Academy. The Board consists of eight members elected from among Fellows and three members assigned by the Government (a representative of the Ministry of Science and Technology and two representatives of Government Research Institutes). The Board makes decisions on all matters affecting the Academy, including management and coordination activities. The Executive Committee comprises the President, the Principal Vice-President, the Vice-President and the Treasurer, monitors and assists implementation of decisions of the General Assembly.

The Secretariat, led by the Executive Director, is responsible for the execution of day-to-day activities of the Academy subject to the general guidelines of the Board.

I

ABOUT

THE SECOND

SCIENCE CONGRESS

1. Background

It has been established that knowledge production and the pursuit of higher education is critical for a country's economic development. High quality and relevant tertiary education is vital to stimulating innovation, developing human resources, building scientific and technological capability, and facilitating progress toward reducing poverty. Global competitiveness, increased productivity and sustainable economic development also hinge upon quality of education.

Ethiopia aspires to achieve middle income status by 2025. The vision of the Science, Technology and Innovation Policy of Ethiopia is to realize this aspiration by establishing the capabilities which enable rapid learning, adaptation and utilization of effective foreign technologies. This requires an educated and skilled workforce without which joining middle income countries by 2025 is unthinkable. An educated and skilled workforce is the engine that propels sustainable economic, social, scientific, and human development.

It is in light of this that the Government of Ethiopia has placed great emphasis on expanding higher education as part of its development goals. Over the past decades, the number of universities has increased dramatically, old ones have been overhauled, new graduate programs have been opened and specialized institutes have been launched at different universities. The question then is how to balance expansion with quality if the country is to improve its human capital and meet the requirements for the transition to an industry-led economy, the basis of which is a knowledge-based and skilled human resource.

Universities have been incorporating development values and practices into their core activities of teaching. However, unless quality of education is ensured, these ideas cannot be fulfilled and universities in Ethiopia cannot achieve what they are set out to accomplish. The goal of universities is also to foster critical thinking.

A university should be a place where skills for creating, analyzing, evaluating, and synthesizing information/knowledge are developed to improve academic human capital.

Currently, in many university campuses in Ethiopia, cultivating critical thinking and intellectual curiosity does not seem to have a prime place. As a result, many of them lack intellectual vibrancy that is characterized by sustained intellectual discussions. The practice at our higher education institutions rather is to instill or inculcate everything into students with correspondingly little allowance for learning opportunities that motivate and enable them to actively engage in their own learning and intellectual development. Therefore, there is a concern that compromising on quality of education leads to passive learning and the production of an unskilled workforce.

University education has also been coming under increasing pressure to adjust itself to the demands of the job market in a manner that appears to privilege the interests of business or industry over those of larger society and the nurturing of the culture of the appreciation of knowledge as a value in itself.

One of the key features of universities is research which is critical in knowledge production. Universities are central institutions in contemporary knowledge economy that generate knowledge, innovative thinking and a skilled workforce. Knowledge production has now replaced ownership of capital assets and labor productivity as the source of growth. The creation of top research universities is crucial in the production/creation/transfer of knowledge and technology and in fostering global competitiveness.

Research universities play a critical role in training professionals and researchers and in generating new knowledge to support national innovation systems. They provide the key link between global science, scholarship and the nation's scientific knowledge system. In order to be globally competitive, Ethiopia needs to continuously innovate and expand its knowledge-base. Innovation and creation of knowledge depend on the unencumbered pursuit of research and of higher learning and independent scholarly pursuit which call for a dynamic and quality leadership.

Universities also need visionary leaders who can enhance their intellectual bases and develop their resource needs. They need leaders who can effectively forge international collaborations to facilitate technology and knowledge transfer, work with different stakeholders, ensure effective involvement of faculty and students, provide intellectual leadership, and promote effective governance structures.

Understanding the need for addressing these challenges and in line with its mandate, the Ethiopian Academy of Sciences dedicated its Second Science Congress to higher education and research in Ethiopia. The strategic objective of the Congress was to create a platform where

pressing issues of higher education and research in Ethiopia are debated and appropriate and scientifically-based policy recommendations are made to the Government.

The Congress was held in partnership with the Ministry of Science and Technology, Ministry of Education, the Education Strategic Center and Unity University.

The main theme of the Congress was ***Re-envisioning higher education and research in Ethiopia*** and it was divided into the following four sub-themes: *Academic environments in universities: creation of inquiring minds and all-rounded citizens; Quality of education, curriculum relevance and graduate employability; The need for research-intensive universities in Ethiopia; and Leadership and participatory governance in Ethiopian universities.*

The Congress brought together one hundred and eighty participants, representing government and institution representatives, academics from within and outside the country, university presidents, and various stakeholders.

1.1 CONGRESS SUBTHEMES

EAS believes that improving quality of higher education and enhancing research capacity in Ethiopia are necessary conditions for meeting the country's development agenda. The Congress provided the opportunity for stakeholders to deliberate on the following four sub-themes to make policy recommendations to the Government in order to assist its development goals.

i. *Academic environments in universities: creation of inquiring minds and all-rounded citizens*

The sub-theme looked at the responsibilities of universities in fostering critical thinking among students, enhancing their capacity to think independently and nurturing their analytical thinking so that they cultivate their personal attributes and become all-rounded citizens.

ii. *Quality of education, curriculum relevance and graduate employability*

This sub-theme addressed issues of quality, curriculum relevance, graduate employability, university/industry linkage, and the need for relevant policy frameworks and strategies to ensure the development and availability of a well-trained human resource in the required numbers.

iii. *The need for research-intensive universities in Ethiopia*

The sub-theme dealt on enhancing quality of research outputs, producing highly qualified

researchers, establishing designated and world-class research universities, creating access to research findings, pursuing knowledge for its own sake, and fostering the relationship between research and development.

iv. ***Leadership and participatory governance in Ethiopian universities***

This sub-theme covered issues on the establishment of dynamic, intellectual and quality leadership and participatory governance structures, optimal management, and adaptation to changing economic, demographic and market conditions.

1.2 OBJECTIVES OF THE CONGRESS

The major objectives of the Congress

- To assess the current state of higher education in Ethiopia
- To stimulate discussion on the challenges that it is facing
- To bring to the attention of the Government and major stakeholders the need for change in the way universities are governed, organized and managed and help policy formulation for the way forward
- To help universities become hubs of excellence and centers of knowledge production

1.3 EXPECTED OUTCOMES

- A shared understanding of the challenges and opportunities of higher education and research in Ethiopia among stakeholders
- A shared vision about the future direction of higher education and research in Ethiopia
- A framework for enhancing national competitiveness through identification and support of research-intensive universities
- A re-orientation of the national policy on higher education and research

1.4 CONGRESS METHODOLOGY

The Congress lasted for two days and encouraged active engagement of participants and networking. The formats were:

➤ Opening Session

This included introductory remarks and keynote addresses by honorable and distinguished national and international guests.

➤ Presentations

This involved presentations by various scholars and university presidents based on Congress sub-themes followed by question and answer sessions.

➤ Round Tables

These comprised facilitated panel discussions on the various sub-themes of the Congress followed by question and answer sessions.

➤ Closing Session

This section of the Congress included wrap of the Congress proceedings, Adoption of Congress Declaration, Vote of thanks, and Official Closing of the Congress.

1.5 VENUE AND DATE OF THE CONGRESS

The Second Science Congress of the Ethiopian Academy of Sciences was held from 26-27 November 2015 at the United Nations Economic Commission for Africa, Africa Hall, Addis Ababa, Ethiopia.

1.6 CONGRESS ORGANIZERS

The Second Science Congress was organized by the Ethiopian Academy of Sciences in collaboration with the Ministry of Science and Technology, Ministry of Education, the Education Strategic Center and Unity University.

II

OPENING SESSION

2.1 Introductory Remarks



Your Excellency Ato Hailemariam Desalegn,
Prime Minister of the Federal Democratic
Republic of Ethiopia,

Your Excellency Ato Abiy Ahmed, Minister,
Ministry of Science and Technology,

Your Excellency Prof. Afework Kassu, State
Minister, Ministry of Science and Technology,
and I proudly add, Fellow of the Ethiopian
Academy of Sciences,

Professor Demissie Habte, President of the
Ethiopian Academy of Sciences,

Professor Masresha Fetene

*Executive Director
Ethiopian Academy of Sciences*

Dignitaries,

Distinguished Guests,

Ladies and Gentlemen,

It gives me great pleasure to welcome you all to the Second Science Congress of the Ethiopian Academy of Sciences. In particular, I would first like to thank H.E. Ato Hailemariam Desalegn for honoring us with his presence at this momentous event.

Education in general and higher education in particular, is the engine of economic growth and social transformation. Countries that have made a pivotal turn in transforming their higher education have been richly rewarded with the transformation of their societies. It is gratifying to learn that this understanding is deep-seated in the policies and actions of the Government of Ethiopia as evidenced by the immense public investment in the higher education sector.

Recently, there have been several discussions on the quality of higher education in Ethiopia. Quality of education, we believe, embodies the intellectual, social and moral development of the individual. At the institutional level, it is the existence of an educational system that unleashes the creative potential of individuals so that they can change their own lives and transform the trajectory of their country for the better.

Positively impacting the quality of higher education is at the heart of the mission of the Ethiopian Academy of Sciences. This Congress has been in the making for two years now, and it is for a reason that this year's Congress theme is titled, ***Re-envisioning Higher Education and Research in Ethiopia***. The Congress is organized not to belabor on the drawbacks of our educational system. Rather we are here to find enduring solutions to the challenges of higher education and research in Ethiopia.

This Congress is divided into four sub-themes: "Creation of Critical Minds and the Academic Environment of Universities." This Session will be chaired by none other than Professor Andreas Eshete, Honorary Fellow of the Ethiopian Academy of Sciences. The theme of second Session is "Quality of Education, Curriculum Relevance and Graduate Employability" is to be chaired by Dr Arega Yirdaw, President of Unity University and author of the book *The Role of Governance in Quality of Education in Private Higher Institutions*.

The third Session is titled, "The Making of Research-intensive Universities" to be chaired by Professor Tsige Gebre-Mariam, former Vice President for Research and Graduate Programs; and the fourth Session is on "Leadership and Participatory Governance in Ethiopian Universities" to be chaired by Professor Berhanu Abegaz, Executive Director of the African Academy of Sciences and Fellow of the Ethiopian Academy of Sciences.

We also have keynote addresses and round table discussions which will further enrich these thematic presentations.

At the end of the two-day Congress we hope to have:

- A shared understanding of the challenges and opportunities of higher education and research in Ethiopia;
- A shared vision about the future direction of higher education and research; and
- A framework for enhancing national competitiveness through identification and support of research-intensive universities in Ethiopia.

Excellencies,

Ladies and Gentlemen,

With His Excellency the Prime Minister gracing our Congress, we are well-set to start a meaningful and enduring discussion that will pave the way for our universities to be centers of intellectual vibrancy and exchange where students, faculty, and leaders are inspired to do their best for themselves and for the nation at large.

Finally, I would like to thank the Ministry of Science and Technology, the Ministry of Education, the Education Strategic Center and Unity University for co-organizing the Congress with the Ethiopian Academy of Sciences and the Swedish International Development Agency, SIDA, a long-standing partner in higher education in this country, for its financial support to the Congress.

Thank you very much for your attention!

2.1 Introductory Remarks



Professor Demissie Habte
President
Ethiopian Academy of Sciences

Honorable Prime Minister Ato Hailemariam Desalegn,

Honorable Minister of the Ministry of Science and Technology Ato Abiy Ahmed,

Excellencies,

Distinguished Guests,

Fellows of the Ethiopian Academy of Sciences,

Invited Guests,

Ladies and Gentlemen,

I take great pleasure to warmly welcome you all, in particular his Excellency, the Prime Minister of the Ethiopian Democratic Republic of Ethiopia, for gracing us with his presence today. This is a clear testimony of the Government's commitment to science, technology and innovation and a recognition of these as critical determinants of sustainable development.

Academies of science around the world, in particular African academies of science, have an important role to play in helping governments and other stakeholders utilize scientific knowledge to improve the life of their citizens and the environment they live in.

There are several sources of scientific advice available to policy makers but national academies have a comparative advantage over others. To cite a few examples; they are homegrown, independent, authoritative, apolitical, and not motivated by profit. They are also transparent and have a convening power to mobilize the best scientific advice. In short, they can be referred to as the SUPREME COURT for Science!!!

The Ethiopian Academy of Sciences is one of the youngest academies in Africa and the world, barely five-years old (which may well be why the President is a pediatrician!). Its establishment by Government Proclamation on March 2013 significantly enhanced opportunities to work closely with the Government.

Fellows of the Academy are selected on the basis of academic distinction as reflected in their scholarly research activities and publications in recognized journals, contributions to their disciplines, institution-building and to human resource development. The Academy is an umbrella organization, encompassing the following disciplines: agriculture, engineering and technology, health, natural sciences, Social Sciences, humanities, and fine arts. Currently, the Academy has 106 Fellows, Associate Fellows and Honorary Fellows.

Honorable Prime Minister,

Distinguished Guests,

In the short span of its existence, the Ethiopian Academy of Sciences has strived hard towards accomplishing its vision of realizing “the development of scientific culture and scholarship in Ethiopia and the improvement of the quality of life of its people.” Let me state at the outset that the support the Academy enjoys from the Government, such as from the Ministry of Science and Technology, has been evidenced in the positive results we have so far achieved. The custodianship of the compound that once belonged to the great Ethiopian scholar, Blaten Geta Hiruy Woldeselassie, by our Academy put the Academy in the geographical map of global science academies and hastened our growth.

I should also recognize the support we have received from several sister academies, including the African Science Academies Development Initiative, the Network of African Science Academies, the US National Academy of Sciences, the Royal Society of the United Kingdom and others.

Honorable Prime Minister,

Distinguished Guests,

Allow me to list some of the major accomplishments of the Academy to date:

- Seven volumes of the First National Assessment Reports on Climate Change have been published and distributed among stakeholders.
- A consensus report on the Establishment of a National Research Council was published and submitted to the Ministry of Science and Technology and to sponsors such as the Swedish International Development Cooperation Agency.
- A Study on the current scientific and technological Human Resources Demand and Supply in Ethiopia and projections for the next ten years, published by the Ministry of Science and Technology.
- A proposal on the Integrated Use and Management Plan for the Grand Renaissance Dam Reservoir was developed and submitted for funding to the Africa Water Facility of the African Development Bank with support from the Government.

Several other activities have also been undertaken. Today's meeting is a gathering in a neutral setting where representatives of academia, Government, and industry are tasked with the responsibility of examining issues of higher education and research in Ethiopia.

I now have the honor of humbly requesting H.E. Ato Abiy Ahmed, Minister of the Ministry of Science and Technology to come to the podium and invite H.E. the Prime Minister to open the Second Science Congress of the Ethiopian Academy of Sciences.

Thank you!

2.3 Official Opening

Representatives of international and regional organizations,

Dear board members,

EAS Fellows,

Invited guests,

Ladies and gentlemen,

It is a great pleasure for me to welcome you all to the Second Science Congress of the Ethiopian Academy of Sciences organized on a very relevant and timely theme - ***Re-envisioning higher education and research in Ethiopia.*** It is indeed an honor and a privilege to me to be here amongst you to address this august gathering of scholars and policymakers.

I would also like to take this opportunity to thank the co-organizers of the Congress for joining their hands with the Ministry of Science and Technology to bring us all together in this



H.E. Ato Hailemariam Desalegn,
*Prime Minister, Federal
Democratic Republic
of Ethiopia*

historical hall to deliberate on one of the most important pillars of our growth and development which are higher education and research. It is also worth acknowledging the Ethiopian Academy of Sciences at this juncture for devoting its Second Science Congress to this theme and for taking the initiative towards this exemplary public/private partnership among major stakeholders.

The role of education in achieving sustainable growth and social transformation of countries is indisputable. Developed and developing countries alike have, therefore, given due emphasis on expanding education vertically and horizontally by allocating continuously substantial amount of resources. It is not, in fact, difficult to witness that those who succeeded in advancing the coverage and quality of education at all levels are reaping the benefits from their efforts. It is with this thorough understanding that the Ethiopian Government has taken higher education and research as one of its national development priorities.

In Ethiopia, during 2002 to 2006 Ethiopian academic years, enrollment for primary education increased from 81% to 93 %, enrollment for undergraduate programs increased from 420,000 to around 600, 000 and enrollment for postgraduate programs from 14,000 to around 34,000. More than 25% of Government budget goes to building the education sector of our economy. However, we cannot claim to have achieved all our set targets. We need to exert more efforts to raise the quality of education and training offered at all our universities. Research, innovation and community service need also to be strengthened and oriented towards problem-solving.

Distinguished Congress participants,

Ladies and Gentlemen,

The Government expects public and private higher education institutions to generate qualified and competent graduates with passion for scientific knowledge, research, technology, and problem-solving through innovation. Nevertheless, the fact is that graduates lack adequate skills due to limited hands-on training. Universities are expected to be centers of excellence for research and technology transfer. They are also expected to produce leaders who promote scientific culture and generate and transfer scientific knowledge.

However, most of them have not reached the desired level. The Government of Ethiopia is determined to enhance the quality of university education and research by creating a more conducive work environment and making the required resources available from our meager capacity that it permits. We call upon all public and private universities to take the issue of quality seriously and commit themselves to do researches that target critical local problems instead of the current practice of largely research for academic promotion only.

We call upon our researchers to contribute to our rally to make Ethiopia a middle income country by 2025. We also call upon our academic communities to lead and coordinate our industries in

transferring matured foreign technologies for the economic development and transformation of our nation. Our universities should focus on wisely using their resources for technology transfer and adaptation researches in general for activities that directly contribute to the growth and transformation of our country. One message is very clear at the beginning of 21st century; we cannot strive for more of the same when the national as well as the global challenges call for a new understanding of growth and responsibility.

The wise and pragmatic approach of ***Re-envisioning higher education and research in Ethiopia*** is consistent with the principles of sustainable development and is indispensable for our renaissance. In this connection from the two-day Congress of EAS, therefore, I expect participants to deliberate on how to bring about real transformative reforms into our public and private universities, how best these universities can contribute to the growth and transformation of our country, on how the universities would be centers of excellence and research, technology transfer, innovation, and of course in job creation. It goes without saying that your deliberations and discussions would make us better informed about the current status of our universities in this regard.

I look forward to receiving the findings and positions of the academic community that would be agreed upon in this Second Science Congress and my Government is keen on making policy and implementing the findings of the Congress. I now declare the Second Science Congress of the Ethiopian Academy of Sciences open.

I thank you for your kind attention!

2.4 KEYNOTE Address



Professor N Barney Pitso
*Professor Emeritus of Law
University of South Africa and
Honorary Professor Department
of Philosophy
Rhodes University, Grahamstown
South Africa*

***Science for society, science for humanity:
discerning knowledge for the
common good in Africa***

Dear Chairperson, the President and Executive Director of the Ethiopian Academy of Sciences, Honourable Ministers and distinguished Congress delegates,

May I beg your indulgence that as I begin this paper, I pay tribute to the late Prime Minister of Ethiopia, the Honourable Mr Meles Zenawi, who died in 2012. The reason I take advantage of this opportunity is because I believe that the late Mr Zenawi dedicated himself to the cause of higher education during his tenure. The expansion of higher education in Ethiopia was a definite policy objective. When he realised that more Ethiopians had to be academically trained, and with the support of the then President of South Africa, His Excellency Mr Thabo Mbeki, he invited me to visit him at his hotel in Pretoria. He outlined his vision and invited Unisa to accompany the people of Ethiopia.

The result was that Unisa established a centre in Akaki, largely devoted to producing academics

with Masters and Doctoral degrees, and to cultivate a research culture and scholarship in Ethiopia, alongside some of the eminent Ethiopian universities. Although I am no longer on the staff of Unisa, colleagues tell me that the programme has by now produced an impressive crop of doctoral degrees, and a solid research and academic culture. As this Congress gets going, I believe that it is worth my while to share this with the people of Ethiopia, especially the scientific community.

My purpose in this paper is to map out the interrelatedness and interdependence of science, and the importance of holding the various strands of scientific endeavour in tension. This will form the foundation for exploring more elaborately what science for society actually means and its implications for the “common good.” I am mindful of the theme of this 2nd Science Congress of the Ethiopian Academy of Sciences, “Re-envisioning Higher Education and Research in Ethiopia.” The theme lends itself to a fresh look at the idea of a university for Africa.

The Academy of Science of South Africa is perhaps one of the few established academies in Africa that insists on a unitary and comprehensive view of science. It has resisted attempts to make explicit in its name the activities of the scientific community in South Africa that include the “scientific” community, narrowly construed, and the social science activities of the Academy.

In a Presidential Address to ASSAf in 2003, the founding President of ASSAf, Professor Wieland Gevers asserted that the conceptual convenience of recognising “science” like other aspects of knowledge that organise and systematise themselves in disciplines, does not and should not suggest that there can be the Great Wall of China among disciplines, or that science is multiplied thereby. Professor Gevers then concluded that “The question for us in South Africa is whether we will derive real benefits from our (minority) position on the integrity of scientific enquiry, in all its manifestations, seeking to address a single reality as best that can be done” (2003:236). I agree with Gevers that the ultimate objective is to ensure the removal of the stubborn “s” or to conduct our business in such a manner that “s” has no conceptual regard in what and how we do science.

In a dialogue/conversation with Harvard philosopher, Hilary Putnam, Bryan Magee explores the source of the divide between philosophy and science. He acknowledges early on that most philosophers have been practising mathematicians and scientists. They may have drifted into philosophers because of their curiosity about the world and its mechanisms for explanation and how it sustains itself and maintains a basis for rationality. He goes on to say that the connection between the scientist and the philosopher is the “basic urge which has driven most great philosophers has been the urge to deepen our understanding of the world and its structure, and this is what creative scientists are engaged in” (1978:226).

Putnam tells us that traditionally science has held together two fundamental principles: one, that scientific knowledge grows by accumulation, and two, that there is the “scientific method” by which truth in science and the laws of nature can be guaranteed and relied upon. Of course, we now know

that in the post-modern age the two principles have been put under question. First, the effect of a developmental or accumulative knowledge acquisition has only limited utility. It suggests that no new knowledge, discovery or human ingenuity is possible. It speaks to science developing out of the graveyard of former theories. In reality, of course, we now know much more about the universe than we ever did since Einstein's Theory of Relativity, or the theory of Quantum Physics. That happens in part because we are capable of challenging some of Einstein's ideas.

Scientific method, the so called "inductive method" has also come under scrutiny. Is there an idea that states "scientific method" is fixed, objective and truth-bearing? We are reminded that the Platonic idea of "forms," meaning that there is a truth that all claims to truth must approximate, definitely lost its currency years ago. This attack on the correspondence theory by Putnam sent shock waves through the scientific community or set the cat among pigeons. And so it should because suddenly the ground was shaken below the centrepiece of the scientific method.

Secondly, says Putnam, in all knowledge observation there is always the human element, the application of mind in the thought process, and hardly a mere copy of what already exists. The result then would be to divide the world in an arbitrary fashion between "science" as natural, and then the "other" that is un-science. The net effect then is that scientific enquiry is sustained not because it claims infallibility, but that it grows and develops out of each theory, tests its ideas, corrects and recognises that theories can be wrong. In Putnam's view, once the inductive scientific method was passé, then one can no longer speak about non-science – for that would be a contradiction in terms. There is no longer any agreement about what constitutes "science." For Putnam then science has become simply "the successful pursuit of knowledge" (1978:234).

We have arrived at a point that says that science is to be open to discovery and to fresh and new ways that the universe discloses itself to the human mind. To Carl Sagan, the American Astro-physicist, science is a way of thinking much more than it is a body of knowledge. In other words, science is the way in which our minds are cultured to observe and read meanings from the universe and from human activity in that environment, such that it shapes the discipline of thinking about that world. Carl Sagan could then comfortably state that "somewhere, something incredible is waiting to be known." In other words, the human mind and activity is wired to explore global and human phenomena.

In summary then, we can say that "science" is science because it stimulates our curiosity and our way of studying the world around us. It is science because it is disciplined and methodical. It is also science because it is open, and it constantly tests hypotheses, or in Thomas Kuhn's language, "Paradigms," and derives rules that hold sway until better rules appear and are adopted. It is also science because the observations and meanings can be verified or falsified.

Finally, it is science because it is inclusive, comprehensive and holistic. A tool for all science is reason and discrimination. All intellectual activity founded upon any search for the 'truth' has to evidence some hard and difficult thinking processes. This is the unity of scientific thought that Thomas Kuhn put forward as the real scientific revolution. This can be stated in the words of Carl Sagan as the advance of sceptical scrutiny. Wieland Gevers offers an apt description of science. It refers to all disciplines that accumulate their 'wisdom' by requiring of their practitioners to plan and labour to obtain evidence to support or eliminate hypotheses derived from previously available evidence or intuition (2004:235). As stated above, Thomas Kuhn labelled this endeavour "the Unity of Science."

In his book, *Why the West Rules the World for Now*, Ian Morris believes that he has figured out why it is that history is so misunderstood and often misapplied. He holds the view that history cannot be viewed in bits in as much as the whole world was a global village. The way to understand it was to bring together a team of scholars, historians, archaeologists, geologists, physicists etc. It is only to the extent that one has recognised that different parts of the history are within the understanding because scientific theories have exhausted all learning of others who bring their mind into the understanding of historical phenomena. A full picture emerges when all viewpoints produce meaning from their various perspectives.

Equally, Thomas Kuhn was adamant that science can be best understood if one takes account of the social phenomena affected by scientific data: politics, people for example. On this understanding, therefore, the old idea that scientific enquiry was a self-standing and independent activity that has neither drivers nor applications, except what the researcher decides, is false. For one thing, a great deal of scientific investigation is driven by curiosity: exploring questions that arise, seeking answers to human problems or dilemmas, or exploring public policy alternatives.

This is what Thomas Kuhn calls "normal science" - "The regular work of scientists theorising, observing, and experimenting with a settled paradigm or explanatory framework." For that reason, scientists do not always investigate matter a priori, they come into it with some questions or interest in mind. Secondly, the logic of this is that the old idea that there would come a time when no new questions could arise or that knowledge could be discovered afresh. In other words, knowledge is inexhaustible.

Seriously speaking, we may have lost time and momentum in Africa by jumping on the bandwagon of "science," referring to what sometimes goes by the epithets of "natural" or "physical" sciences. The effect was to privilege or essentialise a branch of science. We may in the process have lost out on developing languages, or aesthetics and culture, or simply a system of values – all of which are affected by science development (in the narrow sense). There was a time in Africa when "development" was the watchword and soon replaced by mathematics and science at the risk of displacing a holistic understanding of the impact of science on society.

Then there was the onset of HIV and the frantic search for treatment in the health and medical sciences, or the more recent Ebola crisis in West Africa – in all instances, the scientific community has become aware that knowledge in any of these requires a collaborative venture. With the growth of the environmental sciences driven by concerns about climate change, we can now clearly see the effect of a total science on society. It, therefore, does not help if our Academies of Science are founded on the now false paradigm of science.

This then leads me to two major developments in education this year: one is the publication by UNESCO, *Rethinking Education: towards a global common good*, and two is the adoption by the UN General Assembly in September of the Sustainable Development Goals, the successor to the MDGs 2015. The central platform of the UNESCO report is that the idea of advancing global sustainable goals is an imperative but that it must be based on reaffirmation of a humanistic approach to education. In other words, education does not have value on its own unless it was underpinned by a set of values that enhance human capability.

The authors advance a view that implies “the common good” as “the creation of knowledge, as well as its acquisition, validation and use, are common to all peoples as part of a collective societal endeavour.” The point made here is that the benefits of knowledge must be shared, spread to participatory levels and consultative and not imposed, but also must advance human solidarity. This has implications for a culture of research and knowledge development, of innovation and the choices that are made. Rethinking education aims to instil a new vision for scholarship and the search for knowledge that are responsible, ethically sensitive but sustainable.

Regarding the Sustainable Development Goals, one notices that the 17 Goals are set in a very inclusive and comprehensive language that the whole of human life is given priority and not just some. It shows, I believe, that our knowledge activity is just as intertwined and we do well to be conscious of it in our research activities.

The tag line for the ASSAf logo is “science for society.” It is intended to underline and to remind scholars and its members of the view of ASSAf that ultimately ‘science’ is there to advance the betterment of humanity. “Society” is a vexed concept in a society like South Africa that has been characteristically divided along racial and class lines.

It is also true that South Africa’s has been a political system where science and scientists have been part of the ideology of apartheid, and universities served that same purpose.

“Science for society” therefore is a very smart way of reminding the scientific community that without sacrificing the integrity of knowledge seekers the moral principles that could create a wholesome society were the responsibility of the knowledge seekers. Maybe on a more personal level, I am reminded that the tag line we adopted at Unisa, when the newly merged university was

created in 2004, was “An African University in the service of humanity.” We even took the last phrase “in the service of humanity” and turned it into the motto of the university.

Evidently, the point we sought to make was that all academic and intellectual endeavour serves the unique purpose of the betterment of humanity. That becomes possible at a university like Unisa because our research and intellectual life was infused with a social purpose and the organisation of our academic programmes in terms of multi-inter and trans-disciplinarity spoke to a serious effort at academic transformation.

In our experience, though, we have found that the academic community has found it difficult to resonate with this mission. In part, after years of social engineering and scientific programming, scholars are understandably sceptical of moves that might serve to bring scholars back to becoming maidservants of a dominant and hegemonic culture. The other is that the culture of scholarship has just not understood the culture of academic engagement that the slogan suggests. The tendency, then, is simply to do whatever they do – research, teaching and extend it to communities. Whereas I believe that the exercise should be both to make the scientific material “accessible” and “available” to the greatest number of interested people, as well as to be involved in the struggles of the communities alongside and with the people in order to translate and propagate their concerns to a wider audience. That is a big task for many researchers.

In an essay published as a tribute to the late French social scientist Pierre Bourdieu, Loic Wacquant (2006) concludes the essay with some remarks on “*Science, Politics and the Civic Mission of intellectuals.*” In it, he points out that Bourdieu believed that intellectuals and scientists had a historic duty to counter the intellectual distortions that gave rise to the intellectual justifications of that which is wrong. In other words, the pseudo-reason that formed the bedrock of much of such ideas had to be countered by counter-reasoning and stand up against the misuse of reason.

Bourdieu argued, in Wacquant’s words, that “for scientific autonomy cannot be secured except by the joint mobilisation of all scientists against the intrusion of external powers” (2006: 13). In other words, he was prepared to mobilise the scientific community by virtue of their craft and their commitment to knowledge as a body of critical thinkers to take a stand against the abuse of power. He also used his research skills to raise important issues that would undermine public policy options that were being raised or venerated as the sole truth in society. In other words, his scientific work also served as a credible contribution and as a public intellectual he was ready to subject public policy to intellectual scrutiny. The conclusion of this scientific activism is well set out by Wacquant in his conclusion.

If social science cannot stipulate the political goals and moral standards we should pursue, as Emile Durkheim had hoped, it can and must contribute to the elaboration of ‘realistic utopias’ suited to guiding collectives and to promoting the institutionalisation of justice and freedom.....By directing us

to probe the foundations of knowledge, the structures of social being, and the hidden possibilities of history. It offers us instruments of individual and collective self-appropriation and thus wisdom – it helps us pursue, as it were, the ordinary mission of philosophy (2006:14).

To conclude, I take the view that science, all science, belongs together in a unitary system of thought and method and discipline of reasoned thinking. To the extent that we hold all science together then we are advancing the collective wisdom to transform and to challenge all avenues of the human endeavour, and collectively signify a collective will to change the human condition for the better.

III

SESSION I

Academic Environments In Universities: Creation Of Inquiring Minds And All-Round Citizens

*This Session was chaired by Professor Andreas Eshete, Advisor to the
Prime Minister and immediate past President of
Addis Ababa University*

SPEAKER-I

Strategic approaches
to developing research
leaders: a continental
perspective



Professor Berhanu Abegaz

Executive Director

African Academy of Sciences

Recent expansion of higher education in Africa

Africa has, in just under two decades, witnessed unparalleled growth in the number of universities. Where I now live, in Kenya there are close to 70 universities - including public and private institutions. This number may even grow to 90, to establish in each county in the country a center of research and higher learning¹. Ethiopia has increased its universities from a mere 7 in 2007 to 34 in 2012 with 64 accredited non-government universities or colleges awarding degrees². According to Iruonagbe et al (2015)³, there are 129 approved universities in Nigeria comprising 40 Federal universities 39 state universities, and 50 private universities. In addition, there are 128 approved polytechnics 117 colleges of education. Even with these massive increases, Africa remains a continent with the lowest enrolment rates in higher education in the world. The dilemma of higher education has other dimensions, as a huge majority of these universities find themselves at the bottom of the much criticized, yet still used, world ranking of universities. Only a few universities in South Africa and even fewer in northern Africa make it to the top five hundred rated universities. While much effort has been made to increase the number of higher education teaching and research institutions, far less effort has been made to address the issues of quality and relevance of higher education. As a result, many countries are witnessing the dichotomous situation of having a large number

of unemployed graduates while at the same time there are so many skill-demanding vacancies. Some of the challenges these countries face are: having young and inexperienced staff, lack of adequate qualified staff, existence of a huge generation gap between young students and an aging staff coupled with the challenge to keep up-to-date with the rest of the world

Advantages and opportunities of new universities in Africa

New universities are being opened in Africa at and this spawns opportunities and advantages. While established universities may be hard-set in their established ways, new universities are more flexible and willing to experiment new ways of doing business. They may, therefore, have the potential to provide opportunities to better engage creative and innovative minds.

Some of the world reports on African higher education, such as the UNESCO World Science Report, indicate that especially six countries have registered distinct progress in terms of Research and Development. For instance, Kenya has one of Africa's highest Research and Development intensities (0.79 of GDP in 2010), followed by Ethiopia (0.61% in 2013), Gabon (0.58% in 2009) and Uganda (0.48% in 2010). Four countries also dominate scientific publishing: Cameroon, Ethiopia, Kenya and Uganda. Gabon, Cameroon and Kenya count the most articles per million inhabitants but it is Ethiopia that has shown the most rapid progress, doubling its production since 2005 to take second place behind Kenya.

¹ (<http://monitor.icef.com/2015/06/governments-and-educators-in-kenya-struggling-to-keep-pace-with-demand-for-higher-education/>)

² (Ministry of Education. "Educational statistics: Annual Abstract" (PDF). Retrieved 27 April 2014)

³ <http://www.medioclubsouthafrica.com/africa/4408-the-rise-of-africa-s-flagship-universities-an-untold-story#ixzz4H1vrqWJm>;

Strategic approaches to developing research leaders- a continental perspective

One of the problems that Africa is facing is brain drain. At least 20,000 qualified Africans leave the continent every year. One of the consequences of brain drain is reduced or decreased capacity as trained and highly qualified staff leave their countries. Strong capacity comes from doing good science. Having highly qualified staff at one's disposal is *sine qua non* to doing good science. In addition, young people also need role models whom they can emulate.

What is expected in leading institutions?

Leading institutions need research leaders, mentors and research administrators and they should also be able to train and retain their researchers. Such institutions should be identified, enabled, strengthened and nurtured to produce locally-grounded and world-class researchers. Good institutional leadership should also be grounded in moral, environmental, social, ethical, technological, political, and economic values. Leading institutions need interns, mentees, MSc and PhD and post-doc students, a well-equipped research infrastructure such as equipment, a building, reliable utilities, access to information/data, and should foster physical and intellectual communication among staff. Creating enabling environments, such as having commercialization departments and creating links with the private sector, is indispensable in conducting relevant research. Instituting all these takes time and resources hence the adage: quality is a journey. It takes many years of mentorship, experience and development for an institution to be recognized

as a leader in research.

Research leaders have more than just technical competence

When it comes to the human component of research, technical competence by itself is not enough. A researcher needs to carry out high quality and relevant research. A researcher must also lead a research agenda and forge continental and international collaborations as a leader, not a follower. The researcher must attract funding from local and international sources and the private sector. Research leaders are able to advocate for priority areas of research locally and globally and are often able to influence the development of evidence-based policies. Therefore, they must advocate for research at the local and global levels and influence the development of evidence-based policies and engage in technology/knowledge transfer such as innovation, new products and improved services.

Key elements to be leaders among institutions in Africa

It is important that each African nation knows those areas in which it has leadership or potential for leadership. These must be either in areas where there are competitive advantages, or areas of significance to the well-being of its citizens. Research in Africa should be Africa-centered, Africa-specific and should be led by Africans. Research institutions should have locally-grounded programs and aim for world-class excellence. There is also the need for institutional and strong research leadership. African institutions must create a research

environment with critical mass and a strong research culture, high quality mentorship and supervision, career structure, strong collaborations (inter-Africa, global) and long-term support.

Conclusions and Recommendations

- Identify, train, and attract bright and creative young people and retain them through professional engagement, stimulation and fostering their growth into research leaders;
- We should ask ourselves whether or not we should invest in people or institutions. We need a balanced approach in building the capacity of people and enhancing institutional capacity to conduct good science, produce quality researchers and high-level and relevant research outputs. Individual capacity may only go as far as publishing papers in high impact journals. Institutional capacity does all that and may extend into delivery of products and services that uplift the living standards of communities;
- Mentors are not necessarily supervisors. The latter only guide during research, whereas the role of mentors is to train, guide and prepare mentees to produce high-quality research outputs;
- African research should not lose sight of national regional and continental agenda (such as Agenda 2063: The Africa we want). The AUC agenda 2063 is geared towards building a better and prosperous Africa. The Science, Technology, Innovation Strategy for Africa 2024 (STISA 2024) is the first decadal strategy to facilitate Africa's transition to a knowledge-based economy and the global agenda – meeting the Sustainable Development Goals (SDGs);
- One of the critical issues in research leadership is reducing the age African students get PhDs, how it should be done and why it is important. One should note that an individual who gets his/her PhD at a young age (say in the 20s) will have many more years of high level service than someone who he gets the degree at a later age (say in the 40s);
- “Basic science and applied science are two sides of the same coin,” as recalled by the Scientific Advisory Board to the Secretary General of the United Nations. The two are inter-connected and inter-dependent. Thus, they complement each other in providing innovative solutions to the challenges humanity is facing on the pathway to sustainable development. Adequate investment in both basic and applied research and development are critical in reaching goals of Agenda 2030: creating partnerships to address continental and global challenges.

SPEAKER-II

Can we make graduates both
useful and thoughtful?
- A personal view of the
present and the future
of university education
in Ethiopia

Left to right Prof. Berhanu Abegaz, Dr Tekalign Woldemariam and Prof. Andreas



Dr Tekalign Woldemariam
Former Academic Vice President
Addis Ababa University

Mr. Chairman,

Ladies and Gentlemen,

I am grateful to the Ethiopian Academy of Sciences for asking me to share my thoughts about Higher Education in our country to this very high-level gathering.

I am particularly thankful to the Executive Director, Professor Masresha Fetene, not only for strongly encouraging me to participate as a presenter/speaker despite my hesitations but also for his generous, always civil, and highly accommodative responses to the quick succession of ideas and suggestions regarding the substance and overall drift of my presentation that I sent to him, and then withdrew.

This hesitation to speak and the frequent re-edition of the substance of my presentation were borne not only of the fact that I am not a professional educator (and therefore my knowledge of the issues and the discourses on higher education is fairly limited) but also (and mainly) because the topic that I was asked to address is an extremely difficult and complex one. It was originally entitled “The role of Universities in Developing Critical Thinking,” something that I am sure philosophers or professional educators would have been able to address much more effectively than I possibly can. I gave in to Professor Masresha’s persuasions simply because I thought maybe the Academy wanted the view of a lifetime foot-soldier in academia, someone who had been at the receiving end of policies and directives about university education over the last three and half decades.

Mr. Chairman,

Ladies and Gentlemen,

Trying to make sense of what I see, hear, and read recently, I have come to the conclusion that Ethiopian Education in general, and Higher Education in particular, is at a very crucial cross-road. I am convinced very strongly that what we do or fail to do today will have serious implications not just for the future of education but also for the future of our nation in general. My belief arises from my understanding of what it is that we are trying to do in Ethiopia and what the chances are for that effort to succeed given the current global scheme of things. What we are trying to do in Ethiopia, in my thinking, is simultaneously to bring about significant changes in our material condition and to build a viable political community.

The changes in our material condition mean for us to be able to mitigate or eradicate poverty and shift from a predominantly agrarian to an increasingly industrial organization of production. Our effort to build a viable political community seeks to improve upon the project of previous generations of Ethiopians who had struggled over the terms and costs of state formation. It seeks to improve upon that project by infusing the state with new sets of values and fitting it out with new sets of institutions; values and institutions that derive partly from our past, partly from the experiences of other nations, and partly, from our own creative efforts aiming at making the state as good as it can possibly be (inclusive, democratic, and, as much as possible, organic).

But there is no guarantee that this journey will be smooth or easy for us because what we have been trying to do over the last several decades is to build (what we hope will be) an industrial economy and to build a nation-state in the context of a global order that is increasingly being described as post-industrial and post-national. Today, only a few will dispute the argument that the driving force behind economic development globally is knowledge rather than industry, and the scale of political interaction that is becoming more and more significant is the supra-national one. The most defining characteristic of the new global order, which also lends that order a powerful and limitless momentum, is the flow of information across international boundaries, made possible by the internet revolution.

What we do on a daily basis, I believe, is negotiating the terms under which our national agenda of economic development and nation-building may be advanced within this continuously evolving global order. We do not have the luxury of pursuing our national agenda independently of it; nor can we keep it at bay until such time as we will have finished our homework locally and are ready for it; nor is it possible for us to leapfrog economically and politically and join in with it and sail with it smoothly. At several points, this evolving global order is bound to present us with challenges as well as enticements that may be at cross-purposes with our national agenda, just as it might also contain any number of resources that we may be able to tap into to help advance our agenda.

My contention is as follows: whether or not

we can get to where we want to get in these uncharted waters of the information age is to be decided by the size and quality of the intellectual capital that we will have accumulated and deployed for the task; by the literacy, sophistication, and numerical strength of our educated human resources. The literacy I am talking about is spelt with a capital L and refers to the capacity to read the signs and signals of global forces and interests and to figure out the ways in which we can make the most benefit out of them with the least possible cost to us.

The sophistication I am talking about refers to the capacity to digest a broad-range and vast quantity of information, to interpret that information, to analyze it, and make it available for use by decision-makers in government or in business. Our chances of coping with and functioning in this new order are to be determined not just on whether or not we have built these intellectual resources but also on whether or not we have built them in large enough numbers and have deployed them in all the nooks and crannies of our public and private spaces.

However, in order not to be misunderstood we need incisive minds only for dealing with the outside world. I must quickly add that we need to build that intellectual capital to be able to advance our national agenda also, and to be able to do so with the highest possible speed and efficiency as well as the lowest possible cost to our natural and financial resources. Socio-economic development (not just economic growth) and nation-building require a large and powerful intellectual cadre whose task it is to search and unearth or otherwise mobilize our natural and socio-cultural potentials and

chart effective ways of their deployment for our development. Sustainable development cannot be imagined without a strong and dependable infrastructure of educated human resources.

“Critical thinker,” Mr. Chairman, is the term that serves as a gloss for individuals who possess the capabilities to which I have just referred, and much more. And yet, by approaching the definition of critical thinkers in this manner, i.e. through a list of things that they may be capable of doing, I have risked getting myself into an error that I have every intention of urging everybody to avoid getting into.

In fact, I am running a great risk of undermining what I hoped will be the centerpiece of my presentation today, which is that critical thinking is something that is larger than the sum of its parts and critical thinkers are people who should be distinguished by the overall capacity or ability for thought that they possess rather than by the long list of specific things that they are capable of doing or accomplishing. Allow me, therefore, to step back from this line of argument and approach the definition of critical thinking as a concept that is descriptive of capacities and qualities.

Critical thinking refers to intellectual capacity to think clearly and independently. It also refers to the ability to collate, interpret, analyze, evaluate, and integrate information that comes from multiple sources, (including observation, experience and reflection) and to articulate or communicate it in the form of concepts, ideas, or arguments. It is, in short, an intellectually disciplined ability to acquire, continuously refine, and use knowledge as a basis for one’s

decisions or actions. Critical thinking should not be confused with being combative, disputatious, or critical of other people or their ideas. Even though critical thinking includes a capacity to discern falsehoods and spurious reasoning, it is essentially capacity quite capable of constructive and cooperative thought as well as of action.

In terms of personality traits, critical thinking endows people with qualities such as truthfulness, flexibility of mind, disposition to collaborate with others, and commitment to reasonable cause. Because critical thinking involves consideration and evaluation of different ideas and perspectives, critical thinkers are typically good listeners, considerate of other views, and quite disposed to work in cooperation with others. Critical thinking works and develops through methodical search, analysis, and evaluation of information. Critical thinkers tend to form mental and personal habits of discipline and tenacity in everything they do. Equally importantly, (and in a manner that appears to be contrary to their disposition for collaboration and team work, but actually is not), critical thinkers are also quite capable of original or “out of the box” thinking and of challenging orthodoxies and established ways of looking at things.

I believe it is these capacities and qualities that prepare critical thinkers for work as well as for life adequately and enhance their chances for effectiveness and productivity at work and fulfillment and contentment in life. I will confine my remarks to the workplace and say that the capabilities that critical thinkers bring to their work include skills or competencies which, as we all know, are highly valued and much sought after everywhere,

skills such as effective communication, effective leadership, judicious decision-making, and competency in problem-solving.

However, it bears repeating once again, *that these are skills or competencies that people who have developed the capacity for critical thinking are highly likely to possess already or are better disposed to acquire effortlessly than people who did not have the benefit of education that aims at developing that capacity; they are not capacities on a par with critical thinking itself; critical thinking enables and nurtures these skills, not the other way around. It follows, therefore, that to expect these skills from people who have not undergone a process of education that promotes critical thinking is likely to be misplaced and unrewarding. Likewise, efforts to teach or instill these skills in a situation where very little or no allowance has been made for critical thinking is at best an uphill battle, at worst a futile exercise.*

It is, therefore, worth looking, in my opinion, at practices and arrangements in those parts of the world where the cultivation of critical thinking is the hallmark of the system of education in general and of higher education in particular. It is worth looking at them because they help us identify components of a system that operate together to deliver capacity for critical thinking as the desired outcome. It appears to me that practices and arrangements that put premium on critical thinking as the most desired outcome have the following four major components:

- 1) *They set an overarching goal of producing graduates with developed capacity*

for critical thinking and configure the entire system in a manner that contributes to the attainment of that goal. In simple language, they start by formulating graduate profiles that give pride of place to capacity for critical thinking and align the various components of the system to that prospective end-result or outcome.

- 2) *They provide for a robust system of General Education in which all the three broad areas of knowledge (i.e. the sciences, the humanities, and the arts) are made accessible to all students and mechanisms are worked out by which the latter would be encouraged to take something from each area. They do so first by determining the percentage of undergraduate curriculum to be devoted to a compulsory general education program, and then by requiring students to take a certain percentage of the required credits from each area of knowledge. The breakdown of the General Education curriculum into knowledge areas is done carefully in a manner that links desired learning outcomes to specific knowledge areas. The system would be organized in a manner that both encourages and compels the student to experience not just the major areas of knowledge but also the various subdivisions within each area.*

- 3) *They enable students to participate in decision-making about their own*

learning experiences. They do so in a carefully controlled manner by providing for a well-developed system of academic advisement and guidance to help students make their choices.

- 4) *They provide for a transparent, deliberative, and dynamic development of curricula* and promote pedagogic approaches that encourage active learning, provoke imagination, and nurture analytical thinking.

I have neither the professional license nor intimate enough knowledge of the literature on Ethiopian higher education to pass authoritative judgments on how our system has fared so far in terms of enabling students to develop critical thinking abilities as against these examples of what we might call best practice.

Therefore, the observations that I am about to make are quite tentative and are very personal; they are observations of a non-professional practitioner-educator whose information comes partly from very general reading, partly from involvement in various collective deliberations on curricular and pedagogical matters, and partly from occasional and chance encounters with the legislative process.

I make three general observations, the first pertaining to general policy formulation, the second to the level of organization and operation of university programs, and the third to the teaching-learning process or pedagogy.

At the level of policy and legislation, our system of higher education manifests several common characteristics that have persisted, in my

opinion, across time and across political regimes

1. With regard to definition of purpose for higher education, our system (in all the three phases) tends to substitute objectives for definition of **goals**. In each phase, the focus has been on what the system seeks to achieve through higher education rather than what the final product of higher education will be.
2. In all the three phases, our system puts overwhelming emphasis on what graduates should be able to do (or they should be trained for) rather than what capacities they will have acquired when they graduate. There is a remarkable degree of consistency on this point also across time and political regimes. It is what the graduates will be useful for rather than what they would be capable of that is the major purpose and organizing principle for Higher Education.

To be fair, mention is sometimes made of capacities, including capacity for critical thinking, but when that happens it is often watered down to skills and abilities believed to be gained out of particular areas of learning (such as communication skills from the study of languages or analytical skills from the study of mathematics) rather than as capacities that students should develop irrespective of subject areas into which they go. Critical thinking, in other words, is often thought of as a subject area or field-specific value.

Sometimes it is watered down to mere outlooks or attitudes that the system wishes or professes to encourage (such as scientific outlook or national and international outlook about such things as the environment).

More recently university education has been coming under increasing pressure to adjust itself to the demands of the job market in a manner that appears to privilege the interests of business or industry over those of larger society. There seems to be more and more demand for market goods and less and less for public goods. University programs or departments that provide training in the so-called non-marketable skills have been facing increasing threats of suspension or even outright closure.

3. In all the three phases, our system has taken it as normal practice to instill or inculcate everything into students with correspondingly little allowance for learning opportunities that motivate and enable them to engage actively in their own learning and intellectual development. However, the question of what should be instilled or inculcated, who should be responsible for it and how should it be carried out are matters that have never been conclusively settled.

What has been going on, over the years, was what could be described as a tag-of-war (sometimes high, sometimes low-intensity) between the three actors

that are presumed to have a stake in the matter, namely the state, the educational institutions, and their faculty members. In an academic culture that has historically discouraged student agency (or even worse, encouraged apathy and alienation among them); this continuous tag-of-war among the three stakeholders is highly pregnant with potentially lethal consequences. I will explain what I mean by this shortly.

For anyone who has experienced our system at any point over the last several decades, much less for those of us who have lived through it, it is not difficult to see what the implications of these policy directions have been for the structure and organization of our academic programs as well as for our approaches to teaching and learning.

- It is obvious that we have come to have an increasingly segmented, strictly disciplinary, and highly disjointed organization of programs. This has manifested itself in terms of increasingly reduced possibilities for combinations of programs in the form of major/minor areas of concentration, in the virtual elimination of what we used to call service courses among cognate disciplines as well as the reduction of programs with university-wide scope or reach to just one or two courses.

- We have also witnessed a growing tendency to prioritize professional training over academic training. This may not have been a bad thing in and of itself if it had not been attended by severe reduction of the components of training which are believed to enhance the capacity of the student for leadership and problem-solving and his/her awareness of the geographic and socio-cultural context of work in the country.

As you might have noticed I am using comparative language in describing our journey in these two areas over the last several decades. The Imperial years, the Derg years, and the EPRDF years differ in some important ways regarding the set-up of university programs (including the imperatives that have guided their establishment and disestablishment), and the horizontal relationships among them. The unmistakable trajectory has been, however, towards more and more specialization and less and less integration of programs.

- In the area of teaching and learning, what we have had was a system in which instruction was given primacy over learning

and one in which teaching at the university level did not require any degree of pedagogical training. Attempts by governments or institutions to influence curriculum or teaching did not go beyond fixing the sequence and the general description of courses. Any attempt to go beyond that was regarded by academia as infringement on the teacher's independence and the spirit of academic freedom.

It is only over the last several years that greater effort is being exerted by the Government to alter the situation through a two-pronged strategy, one seeking to attenuate faculty control over curriculum formulation and the other seeking to encourage a system of teaching in which the student would be a more active learner.

We are currently at a transitional stage in this process. The transition, however, does not appear to be smooth or easy. In fact, we now see tensions in the system which I believe could pose a significant danger to the system as a whole unless corrective interventions are made without delay. On the one hand, efforts to harmonize and standardize programs across the nation's universities and to modularize delivery have created a certain degree of powerlessness and loss of ownership on the part of the fac-

ulty that manifests itself in what I would call a laid-back attitude, if not of total resignation, in their daily business of teaching and supervision of student work.

On the other hand, the long-standing culture of teacher-driven instruction and supervision has meant that it will be sometime before the student population begins to take full advantage of the opportunities for independent learning which the new pedagogical dispensation promises and encourages. There are some indications that many might indeed regard this as an opportunity to progress through academic programs with the least possible effort or the least possible cost.

Many of you may say that I am reading a little too much into things here, or that I am being unduly alarmist, but how else can one explain the sharp rise in plagiarism throughout our academic system? How else can one explain the very common practice of downloading entire papers or articles from the internet and submitting them as one's own work? How can one explain the new culture of cut-and-paste in which proposals, papers, and reports are put together overnight without writing so much as a single paragraph or line?

It is not actually the fact that plagiarism is spreading that is worrying me. It is the fact that it has become a normal thing to do. Call me an alarmist but I find it extremely alarming to hear that there are even academic departments in some universities that evaluate student work after measuring the degree of plagiarism that he or she has committed and excusing the crime if the percentage of plagiarized material is below a

certain cut off point.

But this is only one dramatic example of why and where our system cries for immediate reform or corrective interventions.

Equally important justifications for reform come from what we see and hear about employment opportunities for our graduates and how they are faring in the world of work. There are indications that many of our graduates cannot find employment because their degrees don't match the qualification and competency combinations sought by employers. Graduates who hold bachelor's degrees tend to be qualified in such highly specialized areas whose relationship and relevance to the world of work is becoming increasingly problematic.

There are also public expressions of discontent with the performance of our graduates at work. To cite a very recent example of such an expression of discontent, I recall a recent public forum in which many of us here had participated in which a Government official was describing to us the most serious challenge encountered during the first Growth and Transformation Plan. Again and again, in virtually all areas of endeavor, he reiterated the point that it was lack of capacity that caused the shortfalls. It was not uncommon, he said, for people who may have the qualifications for a given line of work not being able to deliver because they lack essential non-cognitive skills or competencies.

Even a more compelling justification for revisiting our higher education system is the fact that what our future graduates need more and more would be skills and competencies that enable

them to create jobs for themselves rather than to seek employment. The current arrangement of higher education that gives undergraduate-level training in narrow and specialized fields is unlikely to be the best setting in which these skills and competencies would be acquired.

What is the way forward?

My own thinking, as you might have gathered from my talk so far, is that we have to transition to a system that brings the learner to the center stage, to a system that is guided by a well-defined goal which I believe should be an educated citizen with developed capacity for critical thinking. We have to transition, sooner rather than later, to a less-regimented and less-specialized system that operates through program structures that are closely related to each other, permit close fertilization between disciplines, broaden learning opportunities for students, and enhance their capacities to adapt to workplace situations quickly. We have to transition, in other words, to a system that is capable of making our students both useful and thoughtful.

I personally do not believe that these are radical or over-ambitious proposals. I certainly do not want to scare you by pulling in some high-sounding and intimidating terms like paradigm shift for this project. It is something to which we can transition within relatively short period of time and do so by moving towards it incrementally. We can begin with what immediately needs our attention: putting in place safeguards against further erosion of the system through dishonest practices.

I will not be surprised if for many of you are not persuaded. I will not be surprised if many of you think that we do not have the human and intellectual resources necessary to handle such an open system. I will not be surprised if some of you think this is alien to our traditions, although for those of you who think so I will only recall what I learnt yesterday in the symposium at the Academy about traditional education in Ethiopia. I learnt yesterday that at the higher levels of traditional/church education teaching is aimed at creating capacities for understanding and explanation, capacities not dissimilar to what I have referred here as capacity for critical thinking.

In any case, the point is not about winning an argument. The point is about starting a conversation and keeping it going. It is truly exciting and invigorating to reach a point at which dispassionate exchange between academics, policymakers, the scientific community and the general public appears to have begun on such an important matter.

IV

SESSION II

Quality of education, curriculum relevance and graduate employability

*The Session was chaired by Dr Arega Yirdaw,
President, Unity University*

SPEAKER-I

Repositioning higher
education toward fostering
competitiveness and
graduate employability



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Director of the Office of International Development

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Ladies and Gentlemen,
Colleagues,

I would like to express my gratitude to the organizers of this Congress – the Ethiopian Academy of Sciences, and in particular Professor Masresha, the Executive Director of EAS. I am in deed very honored to have this opportunity to speak at this august gathering, and I am delighted to see and be among colleagues and experts in the field of higher education and development.

Ethiopia has committed to an ambitious road map led by successive development strategies that culminated in the current Growth and Transformation Plan (GTP). Likewise, several sub-Saharan African (SSA) countries have adopted and started implementing ambitious development plans. As a result, many countries, including Ethiopia, are registering success in economic growth and social development. To ensure continuity and success in economic growth and social changes, Africa needs to commit to sound and relevant policies and strategies, to improve effectiveness of planning and implementation, and most importantly to ensure that the engine of growth (human resource) is well-trained and available in the required numbers.

Higher education, as a development imperative is increasingly recognized as a positive force in development and it is encouraging to witness that there is a renewed commitment in sub-Saharan Africa (SSA) to invest in expanding higher education. Highly skilled human capital generates and adapts knowledge and technology,

creates jobs, engages in problem-solving research and innovation, and meaningfully serves community and nations as agronomist, doctor, teacher, economist, engineer, lawyer, banker, researcher, and manager.

As you all know, the last two decades, Ethiopia has registered a higher education expansion that is unparalleled and unique in the Region. Higher education gross enrolment ratio (GER) has increased from 0.87 percent in 1998 and 0.97 percent in 1999 when the expansion program started to 2.5% in 2005 and 6% in 2013. Total enrolment has increased from a mere 40 thousand in late 1990's to over half a million in 2014 (MoE, 1998; 2014).

Serving as Head of the Department of Higher Education Academic and Research Affairs, and later as Deputy Minister, between 1998 and 2004 under ESDP I and II, I consider myself lucky to have been one of the architects and prime implementers of the expansion and reform strategy in Ethiopia. From my involvement in the design and implementation of the strategies, I know that the expansion was not launched merely to catch-up with others, but with a vision and vigor to reposition Ethiopia in the forefront of international leadership and competitiveness, and to propel it out of poverty in the shortest possible time.

Similar to the Ethiopia case, enrolment in tertiary education grew faster in SSA than any other region over the last four decades. According to UNESCO (2010), while there were fewer than 200,000 (one percent GER) tertiary students enrolled in the region in 1970, this number

soared to over 4.5 million in 2010. Compared to the global average of 26 percent in SSA, only 6 percent of the age cohort is currently enrolled in tertiary institutions. Only few countries in SSA have attained a GER higher than the average 6 percent, but even then, it is largely below 12 percent (Figure 1; World Bank, 2014).

Expanding enrolments to higher education

in Ethiopia and in many countries in SSA, have allowed increasing number of the youth population opportunities and access to higher level education and training, and becoming productive citizens. Expanded access and increased number of institutions opens up possibilities for impactful and resulted-oriented research, problem-solving and innovation, as well as new opportunities for job creation.

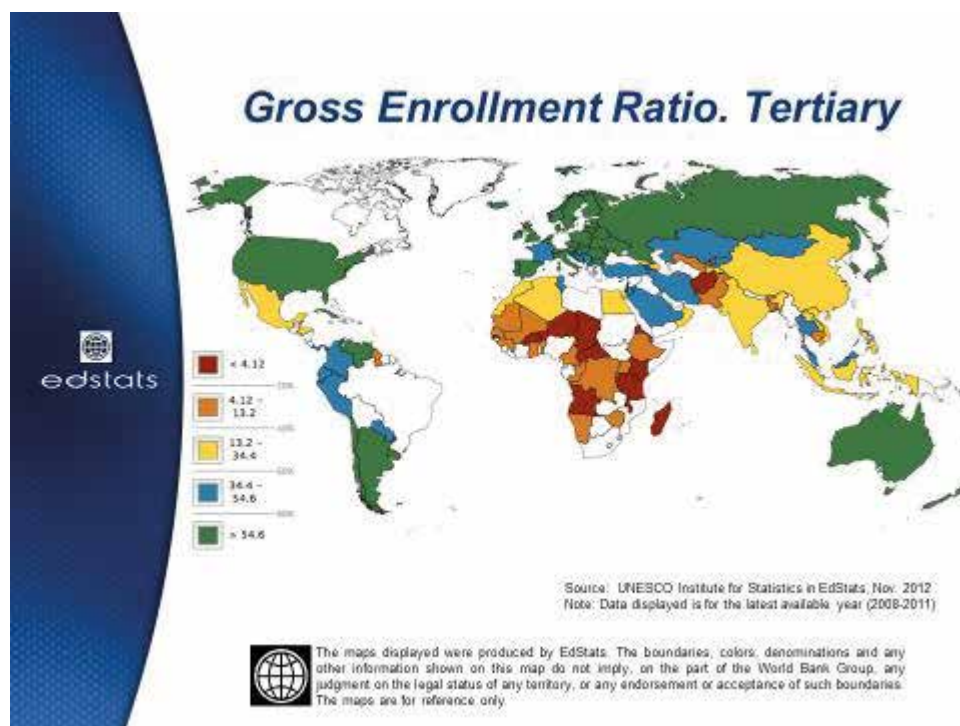


Figure 1. The State of Education: GER in tertiary education. (World Bank, 2014; <http://data-topics.worldbank.org/education/wStateEdu/StateEducation.aspx>)

As indicated above, we have witnessed over 15-fold increase in enrolment in Ethiopia and many countries in SSA over a period of 20 years. This is a big success, and proud achievement. On the other hand, there are significant challenges that the system, institutions and students face. These include financial constraints, leadership and governance challenges, ageing faculty, poor preparation of incoming students, and problems of relevance of curricula and delivery skills (Yizengaw, 2008). Rapid expansion in most cases has not been accompanied by a corresponding increase in numbers and quality of teaching faculty, leading to difficult conditions for learning and teaching.

Improving the quality of teaching and learning in higher education can bring about a sea-change for Ethiopia's future. While addressing the challenges faced, it is my strong conviction that planned higher education expansion in Ethiopia and across SSA should continue.

Why am I arguing that Ethiopia and SSA should continue planned expansion programs is because:

1. Even if the recent high rates of expansion were to be maintained for the next decades, rapid population growth will dampen the gains in terms of GER. Furthermore, increasing investment in primary and secondary education, and technical and vocational training will further boost the demand for higher education. Given Africa's high population growth, the 18-23 age group in SSA will grow from the current 101 million to over 140 million by 2030 (United Nations, 2011).

The trend is similar for Ethiopia. With almost 200 million people aged between 15 and 24, Africa has the youngest population in the world, and it keeps growing rapidly likely doubling by 2045 (African Economic Outlook. 2012). This rapidly growing young population needs quality and relevant higher education, as well as enough job opportunities to support decent living.

2. Current and future economic growth and social transformation require more and more of a highly trained/educated human capital to sustain it and ensure continuity and competitiveness. We can't afford to lose the fight against poverty due to lack of trained human capital. Africa needs more university educated/trained human resource to implement plans effectively for growth and transformation, to build democratic societies and institutions, and to harness opportunities.

As alluded earlier, quality and relevance of education and training are consequential to the major outcome of higher education – the GRADUATES. Obviously, as a result of growth in enrolment, the number of graduates in Ethiopia has also increased from about 25 thousand in 2005 to over 96 thousand in 2014 (Figures 2 & 3; MoE, 2005/6-2013/14).

As well documented in the history of higher education in Africa, which was also true in Ethiopia until very recently, universities traditionally had the mission of preparing students for public sector jobs. But the challenge is that universities have not effectively adapted, changed or transformed how they prepare students, as the job market, economies and policies change. Graduates of higher

education institutions should have the requisite skills, knowledge, attitude, and readiness to create jobs and/or become employable in an increasingly competitive environment. A university degree is no more a passport and guarantee of employment for all, in light of the ever changing and increasingly unpredictable economies, new demands from the job market, and political and social changes. Amsalu & Nekatibeb (2014) contend that there is no automatic employment like before, and graduates are increasingly obliged to forego a prolonged search process.

While Ethiopia, and Africa at large, need more higher education graduates to harness the opportunity for economic and social development, a significant quality and relevance gap remains in preparing graduates for the world of work. Thus, the gaps in curricula reform and adaptation, as well as availability of quality teaching faculty become critical. It has become common in many countries that huge discrepancies exist between job seekers' profiles and the skills required in the workplace. The issues of quality and relevance are felt in many sub-Saharan African countries, including Kenya, Nigeria, South Africa, Ghana, Senegal and many others. So, universities are increasingly pressured to produce "*employable graduates*."

As most of you might have experienced, "Employability" is so easily confused with "Employment." Employability is a progression and a certain amount of self-sufficiency; while employment is being paid to do a certain job. Getting a job is only part of employability. Knight and Yorke (2004) define employability as, "a set of achievements, understandings and person-

al attributes that make individuals more likely to gain employment and be successful in their chosen occupations." Within the bounds of academic freedom, the balance between teaching skills, knowledge, theory, and graduate attributes has become the major challenge for higher education. When there is a mismatch between skills of graduates and the needs of the workplace, it usually leads to graduate unemployment, underemployment or graduates not properly prepared for self-employment and job creation. Producing poorly-prepared human capital presents significant risks—potential unemployment, threat to social cohesion and political stability, loss in potential innovation, and a lag in economic progress.

A survey of employers in five countries for the Inter-University Council for East Africa revealed that 51 percent to 63 percent of graduates were found to be lacking job market skills (Mohamed-bai, 2014), meaning they were not "employable." In Egypt, for example, about 1.5 million young people are unemployed (ILO, 2011), while at the same time private sector firms cannot fill 600,000 vacancies. In South Africa the situation is even more extreme, with 600,000 unemployed university graduates versus 800,000 vacancies (The Economist, 2012). Unemployment rates are as high as 23 percent in Nigeria for those with undergraduate degrees (World Bank, 2015). Although there are large numbers of unemployed young people and a constantly growing labor supply, many enterprises in Africa struggle to fill open positions.

The International Labor Organization (ILO, 2015) estimates that between 2000 and 2008 Africa created 73 million jobs, but only 16 million for

young people aged between 15 and 24. As a result, many young Africans find themselves unemployed or, more frequently, underemployed in informal jobs with low productivity and pay. The European Union also faces a paradox as the youth employment rate stands at 23% while there are around 2 million unfilled vacancies across Europe, and a high number of employers cannot find the right mix of skills in the job market (EPRS, 2014).

In light of the above, the overarching theme of this Congress is, therefore, critical and timely, as it tries to encourage informed dialogue, among others, on “*what kind*” of a university we should build in Ethiopia, and on “*how should we prepare our graduates*” to contribute to better employability and competitiveness. This is not a simple and straightforward issue, and requires evidence-based dialogue and debate.

WHAT KIND OF UNIVERSITIES SHOULD WE BUILD?

Others will hopefully dwell on the need for diversification, specialization and differentiation of higher education institutions in Ethiopia during this Congress. Whatever the form or shape, I strongly argue that Ethiopia needs higher education institutions that produce sufficient number of quality graduates who are well-prepared with hard knowledge and transferable skills, as well as skills for lifelong learning. In tandem, Government should provide sound policy framework, and adequate resources and leadership enabling institutions to produce ‘employable’ graduates.

HOW SHOULD WE PRODUCE QUALITY GRADUATES? “EMPLOYABLE GRADUATES?”

After two decades of successful expansion, Ethiopia is at a cross-road in relation to higher education development. The Education Sector Development (ESDP-V) Program for the period 2015/2016-2019/2020, plans to establish 11 new universities, strengthen existing ones, and expand GER to 15 percent by 2019/2020 (MoE, 2015). ESDP-V also focuses on ensuring that there is a better match between higher education graduates and the employment market through improving communication between employers and universities.

If properly prioritized and well-articulated in subsequent implementation plans, of course the ESDP-V has outlined several strategies that could address the issue of mismatch and better prepare graduates of higher education. The ESDP-V strategy to improve academic staff profile from the current 27:58:15 (Bachelor, Masters, and PhD) to 0:70:30; to establish internal academic curriculum committees, to modularize and standardize academic programs; and to implement national internship programs (MoE, 2015) is encouraging.

WHAT should we do to ensure that Ethiopian universities produce ‘employable’ and transformative lifelong learner graduates? I suggest focusing on teacher professionalization and curriculum review, as well as more engagement and listening to students, enhancing university-industry linkages and mentoring, providing career advisory services, and generating evidence-based research to inform

and influence policy and practice.

1. PROFESSIONALIZING HIGHER EDUCATION TEACHERS:

High quality teaching is largely measured by the ability of teachers providing students access to the best possible higher education learning environment. As we all know, we try to professionalize teachers of primary and secondary schools. However, in most cases high-achieving graduates are recruited to teach in higher education institutions with little training and exposure to the teaching profession and skills. Why has it become a common assumption that professional teacher training is not required for higher education? Skilled and trained teachers will undoubtedly enhance quality of learning and are central to producing employable graduates. There is, therefore, a need for higher education institutions to comprehensively professionalize their academic/teaching staff as “TEACHERS.” This requires implementing a planned teacher preparation and retraining of existing teaching faculty to enable them deliver on redesigned curricula and modules, and provide student-centered learning.

Although not functional in all Ethiopian universities, the original strategy of introducing Academic Development Centers (ADCs) was to continuously train faculty members to improve teaching and learning. The Education Strategy Center (ESC), originally established in 2003 as Ethiopian Higher Education Strategy Center

(HESC), could play a ‘thought leader’ role by compiling lessons learned from across the globe and designing policy options toward implementing the professionalization agenda.

2. CURRICULUM REVIEW:

Many higher education institutions tend to have a curriculum that is “a mile wide and an inch deep”— shallow and repetitive. That has to change towards preparing quality and employable graduates. It seems that there is an increasing demand that the curriculum addresses what is needed today, but also prepares the graduate for the future. It is common to find experiences where students are taught theoretical aspects with little exposure to practical skills – a journalist trained without exposure to a camera, an IT professional without computers, a health worker without communication with patients, and an agricultural graduate without any exposure to the maize field or the poultry farm. Therefore, in an ever-changing job market and sometimes unpredictable economies, this requires innovativeness and creativity on the part of higher education institutions and teaching faculty. Many higher education institutions will need to modify their profiles, curricula, and teaching methods.

As experience shows, graduates are prepared better for employment and the world of work when the education programs effectively impart/instill both the discipline-based hard knowledge and transferable or soft skills.

Graduate profiles of most programs in Ethiopian universities have clear articulation of developing hard and soft skills. However, in many cases the course breakdown is largely focused on hard skills and knowledge.

Most lack courses and, probably, the teaching methodology and teaching faculty to instill soft skills in order for graduates to be prepared for today's varied and unpredictable career paths, have adaptable professional competencies, and to become active players in development. Whether or not both hard skills and knowledge and transferable soft skills should be embedded in the curriculum or taught in separate units is still debated. By the way, many institutions across SSA face similar challenges.

While most curricula are designed to provide the best possible knowledge and practical training, they lack content and delivery on soft skills. These soft skills include, Leadership skills (ability to think strategically, being organized, and making good decisions), Entrepreneurship skills (creativity, innovativeness, self-initiation, team-building), Problem-solving (defining the problem, generating alternatives, selecting alternatives, making decisions and implementing solutions), and Communication and Interpersonal skills (listening, reading, writing, speaking, and nonverbal communication skills).

The Ethiopian Higher Education Quality and Relevance Assurance Agency (HERQA) could play a role by enhancing its quality and relevance standards and requirements, and enforcing them through its assurance mechanisms. By the way, do you realize that HERQA is unique? I have not yet come across

any other national agency with an emphasis on RELEVANCE. I am proud to be the one who coined that name to the Agency in early 2000.

3. LEARNER ENGAGEMENT & EMPOWERMENT:

Higher education institutions should encourage, welcome, and take account of student feedback. Often it is the students who are the first to notice whether or not teaching is good. Students detect problems in the teaching and learning environment early on and lead to faster, more effective improvements. How many institutions are geared to routinely listening to student insights in an atmosphere that is genuinely welcoming of such feedback or comment? It is only by listening to students and empowering them to hold their institutions account can we drive up quality across the systems. According to a recent British Council (2015) study, the student voice has been glaringly absent from discussions on graduate employability in Africa. So the focus needs to be on empowering students to become critical learners, and institute feedback mechanism aimed at improving teaching-learning.

4. UNIVERSITY-INDUSTRY LINKAGES & MENTORING:

Graduates need to be exposed to industry and employers in order to develop outward looking

perspectives, appreciation for context and realistic notions and expectations of the workforce. The importance of university-industry linkages is acknowledged across Africa. For example, the Association of African Universities (2012) has produced a strategy document that outlines mechanisms for strengthened links between universities and industry in Africa. The goal is to give students more exposure to real world problems, increasing their employability and also producing a better trained labor force needing less training 'on the job.' For example, the **Innovation and Business Incubators** proposed to be established at Addis Ababa University, and possibly others, have far-reaching impact on university transformation and contribution to development. Involvement of students in job fairs, engaging them with industry mentors and other opportunities to interact with potential employers enables them to understand expectations, changing demands, and cultures of the workplace.

5. CAREER ADVISORY SERVICES:

Universities could provide targeted services to their students toward better understanding of the workplace, navigating employment opportunities, as well as preparation of CVs, writing cover letters and résumés, interviewing, and networking. For example,

career and employment-related services are offered across twenty-five Canadian universities (HESA, 2014). These include: i) career counseling; ii) online job boards and resources; iii) career fairs and information sessions; iv) workshops on résumé writing, mock interviews, and networking workshops; v) professional development and personality assessments; vi) classroom presentations on career opportunities; vii) organizing internship, placement, or co-op programs; and viii) assisting employers with recruitment and hiring. Ethiopian universities could do similar things toward better preparation of their graduates for the world of work.

6. FOCUSED AND PROBLEM-SOLVING

RESEARCH: Researchers should focus on providing policymakers with compelling evidence on how they can build a stronger link between the higher education sector and the labor market, employability skills, adaptation and preparing for shifting landscape and demands of the labor market, opportunities for self-employment, etc. Research works need to delve deeper into the problems and challenges of the sector and avoid making conclusions on anecdotal information.

SUGGESITONS

The World Bank (2009) study “Accelerating Catch-up: Tertiary education or growth in sub-Saharan Africa” argues that *tertiary institutions will need to consciously and persistently transform themselves into different types of educational enterprises: networked, differentiated and responsive institutions focused on the production of strategically needed human skills and applied problem-solving research*. The brief account above, on what kind of universities to build, and how we should prepare employable graduates, addresses some of the issues raised by the Bank. But, there is a lot more that universities and the system could and should do to be more responsive, proactive, and transformative engines in national development and competitiveness. Higher education is the source and accelerator that generates, adapts, and facilitates knowledge exchange and technological innovation toward mitigating development challenges and reducing poverty.

I have a strong conviction that Ethiopian higher education institutions are positioned to contribute meaningfully to socio-economic development and transformation. Governments and higher education institutions need to shift from only increasing access toward “*increasing access with quality*,” where university degrees are accompanied by a rich and invigorating learning experience. In order for universities to be able to become more active players in development and economic growth in Ethiopia and SSA their focus should be on improving

academic programs and delivery, and on mission reorientation with renewed emphasis on producing quality and relevant – EMPLOYABLE - graduates.

I want to stress the issue of governance, institutional leadership and management for effective teaching/learning, research and community engagement in higher education institutions in Ethiopia and the larger SSA region. Serious attention should be given to building the capacity of management and leadership, improving accountability and revitalizing missions toward problem-solving, as well as making institutional operations, including academic program development focusing on improving students’ experience during their stay in universities.

Quality teaching is not an option and higher education teachers should be trained as teachers. Having a teaching qualification and access to continuing professional development, as well as recognition and reward should be at the center of any reform program.

There is a strong need for flexible, innovative learning approaches and delivery methods to improve quality and relevance while expanding access. The very content of the vehicle through which we teach and develop our young people need to adapt and change reflecting current and future demands. The response to the employability challenges greatly depends on curricula and orienting course content toward requisite disciplinary knowledge, the job market needs, and emphasis on soft or transferable skills.

As an essential step in improving the provi-

sion and ensuring a rich and relevant learning environment, universities, and the system, should ensure accountability of institutions to their students, who are the primary stakeholders. Higher education institutions need to create environments and feedback mechanisms and systems to allow students' views, learning experience, and their performance to be taken into account.

Ethiopia, and Africa, is at a cross-road in relation to higher education development. Creating university systems of the highest quality requires political will and resources, but also research and analysis. Too often policy and institutional initiatives are hampered by a lack of evidence on which to base decisions.

University researchers should address the serious lack of robust information, for example, on labor market demands, on transitions from university to work, and the link between disciplinary area and employment prospects. Data to inform planned quality expansion is needed to guide policy and strategies, as well as implementation and practice.

Graduates need to be exposed to industry and employers in order to develop outward looking perspectives. Universities should provide targeted services to their students toward better understanding of the workplace, navigating employment opportunities.

Finally, I suggest making students at the center of a university mission, not just in words but also in day-to-day practice. Students' experiences, how much they benefit from their stay in a university and prepare for the world of work should be the focus of policymakers, university leaders, faculty members, and researchers. The key is appreciation of the current challenges, and then follow that up with a true collaboration toward finding solutions. Collaboration on the basis of ownership, mutual benefit, problem-solving, and system-wide improvement on a continuous basis will always be a win-win.

Thank you!



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SPEAKER-II

Quality of Training in science
and technology fields in higher
education institutions in
Ethiopia Students',
Teachers' and Employers'
perspectives



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This Study is part of a bigger study which was undertaken by the Ethiopian Academy of Sciences as per request by the Ministry of Science and Technology (MOST) to carry out the science and technology human resources supply and demand projection. The Study Team had some questions which elicited perspectives of students and teachers on the conditions of graduates' learning environment and employers' perceptions, regarding graduates' employment in the various manufacturing and service sectors. Some of the data might nicely fit with Dr. Teshome Yizengaw's presentation in terms of some of the realities and recommendations.

This is a perceptions Study and very simple and empirical in nature - without any theoretical or conceptual ideas. But it essentially tries to uncover what the Team has gathered in the field in terms of perceptions of various actors involved in education and employment as far as science and technology fields are concerned.

Science and technology fields are very essential for economic growth and competitiveness in Ethiopia. We have many policies, including education and science, technology and innovation which emphasize the same. There is a need for competent local technicians, engineers, scientists and others and we have the Government engaged in the expansion of higher institutions and Technical Vocational Education and Training (TVET) meant to serve as breeding grounds for the science and technology workforce needed in the country.

This general assessment level of qualified manpower, which could have been capable of transferring technology, is by and large very low.

Therefore, there is a consensus to strengthen science and technology human resource in the country. It is towards that end that the Ministry of Science and Technology, commissioned the Ethiopian Academy of Sciences to undertake the study in order to project the human resources science and technology demand and supply to assist the country's efforts to produce science and technology workforce.

The study is supply and demand analysis, projection of supply and demand, the supply side focusing on universities and TVETs. The Study looked at 30 universities in order to make an in-depth study on some of them. On the demand side, about 129 manufacturing industries were selected for the purpose and about 38 industries, belonging to different categories such as MSEs, emerging industries, industrial services, were also part of the study.

The Study has two major parts, the quantitative part focusing on projection of supply and demand of the science and technology workforce by qualification and by field of specialization. The qualitative part elicited perceptions of students and teachers on the learning environment because the Team wanted to know the conditions through which universities supplied science and technology human resources to the labor market. It also brought about perceptions of students and teachers on own competence and employers' perceptions on skills shortages/gaps among graduates in the labor market.

Student Perceptions

Students' perceptions were sought on the various

aspects of the learning environment, including learning competence, learning environment and how they rate or scale the various dimensions of the learning environment pertaining to facilities, inputs, services etc., as well as what they feel and think about their own competence. The Team asked university students to rate facilities such as libraries, laboratories, scientific journals, lab spaces, dormitories and toilets, as low, average and high to understand their perceptions on the facilities.

Many students rated availability of facilities as low, high, and average. They rated their respective institutions as better equipped with libraries though many of them do not use books as they prefer the internet to cut and paste. But all the other facilities are rated relatively very low, including scientific journals, laboratory spaces, dormitories, computer labs, internet services, etc. They also rated classrooms and seats fairly average. But they still complain class size is not commensurate with the huge number of students the Ministry of Education sends to various universities. So, most of the facilities are rated very low except for libraries. Then they were asked some more questions on teaching/learning processes to know their ratings.

Most teaching/learning is usually done by lecturing as a mode of delivery and it is rated highly. Other types of deliveries such as research, discussion between students and teachers, and among students and practical exercises are rated relatively low. Project-based learning and oral presentation were also rated very good but lower than others. Therefore, perceptions of university students on the learning process are more lecture-based.

University students were asked about their perceptions on study program design, such as quality of academic staff, motivation, administrative efficiency, academic structures, management, decision-making processes, and scientific content of courses. Many of these were rated fairly poor or low and scientific programs, and internships are rated relatively average or low.

Students also rated staff support system, such as academic support, recreation, sports facilities, freedom of expression, guidance, and counseling, very low whereas the others were rated relatively fairly. University services, that are available to students during their stay, are rated low. Research fund for graduates and food and catering services are also rated low.

Students think they are competent on various fields such as mastering their study area, analytical thinking, acquired knowledge, ability to communicate and negotiate, and working under pressure. Their evaluation of their competence upon graduation is on the high side. Despite the fact that they complain about the learning environment, they think they would have acquired the necessary abilities by the time they graduated.

Perceptions on TVET students Teaching/Learning Processes

Staff qualifications, motivation and efficiency of administration are either rated very low or average. TVET students' perceptions seem to correspond with that of university students. TVET students also rated services, such as recreation facilities, guidance, counseling, and

recognition of academic merits, very low.

TVET students' perceptions on their abilities upon graduation

TVET students think that they have mastery of their subjects. They seem to be modest in their assessments of the various dimensions of their skills, such as communication and performance under pressure, which they felt were fairly average. Unlike university students, they rated their skills, such as efficiency, teamwork, creativity, language, computer and report writing, modestly.

Teachers' Perceptions

Teachers' perceptions seem to correspond with those of students' on facilities in their respective institutions. They reported lack of different types of facilities, including laboratories, books, scientific journals, functioning toilets, and internet services. Research fund is also rated low by all instructors.

Teachers' Perceptions on Academic Program Design

Staff motivation is rated extremely low. Instructors in universities and TVETs rated research output, internationalization and conditions of staff offices very low.

Institutional structure and setup

Decentralization, to what extent administration is decentralized, within the respective institutions and staff time use are rated fair or

average. But staff promotion and academic commitment are rated low. Therefore, institutional structure and setup are rated either average or low. The same is true with teachers' responses on the learning conditions. They are rated either average or low.

Summary

- Students and teachers agree that critical inputs (research funds, scientific journals, computer labs, and laboratories with chemicals) are missing or are rated low.
- Students and teachers (university and TVETs) have questions on modes of delivery - whether or not emphasis on the lecture method is effective.
- Resources and capacity are not equivalent to students' numbers (number versus effectiveness).
- Most university students agree that they have adequate competence upon graduation (analytical skills, soft skills, knowledge).
- TVET students have assessed their level of competence upon graduation modestly but considered their knowledge to be high.
- Teachers rated their motivation, academic decision-making, research

output, internationalization, and student learning environment low.

- Graduates expressed anxiety over joblessness. This is not much heard from TVETs. Most are satisfied if they get jobs but all assume to work privately.
- Some industries book graduates at TVETs but not so much at universities.
- University graduates complain that jobs meant for graduates are taken over by TVETs.

Employers' Perceptions

Employers' views were sought regarding

- Skills shortage
- Skills gap
- Recruitment process

Some of the responses were:

Skills shortage

Nearly 1/3 of employers maintained that work-force is abundantly available in the market but a significant portion of employers (50%) pointed out limited availability and 6% held that it is not at all available. There is wider acknowledgement of limited supply and further probe elicited that some of the reasons for skills shortage are expansion of emerging industries and the coming up of big projects and services. Industries, which increasingly demand technical personnel, cannot find adequate competent

labor force. It forced some employers to engage in training and import expatriates at very high cost. Training diverts investment from production to training and hinders investment, constrains technological progress of the country, and arrests overall development.

Skills gap is more qualitative in nature. It indicates whether graduates or employees have requisite demands or quality skills.

Levels of Satisfaction by Employers

Quite a significant proportion of employers stated that they are satisfied but still nearly half (41%) have reservations but more revealing information came from further qualitative study. Employers invariably affirmed that graduates lack practical skills, appropriate industrial work ethic and are not ready to learn. In fact, some of them maintained that when graduates come to their factories and organizations, they look for an office with computers instead of trying to get their hands dirty or learn from their predecessors. Experts also believe that graduates should possess expertise demanded by the market or by employers.

Major skills deficiencies

Practical training, such as machine operation, computer skills, usage of tools and equipment were lacking among many graduates and employees and also have deficiencies in non-technical skills such as report writing, interpersonal and communication. They also revealed that the main reason for such

observed skills gap is lack of sufficient laboratories and machines in the workshops of the training institutions (poor learning environment). Weak technical capability of instructors in the fields is also a factor.

TVET students are expected to get 30% of their training from industries and 70% of their expertise from their learning institutions which are not done properly because of lack of cooperative training, apprenticeship etc.

Recruitment

Invariably again, the Study found out that regarding recruitment (from markets through advertisements in newspapers) there is no substantial effort to link with either universities or TVETs. In many cases, universities may not have career advisory programs.

Some of the factors they said are critical for their recruitment are:

- Expertise (31.5%) and experience (28.2%) are the two factors that are rated highly.
- Levels of education and training are rated low by employers (13%).
- It does not matter if employees have first or second degrees as long as they have the expertise and experience.
- Expertise is also emphasized in other areas related to recruitment.

Finally, they were asked the kind of skills employers require that is skills that could be transferred to higher institutions, particular-

ly in the science and technology fields. They mentioned general manufacturing, and engineering fields (expertise on industrial, mechanical, electrical engineers) but also technologists in various types of fields. But sector-specific skills are also required. The food technology requires different types of technicians such as processing technicians involved in different types of food items, and textile industries such as textile and leather technologists and so forth.

The implication of this is that there is a need for a talent pool that can generally work in the manufacturing sector and higher institutions should focus on specialized talent that might feed into specific sectors. Employers, in the science and engineering fields such as engineering science, chemical science, ICT, and biotechnology, mentioned that it is imperative that these professions are adequately provided for.

Conclusion

General observations

- Students, teachers and employers agree on the existence of poor learning environment (in terms of facilities, teaching/learning process, etc.).
- There is a perception difference between students and employers on the level of competence and skills.

- University students feel that they are high on competence

and TVET students feel that they have modest competence but employers report lack of it.

- There is a need for expanding science and technology teaching in order to address the skills shortage as indicated by employers.
- Skills gap or lack of practical training and work ethic, cited by employers, need to be addressed by training institutions.
- There is the need for fostering university-industry linkage to uphold cooperative learning or apprenticeship which will give students the required practice.
- It is believed that joint recruitment by industry and training institutions will help match demand and supply.
- There is a need to incentivize research and improve career structure of teachers in order to address their concern.
- There is a need for emphasizing training and production of sector-specific specialists and high-level experts so that they meet the labor demands of specific sectors.
- Students and teachers agree that graduates need additional training at employment.

- Tracer studies may be needed to understand what is happening to the graduates and how employers deal with university and TVET graduates.

Thank you!

DISCUSSION

Question/Comment

Quality and employability

Whenever we think of quality and employability in Ethiopia, the philosophical question that is, “What is the purpose of higher education?” remains unaddressed in policy documents, academic interchanges or conferences. That is the primary question that should be answered in order to lay a solid foundation on which policies are designed and implemented. If we fail to answer that and if we don’t have a solid foundation on which we are going to design our policies and put them into practice, it would be a problem. This is also an issue that has been around the floor for quite a while in other countries as well.

The more liberal view states that education is simply for the pursuit of knowledge. This appears to be somehow the traditional or historical view in Ethiopia, particularly among senior professors in public universities. But now much of the policy instruments talk about the more functional approach of higher education: training people for specific skills that would be suitable to the needs of the economy which is also something related to the developmental state paradigm that we generally follow. They are not mutually exclusive but there is a need for a proper definition. We need to have a way of integrating them otherwise we might be chasing them separately. When we have one thing in our policy documents and another in

university traditions, we may end up getting nothing.

Response

If a university is producing graduates that come out to the society and contribute to social, economic, technological development, there is a pursuit of knowledge in that as well. In addition to that, when we are giving students the hard skills that also includes the pursuit of knowledge. Most of the academic faculty try to impart knowledge so that students continue to be researchers, innovators and more productive citizens. So the two are not mutually exclusive. If we are focusing on graduate employability, what we should do is ask our higher education institutions if the curriculum is proper and if the faculty provides good teaching and learning practices. Then, they will be able to pursue knowledge for its own sake and be able to contribute to development.

Comment

Curriculum

When we talk about student-centered curriculum we mean engaging students in the teaching/learning process. When we talk about graduate employability, we need to ask what types of skills graduates need to meet the requirements of the workplace. We should try to look into the demands of the workplace, not employers but the workplace. Curriculum should address current and future demands of the workplace, comprising technical and discipline-based knowledge as well as soft and transferrable skills.

V

Round Table I

Curriculum Relevance And Graduate Employability In Ethiopia

*The Round Table was moderated by Dr Getahun Mekuria, Director
General, Ministry of Science and Technology*

PANELIST I

Dr Tesfaye Teshome

Director

Higher Education Relevance and
Quality Assurance Agency



Left to right Dr Yalew Endawoke, Dr Getahun Mekuria, Dr Heran Sereke-Brhan, Ato Wondwosen G. Teklemichael, Dr Tesfaye Teshome

The higher education landscape in this country has changed much and has touched quite a number of issues. For one, the Education Strategic Center has been established. The Center is expected to come up with policies and strategies to help leaders make informed decisions. The Higher Education and Quality Assurance Agency (HERQA) was established so that quality is not compromised during expansion. Its mandate is to oversee if the provision of higher education is up to standard in all Higher Education Institutions (HEIs).

We had quite a number of discussions at international fora about relevance. Whatever program we launch, higher education institutions should be relevant to the needs of the country. While expanding higher education, we definitely have achieved quite a great deal of success but there are challenges as well. The first challenge was developing relevant curriculum. When we look at higher education institution programs, we can say that most of the training provided in higher education institutions has limitation in bringing positive impacts for national development. I am not belittling the achievements made in the last two decades but we have to be open enough and add critical views so that we can properly address the issues. Education has, thus far, not helped to alleviate poverty and other related societal problems in Ethiopia. So, what is the problem?

Let me take you to the issue of relevance. What is relevance? Researchers have defined relevance in different ways. But let me take the definition given by UNESCO in 2001. We live in a very dynamic world and in a complex natural environment and higher education is called to play

a valuable and complex role in development. Relevance is a key factor in this regard and this term has been used to refer to the fit/match between what higher education institutions do and what society expects them to do. So long as there is an interface and conformity between the two, then we can say there is relevance. Now, the question is do higher education institutions currently open programs based on this concept? I leave that to you because you are senior scholars and researchers.

HERQA has audited fifty-four institutions focusing on quality and curriculum relevance. We put a good deal of effort on education but little attention has been given to relevance. Why do I say that? Look at the type of programs we open. Similar programs are opened across universities. I don't think that is the way to open programs. I feel that each and every institution should study the environment in which it works, such as staff profile, availability of facilities, resources, its overall strength and identify its niche that makes it unique to open a program. Such an approach gives the institution a comparative advantage and makes it responsive to societal needs and furthermore become an authority in the field. Each university has to look at those issues first and capitalize on those areas so that we can establish a center of excellence that has authority in a given discipline. That is something which we are not doing right now. Some universities have recently started working towards that. At least DebreBerhan University is running a specific center of excellence in a specific area.

Ten years ago, we studied the national qualification

framework which spelt out a generic competence of each and every level of education provided as a point of reference. That work has not been completed. I assume the document has to be approved by the Council of Ministers. All programs offered in the private and public universities have to be registered. When we register programs, we look into relevance issues, meaning whether or not those programs are relevant to the country's developmental agenda. That is one point. The other point is there is what I call a dichotomy between public and private institutions. All public higher education institutions open programs the way they want to. They don't have to go through the accreditation process of HERQA. That is totally unacceptable. In any part of the world, every program is supposed to go through the accreditation process and get licensed.

If you see some of the proposals we submitted to the World Bank recently, one of the questions they raised was if the program/institution has been accredited. Programs have to be accredited and their continuation has to be ensured because the private sector believes that they are not fairly treated. Therefore, how can higher education institutions address societal needs through the development of competence-based curricula?

We used to have traditional curricula and now we have to develop competence-based curricula that are content-based, process-based etc. But the traditional curriculum based itself on knowledge. A group/committee of subject specialists and trainers designed it. But it lacked touch with the real world. It was very much theoretical and discipline-based. I don't mean to un-

dermine that but I would rather opt for interdisciplinary-based curricula and I have a reason for saying so.

What are the basics of traditional curricula? Unless and otherwise we know the difference between traditional and competence-based curricula, we cannot understand the problem. In most cases, traditional curricula lack practical touch with the real world of work. Professional and technical education has now changed. The problem is knowledge acquisition doesn't necessarily mean successful breeds of the same. Such curricula do not equip students with the necessary skills, knowledge and attitude. The issue of relevance is out of question.

We have to consider elements of relevance in the development of curricula. So, what are the alternatives? We have to develop vibrant curricula that are competence-based. What are the features? They are learner-centered. Our students are not the owners of the teaching-learning process. We don't have to pump our students with concepts. Let them define concepts in their own way and the teacher has to come to the picture as a facilitator.

What I am saying is based on constructive approach. Its aim is the acquisition of competence-based knowledge; focusing on the learning environment and competence. It must be inter-disciplinary and multi-disciplinary. Why are we saying that? Let me take you to my experience at 'TanaBeles.' I was fascinated by the engineering work being done there. We saw the Dam and the engineer said, "We need some critical amount of water here to start the generator." When I looked around, I saw a chain

of mountains with no single vegetation. I asked the engineer if they wouldn't have a problem getting a critical mass of water with that kind of situation and how they would manage that. He said that was for the forestry and environment specialists to worry about. That was the response I expected to get and that is where we fail. We should train our students in an integrated fashion in a way they can understand a problem in its entirety. That is why I say inter-disciplinary, multi-disciplinary and competence-based curricula are needed, focusing on problem-solving.

HERQA has produced more than eighty-six publications. With such a system, we did institutional quality audits on ten focused areas. What we did was what the International Network for Quality Assurance Agencies in Higher Education (INQAAHE) registered as core competence on development of health and medicine programs. We now know exactly what kind of core competence is needed for medicine, anesthesia, pharmacy, nursing, and what have you. We know the specific standards that lead to the accreditation of the program.

These two good practices and two others have already been registered. What is the purpose? In any quality model, which aims at assuring quality in any educational program, there are three basic elements: inputs, process and outputs. We are not trying to check the seed material coming out of the institutions but the competence level that is at stake. We check if those competence levels are really relevant to the real world of work. Medicine

students have started exit exams at Addis Ababa University. What is the purpose? The purpose is simple. One is a qualifying exam to check if competence level is achieved during the students' stay at the institution. The purpose is to reduce attrition rate to overcome wastage. We expect such kind of competence levels where curriculum development continues for other specializations such as that of engineering, technology, natural, computational, and social sciences.

We have to be critical on modularization. Some years back, we had to make a choice between modularization types of courses and course-based type of teaching. Then we moved to modularization. The whole issue of modularization is to put similar courses in a cluster. Course-based types of teaching courses are usually given here and there. Let me cite an example. Introduction to statistics, application of software, and introduction to computer science were second year courses. Research methodology and report writing were third year courses. These courses should have been given together. Otherwise, by the time students learn report writing and research methodology, they forget statistical analysis.

Regarding the grading system, we usually use a normative assessment system. In such kind of assessment, an "A" is not equal to "A" within a department and across departments. And we recommended reference type of assessments which check whether the course objectives are met or not.

PANELIST II

Ato Wondwossen G. Teklemichael

Director

Institute of International Education

Sub Saharan Africa

We need to start with the learner and extracurricular activities should be included in our basic education system. Co-curricular and extracurricular activities have to start in our schools at the very early stage because it is literally character development as well. Children should learn team work, leadership, problem-solving, communication, as well as critical thinking skills at a very early stage. We also need to expose them to community issues and create a mind that can find solutions to society's problems.

If our children are brought up this way, the next stage will be to take the same principle to higher education institutions and continue the same in a highly qualified, well-thought-out structure and matured way. This will become, in my opinion, a practice-based learning. One way

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to address the employability of graduates is to link the classrooms to industries. Certain hours of community service should be part of the requirement for graduation. Internship, shadowing and mentoring by industry experts while still in universities should be incorporated in the system.

This way, students/graduates can go to the workplace ready, understanding what is awaiting them and knowing what problems they have to solve. Education at the end of the day has to be a means to achieving something not an end in itself. It might be solving a problem, finding medicine to a disease etc. Students in the higher education institutions have to be linked with industries, be it in public or private sector and learn practically. What basic or important way is there more than learning by doing? If we include in the curriculum or focus on the practical way of learning in our schools, we may get some benefits:

- i) It motivates students
- ii) Gives reality check to students before they go to work
- iii) Students start building relationships in the workplace and get role models. Life-long relationships start at that stage
- iv) Organizations would also benefit since it reduces training cost. It is beneficial to hire those who had institution-based practical training rather than bring graduates and train them. For example, Ethiopian

airlines has training programs. They take graduates from universities and train them for a year or two, paying full salary and letting them acquire different skills from different departments that are specific to the airline

We need conversation on curriculum change and or development, which will eventually lead to structural change. Our curricula need to incorporate these and other practical ways of learning.

PANELIST III

Dr Yalew Endawoke

President

Woldia University

Education, relevance, quality, and employability are interrelated and inseparable. What is relevance? Basically when we talk about something relevant it means that it is something that has some kind of worth. So any knowledge is relevant because it can help us understand social and natural phenomena. In principle, any knowledge is relevant and we can organize this knowledge in the form of curriculum. What is irrelevance then?

When we talk about relevance those priority areas should be identified and organized in such a way that they can help us enhance the horizon of knowledge of the society at large. The kinds of problems we face as a society help us understand ourselves. If knowledge doesn't have these characteristics, then it is irrelevant. Whenever we design curriculum, we should take into account to what extent it fills the

gap that exists in the society. What problem is going to be solved? If we focus on our problems, the knowledge gaps in living standards, then we should be able to identify those issues that should go into the curriculum.

Curriculum is said to be relevant if at least five conditions are fulfilled. One is rigorousness of the curriculum. It should involve the students actively. If students are not actively involved in curriculum development (if they are passive recipients) then the curriculum is not relevant or less rigorous. Curriculum should be tied to the lives of students and the community/society. If it is divorced from the lives of the society or the nation, then it cannot be relevant.

The second important point is that relevance requires students to be independent thinkers. Independence should be enhanced by the

curriculum. To what extent the current curriculum enhances students' independent thinking? It should be rich in thinking. It should provide students with activities so that they can think critically and become innovative thinkers. To what extent are our students creative or innovative?

The third point is that curriculum should help students demonstrate their intelligence and their understanding of the material they are dealing with. The fourth point is that it should be rewarding. It should arouse students' interest and motivate them. If students are not motivated, if they don't value the curriculum, then they will not be successful. Sometimes it is chance that determines which department students join. To what extent do they have the motivation/interest in the course?

These days, the first category students join is the medical sciences. The second is the social sciences, mainly management. The second category (sciences) of students go to engineering. The third category of students goes to natural and computational sciences. The rest go to mathematics, physics and chemistry. For the most part these students become teachers. You can imagine how this affects the whole system. So, there is a problem and the majority of students joining those departments are mostly students with borderline achievements. I don't mean they are mediocre. Many of them complain so it means it is not working for them. Something should be done.

The fifth point is that a curriculum is relevant if it enables students to be reflective thinkers. Most of our students lack this ability or competence.

Curriculum should be designed in such a way that it enables students to have at least those five things mentioned above. That way they can gain the most out of the teaching/learning process. We can get the most out of teaching-learning if students are motivated, if they are ready to learn, and if they make the effort to learn.

How does relevant curriculum help students develop skills? At least three things can be cited:

1. Skills (core skills)
2. Personal attributes
3. Understanding

If a curriculum is said to be relevant, it should be organized in such a way that it develops the skills of the students. It should develop the practical, cognitive as well as psychological aspects of learning. When we do that, we can say that curriculum is relevant. But how do we develop curricula for students and how do we make them employable in the market? We can use different assessments in order to categorize students into different employability possibilities.

1. We can use preliminary assessment which has never been practiced in this country. Students don't fit into one jacket. One can be gifted in one area and another in another area. But most of the time, it is not the competence, not the intelligence that we have that helps the MOE or ourselves to go into different fields and join different curricula

which have their own impact on the success of students or graduates and their employability in the future. Students can complete different programs but before they join a certain program, there should be proper assessment.

2. Generally speaking, there are ways of integrating the practical as well as the psychological aspects of the curriculum so that we can prepare students for the demands of the labor market.

We don't use formative assessments properly which can help us identify the weaknesses/ strengths of students and give them appropriate remedial supports. We don't properly assess students using subjective evaluation. Especially in the natural sciences and technology fields, students are given two/three questions which hardly assess their ability or tell their progress in the learning/teaching process.

There are different problems we can see in that area. We don't use even diagnostic evaluation. What problems do they have? To what extent the students fit into the programs? We don't employ that kind of assessment. If we don't use it, then students may not have the capacity to actualize their potentials. So, that may be considered one issue that determines employability of students in the labor market.

PANELIST IV

Dr Heran Sereke-Brhan

Independent Researcher and U.S
Liaison of the Ethiopian Academy of
Sciences
Washington D.C, USA

I am not a higher education expert, but I have benefitted greatly from a liberal arts education as a high school student here in Ethiopia, and as a college and graduate student in the US. This perspective will frame my remarks today, and I will speak briefly on three inter-related themes that have been raised in our discussions of 'Re-envisioning Higher Education and Research in Ethiopia.' My examples are drawn from the US not because there is a comparative context but because I think there may be valuable insights to be gained that will be relevant to our deliberations here.

First, I will touch upon debates around the global orientation that has leaned heavily towards promoting science, technology, engineering and math (also known as STEM disciplines) in education and research. I will also speak about the importance of education in the

arts and humanities in connection to curriculum development and end with some thoughts on graduate employability.

Innovation - through invention, development and the profusion of new technologies - is the fundamental source of economic progress. Technological innovation in particular requires the expertise of specialists, with knowledge in the field of science, technology engineering and math (STEM). Ethiopia is not alone in the global trend to promote and prioritize programs in STEM disciplines. In the case of the US, the federal government's commitment to providing funding to enhance the STEM labor supply began in 1945, around the same time that the National Science Foundation was initiated. Workers in STEM fields are seen to play a direct role in driving economic growth and STEM jobs have doubled as a share of all jobs from less

than 10 per cent in 1850 to 20 per cent or 26 million US jobs in 2010. Several US presidents, George W. Bush and Barrack Obama among them, have enacted federal laws and initiatives as the American Competitiveness Initiative and “Educate to Innovate”, respectively, to boost the quality of STEM education and increase the supply of working scientists.

Scholars who have studied trends to promote programs in STEM fields argue that such an emphasis has come about in part due to the driving forces of globalization, as characterized by the expansion of international trade, investment, and information and ideas across national boundaries. Globalization has in turn come to exercise influence on the nature of institutions, including what is taught and researched. Thus, both student interests and university offerings have shifted away from broader academic studies to narrower vocational programs.⁴

Paradoxically, other scholars point to the fact that despite increasing connectivity and greater contact across cultures, nations, and regions, there are notable patterns that illustrate the closing of minds and the negation of core human values as reflected in neo-liberal economic and social thought of the last two decades. Through this prism, the concept of development has been reduced to economic performance and growth and the purpose of universities has also come to be defined solely in terms of their role in economic development. Accordingly, public investment in higher education has in turn come

to be justified mainly in terms of economic growth and preparing students for the labor market.

Despite this, recent research findings and education policy debates are increasingly shifting their focus towards an inclusion of the study of the arts that warn against the dangers of narrow specializations and the limits of exclusive STEM education in a rapidly changing global world. STEAM education takes the standards of STEM formulation and adds ‘A’ for the arts. There is the counter argument, of course, that the addition of the arts distracts focus on hard sciences and that STEM students are already suffering from lack of engagement as it is. Others argue that the separation between science and the arts should be clearly defined. Some of this, in the case of the US, is fueled by the fear that if the country falls back in STEM areas, national security will be threatened.

Anna Feldman, an advocate of STEAM education, proposes that the latter approach is focused on sparking student imagination and helping them innovate through hands-on science, technology, engineering and math projects. Students are encouraged to apply creative thinking and designing skills to STEM projects so that they can imagine variety ways of using STEM skills into adulthood. The aim is not to cultivate more arts or dilute STEM education in any way but to help students think creatively and remain engaged in learning.

She posits that STEAM uses design methods to

⁴SaleemBadat, “The Role of Higher Education in Society, Valuing Higher Education,” HERS-SA Academy 2009. University of Cape Town Graduate School of Business. 14 September 2009.

approach the subject creatively and make them real-world relevant to all students, not just to those who are currently interested in the sciences. Rather than simply add art, STEAM works on developing high ordered design and engineering skills, while allowing students to innovate, invent and succeed in their own terms. This student-centered approach, argues Feldman, makes all the difference in terms of their engagement. The focus here is not on rote memorization or mastery of separate topics. Instead, STEAM uses project-based teaching to holistically foster students' skills and creativity, design thinking, tech literacy and problem-solving.⁵

In their publication *Critical Evidence: How the Arts Benefit Student Achievement* commissioned by the US National Assembly of State Arts Agencies (NASAA) and the Arts Education Partnership (AEP), we learn that some of the most compelling research on the benefits of arts education come from non-arts specialties: cognitive neuroscience with its discoveries on the role of the arts in shaping learning-related outcomes; the labor economy with findings on the arts and its bearings on national and local productivity, and studies in psychology which explore the relationship of the arts to health and well-being. Needless to say, reading and language skills are enriched by training and dance. Music seems a critical benefit to developing mathematical skills. Arts learning also contributes to the development of critical thinking and social motivational skills that strengthen thinking or cognitive skills. Reasoning ability, intuition, perception,

imagination, inventiveness, creativity, problem-solving skills are among the biggest beneficiaries of developing thinking skills through arts education.⁶

It is a strong confirmation of the timeliness of this conversation on science and arts education today that a law that was hailed the biggest federal education law in over a decade was debated in US Congress just last week. On November 19, 2015, Congresswoman Suzan Bonamici (D-OR) successfully added an amendment to the rewrite of the Nation's Elementary and Secondary Education Act (ESEA) legislation which will integrate the arts into STEM education. This amendment, specifically citing the arts states: "integrating other academic subjects, including the arts, into STEM programs to increase participation in STEM, improve attainment of STEM-related skills, and promote well-rounded education."

It is particularly significant that the amendment was unanimously adopted and will affect over 100,000 schools across the US.⁷ In general terms, there is a lesson to be learned by all this for our situation here in Ethiopia. If an advanced country such as the US, is revising and rethinking its position on STEM education, then policy makers and education administrators in Ethiopia may instead consider the merits of a more balanced approach which includes education in the arts and humanities as essential in science-led development efforts.

Finally, I will share some remarks on the benefits

⁵Ann Feldman, "STEAM Rising: Why We Need to Put the Arts into STEM Education," Slate, June, 2015.

⁶National Assembly of State Arts Agencies and the Arts Education Partnership, *Critical Evidence: How the Arts Benefit Student Achievement*, available online: <http://www.nasaa-arts.org/Publications/critical-evidence.pdf>, 2006.

⁷Americans for the Arts Action Fund blog: "Huge Arts Education Win in Congress Today," posted on November 19, 2015. Source: <http://www.artsactionfund.org/news/entry/huge-arts-education-win-in-congress-today>.

of liberal education. Those that fail to see the value of liberal education argue that it is good in theory, but not practical and relevant in today's world. This form of education is instead seen as a luxury, or a self-indulgent kind of approach to education. Others argue that in today's world of work that is dominated by fast-changing and increasingly sophisticated technology, a more technical education would serve students better in preparing them for employment.

Yet research findings indicate that upon entering the workforce, students are required to have more complex sets of skills and capacities, the kinds of which were never required before. It is therefore critically important that they develop enduring and transferrable skills and capacities that allow them to adapt in a changing workforce. In addition, employers are aware that the technical skills of workers will need continuous upgrade – their concern seems focused instead on the lack of problem-solving and communications skills, capacities which can be best developed through liberal education.⁸

As we contemplate the issue of graduate employability, valuable lessons can be learned from research and surveys of private sector employers and corporations, and their assessment of graduates preparing to enter the workforce. Changes in the world of work – technological transformations and evolving expectations – have created a situation where employees must be ready to handle everything immediately upon hire. In this regard, graduates from STEM-based education from colleges and universities may

have specific technical skills but seem to lack real world experience as well as critical thinking, problem-solving, and communication skills.

Surveys of employers of the top five hundred corporations and companies show that the schools that students attend are of less relevance than the real world experiences for that have become critical measures in evaluating potential applicants for employability. Internships, service learning, on-the-job experience and experiential learning are seen to appropriately contextualize students' learning. Such experiences in turn force students to deal with different kinds of people with diverse backgrounds and age groups, and is ultimately seen to prepare them better for the workforce.⁹

As we contemplate the future of higher education and research in Ethiopia, the importance of integrating the arts and humanities (social science, religion, history, geography, philosophy, and language arts) in curriculum development is clear. Given the broad linguistic and cultural diversity of the country, strong grounding in these disciplines will foster understanding and build knowledge while strengthening ties between communities. Along with competency in science and math, a liberal education is vital in creating a well-rounded workforce with advanced technical knowledge and essential communication, problem-solving, and critical thinking skills and producing an engaged Ethiopian citizenry that spearheads progressive achievements in the 21st century.

⁸Debra Humphreys, *Making the Case for Liberal Education: Responding to Challenges*, Association of American Colleges and Universities, 2006.

⁹US Chronicle of Higher Education and American Public Media's Marketplace, *The Role of Higher Education in Career Development: Employer Perceptions*, 2012.

VI

Session III

The Need For
Research-Intensive
Universities In
Ethiopia

*Session III was chaired by Professor Tsige Gebre-Mariam, General Manager,
Regional Bioequivalence Center and former Vice President for Graduate
Studies and Research, Addis Ababa University*

SPEAKER-I



Professor Damtew Teferra
KwaZulu-Natal University
South Africa

Building Ethiopia's research universities- the arduous but indispensable task

In speaking on this topic - ***Building Ethiopia's research universities: the arduous but indispensable task***, I first opted to share with you selected examples from around the globe which have been seriously striving about building research universities. The examples here I have with you are China, India, S. Korea and Kenya. But before delving into that, let me just briefly state what some of the major growing development players said about higher education:

- African Union: a core resource base for the attainment of sustainable development
- AAU: has a critical role to play in delivering knowledge and skills necessary for social and economic development
- Economist: will boost economic growth
- OECD: a critical and tangible role for sustainable development
- UNESCO: has a critical importance to the long-term development of knowledge societies
- World Bank: a key driver of growth and development

One recalls the flow of higher education study by the World Bank that shaped sector policy for

over two decades. In its recent study, the Bank announced that, "The rate of return on higher education in Africa is not only high, but at 21%; it is now the highest in the world." Let me talk about the four examples I want to share with you:

China

In 1995, the Chinese Ministry of Education and Ministry of Finance issued a joint document called, "The '211 Project Planning.'" The 211 Project aims at developing 100 universities by the early 21st century that will take a leading position in the country's social and economic development and in the international competition. To further enhance public funds for higher education, the Government launched a 985 Project to reflect its goal of developing tertiary education system to international stature. The 985 Project has, thus far, supported 39 selected universities—9 of these are considered the Chinese Ivy League to be developed into World Class Universities. The remaining 30 institutions were expected to become "world known" universities. This is a slightly lower-level achievement but maintains international reputation.

India

The Indian Institutes of Technology (IITs) have been islands of excellence. As of 2010, numbers have increased to 16. Since its inception, the

IITs system decided a mission by meritocracy - merit-determined through IITs joint entrance examination. Recent decisions by the government, concerning the creation of a lecturers' position in IITs: the relaxation of PhD qualifications for this position, the starting of new IITs without adequate preparation, pay packages for the faculty, rampant affirmative action creeping in now at nearly 50% suggests, according to the former official, the government has begun treating IITs as regional universities.

South Korea

South Korea is one of the few countries that has succeeded in developing world-renowned universities. The three universities are:

- Seoul National University
- The Korea Advanced Institute of Science and Technology
- Pohang University of Science and Technology

The government, which had strong consortium of the institutions, is steadily losing its grip but maintains its influence through such ingress measures as competition grants and performance funding. As a result of this approach, high performing universities have received more subsidies through various research projects such as Brain Korea and World-class university project.

Kenya

Nigeria and South Africa have for a long time been the economic giants of Africa, particularly in terms of natural resources such as mining

and oil refining. Until recently, South Africa was regarded as Africa's core technology hub principally due to superior infrastructure and more mature investment market. By focusing on financial services and telecommunications, Kenya has thus far proved itself to the South by becoming the go to African market for the likely economic drivers of the next few decades.

If there is an African version of California's Silicon Valley, that country is arguably Kenya. Kenyans enjoy faster broad band connections that counterpart Africa's economic power house into South Africa. Household tech names such as Google, Intel, Microsoft, Nokia, and Vodafone all have a presence there. IBM recently chose Nairobi for its first African research lab. Just the other day, I read on the news that Kenya has now embarked on a very ambitious plan to set up a US \$1 billion National Research Fund to strengthen research universities, with an eye to push the country to become a middle income economy by 2030. The government had resolved to set aside at least 2% of gross domestic product for research.

I thought these examples from overseas and neighbouring Kenya will be constructive in striking a dialogue, shaping Ethiopia's trajectory in building a research capacity and culture. First to be very clear, Ethiopia's on-going effort in expanding its higher education system is commendable and it should go on. But I would like to immediately pronounce that Ethiopia must focus even more on consolidating what is built simply because it is now, without doubt, the quality and robustness of knowledge that renders a country globally competitive and boosts its innovative

capabilities and enhances and ensures national development.

For a country which continues to register a faster economic growth and aspires to be a middle income country in a decade or so, while facing a throng of challenges, the building of such intensive universities in ensuring this growth pattern must thus be unwaveringly raised as a national priority.

To be sure, mass education and consolidation often stand on competitive ground and one may not be achieved without sacrificing the other even in the most advanced and resource-abundant countries. But there are several ways to mitigate this inherent competition. Among others, deploying more private institutions and distance and online approaches creates more learning environment opportunities. For example, private institutions should be considered allies when addressing this pressing national need. Moreover, the public institutions that will be opened need not all be designated or built as universities but instead include colleges and community colleges as in the US. It is my further view that Ethiopia now moves from cluster expansion to a strategic expansion.

According to Professor Philip G. Altbach, research universities are elite—and cannot be democratic. They recognize the primacy of meritocracy and their decisions are based on a relentless pursuit of excellence. They are elite institutions in the sense that they aspire to be the best in teaching, in research, and particularly in the global knowledge network. However, terms like elite and meritocracy are not necessarily very popular in a democratic age where

access is the key rally and cry of proponents of higher education for decades. Yet, for research universities to be successful, he says they must proudly claim this character of meritocracy and of elitism and a research university cannot be democratic. They recognize the primacy of meritocracy, and their decisions are based on the relentless pursuit of excellence.

Dr Jamil Salmi, at the World Bank, notes, that there are three ways of promoting excellence in a country:

- Clean Slate: Build new institutions from a scratch
- Create Hybrid: Merge (amalgamate)
- Picking Winners: Upgrade existing ones

The first order of business in building research universities in consideration of picking winners and creating hybrids is to identify and designate national institutions for this purpose and to be sure that they could only be handful. I am pretty conscious of the challenges of undertaking such an arduous task. That is why I primarily called my title as such given the regional nature of universities in the country. But Ethiopia is no exception.

According to a recent conference in Kenya, the easy populist route of politically-driven expansion and ethnic supply-side pressures has been a key recipe for further deterioration of African academia. Citing the Kenyan situation with the obsession of ethnic ownership of universities, Professor Munene of University of Arizona says, “While Kenyan universities have for long been regarded as pillars of social

harmony and sources of nationalistic feelings, they have degenerated into epicentres of ethnic identity and local parochialism.”

In light of this inherent scenario in the continent (Ethiopia is no exception), building a research university simply requires and demands a different discourse guided by hard and unwavering political resolve that exclusively looks at national interest in order to enhance its global competitiveness, unencumbered by internal or regional sentiments or other predispositions. Some may be excused to dismiss this view as naive but I will consider it as a conversation for a paradigm shift or even challenging the status quo for existing orthodoxies.

I must be very clear here and would like to avoid possible misunderstanding. Pronouncing a few institutions to prominence should not be constituted as relegating others into oblivion. To be very clear, just because a country strives to establish research universities doesn't mean other universities should neglect their mission as universities in undertaking and promoting research. In reality, a university without research cannot be called a university and when strict to its definition, too many universities cannot qualify that designation. To be sure, the egalitarian view of institutional standing, in my view, may not serve the interest of the nation which doesn't have unlimited resources.

Needless to say, without a massive financial infusion, building strong research capabilities and research universities will simply remain a dream. Research is an expensive endeavour

which demands massive resources often without immediate visible and tangible results. Just because we build research universities tomorrow, we can't expect result immediately. It is exactly because of this that we cannot have many research universities. Furthermore, research demands not just a one-off massive infusion but a long-term and sustained commitment consistent with a larger mission of building such capability.

I already mentioned Kenya's effort to enlarge its capability but similar efforts are underway in several countries. Nigeria has its own tertiary education Trust Fund. It is 2% education tax for all registered companies in Nigeria. Ghana Education Trust Fund is resourced 2.5% VAT.

How can Ethiopia start to retain similar schemes as part of the massive national construction plan, huge production of cements anticipating in the country? Let me take Mr Dangote- his successful cement venture in Ethiopia. I understand he plans to produce 5 million tons of cement in Ethiopia per year. That comes to 500 million quintal of cement. If the Government imposes only 50 cents per quintal, on behalf of research and Innovation Fund for Ethiopia, this amounts to a quarter of a billion birr a year.

And add to other billions and billionaires we have including our home-grown that have evolved these days. Like Beer: 10 cents, Tobacco: 10 cents on a package, Hotel: 50 cents per night. This will be a multi-million birr bonanza without a burden to anyone. Ethiopia can easily kick start a National Research and Innovation Foundation or Research Trust

Fund through these approaches, for instance, managed by such venerable institutions as the Ethiopian Academy of Sciences.

To be sure, research universities exist largely, if not exclusively, because of high-powered academics. One cannot build a research university without academics endowed with high-end knowledge, expertise and skills. The salary, benefits, and compensation of academics, which are at the heart of research universities, must be competitive and must be national.

Low Hanging Fruits: Captive Experts at Country's Den

- AUC
- DLCOEA
- FAO
- ILRI
- OSSREA
- UNECA
- UNESCO
- UNICEF

These are what I call low hanging fruits. Let me shift gear. We know that Ethiopia is endowed with extensive resource expertise throughout the world. The list is long. This requires sub-strategic entrepreneurship via regimes and guidelines to tap these low hanging fruits.

Finally, according to the popular view, research and innovation do not translate to economic boom overnight. They require a host of catalytic

forces to make meaningful and visible economic impact, including dependable, sufficient and long-term investment, decent facilities, labs, seasoned academics, stable leadership and management, autonomy, strategic agreed views, innovative delivery approaches, conducive social environment, healthy economic development and political climate, and incentive-legal framework.

To conclude,

Establishing such universities in countries where they don't exist or upgrading existing ones to serve as research universities is a worldwide phenomenon. To fully participate in a global knowledge economy and to benefit from science and scholarship, countries and academic systems believe they must have at least one research university that is able to function at a world class level. The option for Ethiopia is crystal clear.

SPEAKER-II



Dr Baylie Damtie
President
Bahir Dar University

Vision of Wisdom 2025: The Blue Book of Bahir Dar University to become a research University

What I am going to present today is not a theoretical construction. What we are trying to do at Bahir Dar University is to transform an existing university that has its own culture and tradition to a research university. Of course, the way we define/understand a research university is from our own practical point of view. Hence, my presentation is a practitioner's presentation.

Ethiopia is essentially rural. So, the critical issue for us is development. But what is development? As leaders, we have to understand what it is. What do we mean by development from our point of view and how does a country develop? Why do developing countries in the first place build expensive universities, while rural societies need to learn about hygiene, better farming skills and parenting skills which are much more transformative than establishing elite research universities?

What kind of political economy did Ethiopia choose to become a middle income country? What is the choice of the people? Then we asked how we can create a vision for Bahir Dar University that fits with this vision of the country. How can we be relevant in that journey? Those were some of the questions we asked ourselves to come up with vision 2025.

Health, education and income improvement are the key parameters of development. If Ethiopia is to increase income, which is the result of education, we improve the health of the people and we can then say that there is development. If you look at the World Bank report, you get

data on life expectancy, poverty level, and school enrolment in Ethiopia and then these are the parameters we need to work on.

The powerful argument that goes against us is, if we become a research university (we choose to be a research university) someone may come and say I would rather prefer general education such as teaching farmers about modern farming methods, hygiene, nutrition, and parenting in other words improve the health of the people. Why do we invest so much on expensive research universities?

Research Universities must be relevant to the economy. This is a very powerful argument that we tried to understand. So, to really come up with a sensible understanding, we tried to learn Ethiopia's economic model. Ethiopia chooses to follow the developmental state model. We have practical examples such as South Korea, China and others. So, what we should learn is how universities in these countries played a role in the transition to development or technology acquisition.

Foundations of Vision of Wisdom 2025

- Agriculture (production and productivity), starting point
- Manufacturing (technology transfer)
- Finance (directed toward agriculture and manufacturing)

Graduates from the university are quick to absorb technology by getting jobs in the private sector and government owned firms. Hence, we

need to produce graduates who can really catch up with technology quickly and adapt to local conditions. Then, what kind of environmental conditions should there be in the university that can create such kind of citizens?

Manufacturing, especially in terms of technology acquisition, is a very critical part where university students come to learn technological skills. They will have the opportunity to ask questions. How does it work? What does it mean? How can I do it? Can I design it by myself? That brings them to reality. If we cannot transform classroom teaching, there is no learning. So, when the students come out and get employed, they can neither transfer knowledge nor learn quickly or bring technology to the country. Teaching is linkage to research; it transforms citizens. So, this is the argument we chose to uphold.

- What should be the knowledge, skills and attitude of graduates who can contribute to Ethiopia's development and how can it be attained?
- How can we use research to improve the quality of education and make it applicable to the Ethiopian context?
- How do we do community service in order to mobilize the population towards development?

The second question is very clear. How can we use standard textbooks usually written by western authors? How can we make young students (growing in villages) learn this theoretical construction? How can he/she make sense of this?

How do we really do community service? How can individuals employ their knowledge, skills and attitude that they have acquired in the university? When individuals leave the university,

how can they use the knowledge/skills acquired in decision-making and use it in their day-to-day lives so that it becomes wisdom? That is our definition of wisdom. So, if we can use education in such a way, it can be transformative. That is wisdom. We should ask questions such as: Where are we going? Why are we going there? How are we going there? This was the discussion we have had at the University.

The most important thing is why we want to be a research university. The "Dark" continent's ocean of poverty, backwardness and illiteracy will be transformed to prosperity. This is a very good argument that we used to get people motivated and to really have a vision. Universities are the ones that create such scenarios. We wrote a book entitled, 'The Blue Book' and our motto is 'Wisdom at the source of the Blue Nile.' We turned the vision into a book.

How is a research university created? What does it mean? Where is it going? Our vision is to become a research-intensive university. The way to do it is to expand graduate programs. When we started this vision, we didn't have PhD programs, now we have 20 PhD programs. We didn't have a research center. Now, we have nine dedicated research centers and we have research groups. We also want to transform the classroom in such a way that it is not only a learning space but also a place where students do research and acquire research and work experience. So, this is how we want it to be. Then we designed critical strategies on how to get there:

- Academic staff development
 - Developing the capacity of the existing staff
 - Recruiting new academic staff

- Hiring expatriate staff
- Joint employment and visiting programs
- Attracting excellent students
 - Create excellent educational experience
 - Suitable living environment
 - Recruit stem program students
- University leadership development
 - Creating Leadership pool
 - Shared vision
 - Continuous experience sharing and capacity development

In terms of sharing the vision, we have a newspaper that we distribute to the local community. We have built a statue to share the vision and also a wisdom painting (showing how a country is transformed). We even created a wisdom song, a wisdom color, a wisdom vision, and so on. We have a wisdom television program in which journalists go to the village and ask farmers or residents what their problems are and come back and ask the appropriate scholars for a solution.

Some examples are problems of underweight children, names of plants and animals in the local language for city boys so that education is connected with the people on the ground. Knowledge has to be Ethiopianized. One way to carry out this is to use local languages as well as Amharic.

We made progress in the last three years regarding the status of academicians and achievement. While giving reward for the best, international journal publications are to be considered. Local journals are not in a position to be used for promotion. A manufactured product should be sold outside. If we can sell a product outside the country and we become

competitive, then we will acquire technology. Similarly, if one publishes in an international journal, it is weighty.

We reward achievers by making them visit African countries for two weeks to share experience and so on. Masters and PhD programs are increasing. Research budget is also growing. We invest in building infrastructure. Government is doing an excellent job in terms of providing fund. The major challenges are:

Leadership

- Quality of education (what, how and where)
- Impactful publications (what, how and where)
- Useful outreach activities (what, how and where)
- Sharing the vision (where, why and how)

Qualified academic staff and students

- Recruiting and retaining qualified staff
- Attracting competent students

Future direction

What we want to achieve is to relate knowledge to the local context. If we ask a simple question, can Ethiopia produce a chair at a certain standard? Unless we design and produce the chair and export it and compete with other manufacturing industries in the global market and win, we can't acquire the technology of making a chair. The critical part is to learn in the Ethiopian context and take the product to the global level. Be it research or something else.

Thank you!

SPEAKER-III



Dr Christine Scherer
Coordinator
Bayreuth International Graduate
School of African Studies
University of Bayreuth
Germany

Red carpets for the next generation of Scholars? – The initiative in Germany (2005/2006 -2017) and International Graduate Schools as instruments for Research, Training and Mentoring at the Doctoral Level: challenges in Germany more than a decade ago when the institute for excellence was started are the following:

The presentation will look at the following themes: Since a decade: the initiative for excellence in Germany which was launched as a national initiative to promote top level research; *The academic environment: African Studies as priority field* at the University of Bayreuth; *The Bayreuth International Graduate School of African Studies; Inquiring minds: Junior Fellows; and Researchers for tomorrow: Alumni.*

The initiative for excellence in Germany: The German bottom-down approach to improve the research landscape.

It was a decade ago that the initiative for excellence begun in Germany. Some of the challenges Germany faced more than a decade ago were: 1) Demographic change and brain drain. Germany still faces the challenges of demographic change. In terms of brain drain, many researchers left the country for the US, for example, because of the feeling that there is not enough space for them to do research the way they want to. That was when the Ministry and the Government started saying we have to do something about it. 2) Securing Germany's future through innovation; 3) Participation in the global economy; 3) Interdisciplinary and diversity were also common talking topics in recent years; 4) Lack of competitive institutional and individual spirit; and 5) The incomplete Bologna Process which was a point of discussion

in Germany. Research and harmonisation in higher education in Europe were also some of the critical points raised.

When the initiative for excellence was launched in 2005/ 2006, it was meant to be for five - five plus years. As a result, three funding lines were offered:

1. Institutional Development Concepts (Future Concepts) - How a big or a small university can produce a vision for its own creation using its own potential in order to put it on the national or maybe global level.
2. Excellence Clusters: This looks at big research clusters where 20-50 researchers doing research on a certain topic in all different disciplines that are possible.
3. Graduate School: The smallest funding line that meant to foster doctoral education in Germany which has been left aside for years like young academics who were lost on the trails. It took them 10-12 years to do their doctorates but they were not competitive on the international level. Those were the reasons for the launch of the initiative for excellence in the country.

Allocation of funds in the first phase was € 1.75 billion. That was huge but it was not easy for federal countries but it was shared between the Government and federal countries. In Germany, you look at the geographical aspect and altogether and the largest, that is 28.7%, goes to future concepts for which nine universities were selected. 59.9% goes to Excellence Clusters and 37 excellence centres were approved. 11.4% goes to Graduate Schools (GSC) and there were 39 GSCs in the first phase.

Funding by research fields

In the Humanities and Social Sciences there were 11 GSCs and 6 excellence clusters. It is quite balanced in the way it was launched. It was not a huge priority in science and technology fields but it has given weight to the humanities. Humanities are crucial. Life Sciences were 12 GSC and 12 excellence clusters. Engineering were 6 GSC and 9 excellence clusters. Natural Sciences were 8 GSC und 10 excellence clusters.

In the second phase, because it was so successful. Obviously, in the first instance, it triggered a lot of identification potential. The country said we have to prolong it and put in another 2.4 billion Euros. Some institutions were prolonged and others had to quit because the evaluation of international assessment panel said they were not good enough. But if everybody would have succeeded, later on it would have been much more. So there was also evaluation by international assessment. There were 45 Graduate Schools, 43 Excellence Clusters and 11 Future Concepts. All of these were contained in 44 universities. The diversity of the university landscape in Germany is historically based because there is Humboldt

that makes connection between research and teaching.

This caused a lot of discussion at the policy and academia levels because German history in higher education is founded on diversity and suddenly everybody was forced to become excellent at the global level like Harvard or Yale. Of course, it caused a lot of problems on the academic level because our researchers had to write proposals. So there are of course people like me who are coordinators. Our researchers understand some of the tasks they have to take on as full-time researchers. It took a lot of time and researchers hated to dedicate to this.

Functions of the Excellence for Germany: critical voices

- Keeping researchers under pressure due to frequent competition
- Mass-producing young researchers and management staff
- Emphasis on economic usefulness and applicability
- Weakening of Teaching and research due to time pressures
- Loss of quality and disadvantages for 'non-elite' universities

Functions of the Excellence for Germany: positive voices

- Catalyst to boost top-level research
- Shaping structural and institutional conditions
- Creating a 'critical mass' for new developments and sustainability
- Attracting top-level researchers to Germany

- Supportive of young scholars to remain in the system

The interesting thing about the initiative for excellence was that everyone could invent a structure on the basis of the history of the growth of the university. For example, Bayreuth is just forty years old and other universities 300 - 400 years old. So their potential to build on their history gave them space to create certain things.

The academic environment: African Studies as a priority field

The University of Bayreuth is located in the middle of Germany, a very small town with 70, 000 inhabitants. The University has a population of 14.000 students with strong interdisciplinary research priorities. Right from the beginning it gave priority to African Studies and because of that it tried to build upon the following research topics:

- Environmental Sciences
- Polymer Sciences and New Materials
- Molecular Bio-Sciences

Structure of the University

All of the faculties below listed are part of the institute of African studies

Faculty II:	Biology, Chemistry and Earth Sciences
Faculty III:	Law, Business and Economics
Faculty IV:	Linguistics and Literature
Faculty V:	Cultural Studies
Faculty:	Engineering Sciences

Meanwhile because of the initiative for excellence, we also included Mathematics and Engineering Sciences. There is now a newly-created Chair called Culture and Technology. The faculties listed above are involved in research under the Bayreuth International Graduate School of African Studies.

- Iwalewa House – Africa Centre
- Institute of African Studies
- Two Collaborative Research Centers (SFB)
 - 1984 – 1997: “Identity in Africa”
 - 2000 – 2007: “Local action in Africa in the context of global influences”

Two Research Training Groups (DFG-GK and BMZ/GTZ)

- 1990 – 1999: “Intercultural relations in Africa”
- 1995 – 2004: “Rural regional development in the Maghreb”

African Research Priority include:

- Bayreuth International Graduate School of African Studies
- Central Archive and Database System for African Studies at the University of Bayreuth
- Tanzanian - German Center for Postgraduate Studies in Law
- New ICT Strategies for the Enhancement of Higher Education Management

The Bayreuth International Graduate School of African Studies (BIGSAS) is our Credo because in cultural studies, we work with colleagues in

Africa. We have long-standing collaborations and partnerships in Africa. Research on Africa is only possible together with Africa!

The idea of BIGSAS as an instrument to foster young talent was to bring together excellent young Africans and non-Africans to work jointly in the field of African Studies and offer a centre of creative PhD studies and create an African universities network and contribute to the development of excellent PhD training structures in Africa.

Training

Seedbed of creativity

What is special and unique about BIGSAS in the German national landscape is that there is:

- Multidisciplinary mentorship: a supervisor and two mentors from different disciplines
- Individual research training: IRTP – the Individual Research and Training Plan
- Peer learning in a multi - and interdisciplinary academic environment: BIGSAS research colloquia and Work Groups
- Bottom-up training structures: courses on demand by JFs. So, if our youngsters come to me and ask me, “I want to become an ambassador one day and need some training on international negotiation. We could offer that because we do have the links.

Research Framework

Research concentrates on Thematic Foci of Several Disciplines in three research areas such

as Uncertainty, Innovation and Competing Orders in Africa, Knowledge, Communication and Communities in Motion; Negotiating Change: and Discourses, Politics, and Development Practices.

These are research areas that address questions of high relevance for Africa and the world. Africa is at the forefront of very many developments that we face in the world and it is also good that we have interconnections.

- Research expertise of the Principal Investigators
- Interests and contributions of the junior fellows

Cross-Cutting Interdisciplinary Work Groups Initiated by the JFs

As I said, there are bottom up training structures and our junior fellows come up with this idea of uncertainty and trust and want to work on that. The linguist, the doctoral student, the political scientist may be someone from the religious science who comes to work on these topics. Family and Youth, meaning making, or sexuality are topics that matter. So, this is their idea and they work together. We don't control that. It is working well on its own and from that they can have workshops and apply for inviting external experts and publications. This is great and because they become visible very early as doctoral students.

Partnerships we have are:

- Uncertainty and Trust
- Tracks and Traces of Violence
- Tourism in Africa: Chances and Challenges

- Methodology of Research in African Studies
- HIV/AIDS from a Social & Cultural Point of View
- Family and Youth
- The Making of Meaning
- Religion in Contemporary Africa
- Bayreuth Work Group on Governance in Africa
- Sexualities that Matter: Queering in Africa

Partner Universities are:

- Université Mohammed V Morocco
- Moi University Kenya
- Addis Ababa University Ethiopia
- University of KwaZulu-Natal South Africa
- Université d'Abomey-Calavi Benin
- Universidade Eduardo Mondlane Mozambique

Partnership involves not only research contents but also structural contents as indicated below:

Joint academic training

- Recruitment and selection
- Supervision and mentorship. Many of our partner universities support us with capacities from their researchers. For e.g. Prof. Bahru Zewde is one of our mentors.

Mutual capacity-building

I have to tell you that in African studies, where we are, it is of intrinsic value when young people from Africa come with their questions and write

proposals. Then of course, these questions also add to the whole environment. This is a kind of quality management for us as well.

In terms of research activities, we had nine conferences and two hundred forty guests and mentors. For collaborative environments we try to provide excellent research training together with cutting-edge research, supervisory visitations and outstanding international higher education structures.

In November 2015, we had a workshop with our partner universities entitled, "Gender Matters: Visions from Africa for the Internationalization of Higher Education."

I will just introduce you to a few of our junior fellows

- Inquiring Minds: Junior Fellows in BIGSAS
- Inquiring Minds: Young Researcher's projects

Delia Nicoué working on

"Migration as a Learning Process: The Case of Ethiopian Female Migration to the Middle East and Europe." Interesting for BIGSAS. She is not Ethiopian. She had a baby during her student years and she is an activist on gender issues.

Idris Riahi working on

"Conceptualizing Witchcraft – Investigating the Cultural and Cognitive Dimensions of Magic-Related Discourse in West African Context: A Case Study." He benefitted so much from another colleague who was working on witchcraft and from peer support as well.

Nadja Ofuatey-Alazard working on

“Conceptions of Europe in African (Diasporic) Literature since Négritude.”

Jean-Pierre Boutché

Working on “Fulfulde Spoken by Non-Ethnic Fulani in the City of Maroua (Northern Cameroon): A Sociolinguistic Study.”

Matthew Sabbi

Working on “Public Sector Reforms and the Problem of Legitimacy: The Case of Ghana’s Civil Service.”

Fabian Schwarz

Working on “Sustainable Bio-energy and Bio-fuel Potentials from Agricultural Crops and Residues in Uganda and Tanzania.”

These dissertation themes are not given to them. They come from themselves.

Researchers for tomorrow

Dr. Meron Zeleke Eresso a member of Addis Ababa University and Alumni since June 2012.

- Title of the dissertation: “Religious Syncretism and Dispute Settlement: A Study of Sufi Shrine in North Eastern Ethiopia.”
- Current position: Assistant professor and post-doctoral fellow at Addis Ababa University, Ethiopia.
- Professional career since defense (among others): Researcher for the International Law and Policy Institute, Addis Ababa, Ethiopia; Lead

coordinator for the UK Department for International Development (DFID) Community Security and Justice Programme; Pilot Project in Security of Young Girls and Women; Ethnographer for the World Bank Project on Indigenous People in Ethiopia; Guest fellow at National University of Singapore, and California State University, USA

It is interesting to see that most of our junior fellows would love to go back to their countries. We never force them.

Dr. Ramzi Ben Amara, Alumnus since August 2011

- Title of the dissertation: “The Izala-movement in Nigeria: Its Split, Relationship to Sufis and Perception of the Sharia Re-Implementation.”
- Current position: Coordinator, DAAD-Project “Tunisia in Transition,” Faculty of Art and Humanities, University of Sousse, Tunisia.
- Professional career since defense: Association to the Research Group “Tunisia in Transition,” Tunisia; Post-Doctoral Fellowship, Centre for Contemporary Islam (CCI), University of Cape Town, South Africa, Project: Biographies of Religious Engagement

There were seventy-four Alumni until November 2015 and all together more than 100 students. Within three years, we will probably have created a home for 200 doctoral students.

DISCUSSION

Question

Curriculum development

Talking about student-centered approach and developing curriculum, the problem is that students are usually assigned to departments or are forced to study subjects they are not interested in. How are we going to address that? Can we make progress if we have disinterested students? How do we satisfy their choices and make some fields (fields that students are not attracted to) more attractive to students?

Response

Student-centered approach has never been used in this country because it is so demanding for teachers. Teachers would have to invest all their time assisting their students, developing programs and activities and following movements of students. They are facilitators and energizers, among other things. Are we really playing all these roles inside and outside classrooms? We should invest much of our time into our students so that they can learn what they are expected to learn. Students do not have the proper sense of student-centered approach. So we should help them join their fields of interest through vocational guidance beginning from primary school to higher learning institutions. Students are generally influenced by their peers, classmates and parents in choosing their areas of interest. Instead of focusing on what they want, they focus on what the market demands. So if we just use vocational guidance and help them get proper information, they can identify their talents and join their fields of interest.

Comment

Curriculum relevance and graduate employability

1. When we talk about curriculum relevance and graduate employability we have to disaggregate the issues into different sectors. We need to talk about sector-specific issues. For example, when we develop a curriculum in agriculture, there are two main areas: practice and science. Many of our universities and colleges of agriculture don't really have sufficient provisions for students that would expose them to practical aspects of agriculture. That is a very critical component of the curriculum. If students go to a college of agriculture, they must be provided with a well-functioning research facility and good scientists who do research and whom students view as role models.

Male and female representation in higher education

2. The presentation on higher education shows that there is too much gap between male and female students in higher education. We should encourage women to get into higher education. In Nigeria there is a saying: "what a man can do, a woman does better." There is also a gap in oral English in this country. Curriculum in oral English should be developed. It is mostly males who are engaged in teaching. In Nigeria, women take teaching as a hobby. So, women should be encouraged to engage in the teaching profession.

3. I just want to reflect regarding the gap

between male and female students in higher education and as teachers across Africa. I have a very dubious title or acknowledgement as the first woman; even I hate to say it out loud. The first woman who did a PhD in history. I find it to be a little bit painful every time I hear it mainly because there shouldn't just have to be only one woman who studied history in my view. So, it is not a badge of honor. It is something that points to what is lacking. I think what is difficult for women in higher education is lack of support. My graduate studies took about 12 years in a very cold place in Michigan. So it is not as glamorous as it seems. In other words, there are real sacrifices but I think not seeing women as role models, women teachers, and women in the sciences, are all factors that make women stop their education at an earlier stage. I was happy to see the Ministry of Education speaking about the importance of retaining women students. EAS definitely has been doing its part in cultivating women in scholarship programs in the sciences.

The local and the international

4. Dr. Baylie's presentation can be summarized as, "You have to be locally grounded, but must achieve world class excellence." This brings to mind an approach that I really admired in Mali in the area of traditional medicine. While a lot of countries are requiring sophisticated infrastructure, equipment and so on, they have in Mali a very down-to-earth approach that is to sit together and ask how many traditional practices and medicines they can improve in a given year. That successive improvement led to actual products in that country.

What is amazing about Bahir Dar University also is the multi-dimensional approach it has in terms of songs, sculpture and painting. Publishing in the local journals is not much appreciated rather researchers expect to get published in international journals. The challenges of being locally grounded is, even if one is a world-class research university, there is a tendency with some elite journals to worry about readership and may say quality is good but readership is narrow. Therefore, there may be a problem in this regard but that is a challenge Bahir Dar University must face in its aspiration to become locally-grounded and become a world-class university.

Focusing on developmental issues is also appreciated because universities should significantly contribute to the developmental effort of the country. But when talking about research universities or research-intensive universities, we should also look to the future, go beyond the current situation that is the nature of a Research University.

Striking a balance between science and the social sciences

The crisis we have today is the lack of understanding of the psychological makeup and mindset of human beings. We need to strike a balance between science and the humanities as well as advance in humanities and social science research.

Any country has to make advances in innovation, science and technology but it is very clear that one cannot go without the other. There are ethical considerations that stem from

social sciences which have to be dealt with in order to work on scientific and technological solutions. The discussion in Germany about stem cell research, for example, cost the country a lot of brain drain to the United States. So, there is a very clear pathway to policymakers to ethically think and make clear decisions over issues. We need to maintain a balance between science and the humanities.

Research universities

Selecting the best students cannot be done in a democratic manner. It is a merit-based, an excellence-based, and a meritocratic process, not democratic. That is why it is so challenging. There are three approaches to do this but a mixture of all is also possible. If we want to build a serious research university, we cannot be democratic. When we talk about autonomy for example institutions, specifically universities such as research universities, can hire and fire people. Giving incentive also enables to attract the best.

VII

Round Table II

The Making Of Research Universities In Ethiopia

*This Round Table was moderated by Ms. Zenebeworke Tadesse, Founding
Fellow of the Ethiopian Academy of Sciences, Sociologist, and
International Consultant*

PANELIST I

Dr Admasu Tsegaye

President

Addis Ababa University

AAU is the oldest and largest university in the country. In our strategic plan, we clearly indicated that we will be a research-intensive university by 2025. We are working towards that and there are some initiatives that are underway to make Addis Ababa University a research-intensive university. I will give highlights about the activities thus far done.

First of all, when we say a research-intensive university, the core functions of such a university are teaching, doing research and community service. So, if these activities are led by research then we can say the university is a research-led university. Research and teaching should go hand in hand. If the university devotes the larger proportion of its resources to research, we can say it is a research-intensive university as well as focusing on doctoral programs.



AAU is now focusing on graduate programmes. We have 245 graduate programs and 70 graduate programs offer PhD. The total population of students in the PhD programs is 2000. In total, population of graduate students is 16,000. Last year, only 235 PhD students graduated. These activities make us a research university. We should also have connections, cooperation and competition with international institutions. These are some of the issues that make a university a research university.

There are other attributes of a research university such as openness and autonomy. There should be autonomy to pursue ideal research that is free from methodological, political, economic, religious, and other constraints. They should create knowledge, be open and look to the future - the big picture. The universal aspect as well as the local one is very important. We should also challenge the status quo to search better ways of doing things and to view the world in a new and a more informed way.

Our vision is to be among the top 10 research universities in Africa. AAU stands 16th in 2015 in Africa according to the ranking given by Times Higher Education in Johannesburg. Most of the universities at a higher rank are South African universities. Because of that we are revising our vision in that we should aspire to be among the top 5 graduate and research universities in Africa.

What are we doing now?

We are in the process of establishing indepen-

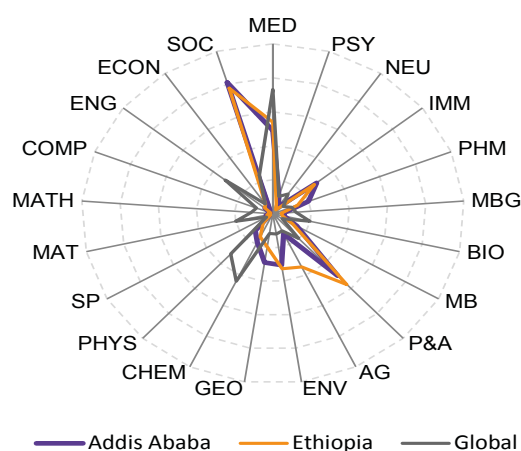
dent research-intensive universities in Ethiopia, not independent of the academic units. But I have mentioned the need for autonomy and flexibility in utilizing finances and other issues. We have developed a new research policy and have set research priorities. For example, we are now incentivizing researchers and professors such as pay them if they published in reputable journals. Last year, we paid more than 4 million by way of incentives for faculty publication. This year we are going to pay about 6 million. So, these are the incentive mechanisms that we offer.

In relation to incubation centers and science parks, we are in the process of connecting our research activity to the industry so that our researchers can learn from the industry and benefit the industries by conducting research activities. These are some of the issues we are focusing on right now. The industry-university linkage is also becoming very strong.

To be a research university, we have to find out our strengths, weaknesses, opportunities and threats. We should also know where we stand. Because of that we asked the Thomson Reuter's to assess the Bibliometric performance of AAU. Thomson Reuter's assessment includes data related to all types of research output. It covers a wide range of publication types, including articles in scholarly journals, reviews, editorial matter, news items, and abstracts. The number of publications at AAU increased by 63% between 2011 (256) and 2014 (470). The proportion of publication relative to world output increased from 0.017% to 0.023%.

How much research has taken place?

The chart below shows the relative proportion of papers from AAU researchers within the 22 ESI fields with respect to Ethiopia and the world. AAU leads in three fields: Geosciences, Immunology and Social Sciences. AAU research far exceeds the global average in the field of Plant & Animal Science with 12.4% of papers published within this category compared to 4.9% published globally.

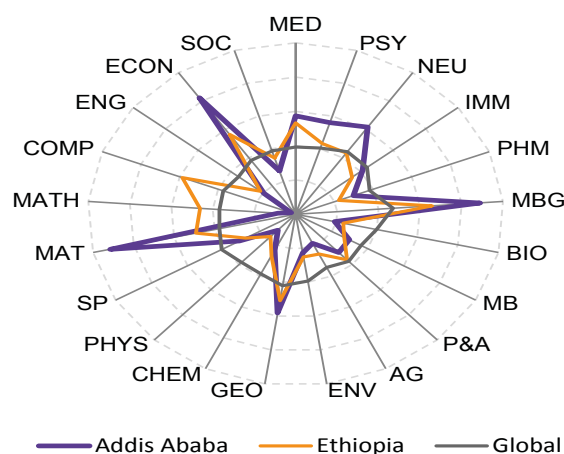


With respect to citation impact, AAU research in the fields of Economics & Business (2.06), Molecular Biology & Genetics (2.22), and Material Science (2.29) was more than twice the global average and exceeds the baseline of Ethiopia. AAU also surpasses Ethiopia and the world in the fields of Clinical Medicine, Psychiatry/Psychology and Geosciences.

How does AAU research fare relative to the world?

Between 2010 and 2013, AAU research had a citation impact below the global average, but

with an overall trend of growth. In 2014, AAU research had a citation impact of 1.19, above the global average.



Research has strengthened in the fields of Geosciences and Immunology. Psychiatry is very close to being strengthened with citation impact of 1.4 and a relative share of output with respect to the world average which is 0.9. There are several areas of opportunities for AAU. We are already in the process of identifying opportunities, threats and weaknesses.

How collaborative is AAU's research?

The total number of collaborative papers by AAU researchers has steadily grown from 257 in 2010 to 393 in 2014. The proportion of papers by AAU research that have at least one international co-author has grown from 58.8% in 2010 to 66.4% in 2014. Both metrics indicate a steady positive trend.

How does the publication output of AAU compare among comparators?

We have chosen Cape Town, Nairobi, Makerere, and Cairo Universities and thus we now know where we are in the area of research. AAU outperforms two of its comparators: Dar es Salaam and Nairobi Universities for the number of publications. It outperforms Cairo University in citation impact despite Cairo University having 5 times more publications.

How does the publication output of AAU compare to these universities?

AAU has shown growth in citation impact between 2010 and 2014. In 2010, we had the lowest citation impact and in 2014, we had the highest citation impact. AAU percentage increased in citation impact than Cairo and Dar es Salaam Universities. Therefore, we are in the process of establishing a research-intensive university. We are in a good position, having resources especially human resources. We have renowned professors but didn't utilize their knowledge to significantly contribute to the country's development and create knowledge. If we improve the working environment for our professors, AAU will definitely be a research-intensive university in a short time.

PANELIST II

Professor Lee, JangGyu

President

Adama Science and Technology
University

I will talk about research universities in the science and technology area. I would like to brief you the attempts Adama Science and Technology University has made towards making it a research-oriented Science and Technology University.

Since Adama Science and Technology moved to the Ministry of Science and Technology last year, we are attempting to do a number of new things to strengthen research capability and also postgraduate programs.

To become a research university, the most important factor is how we can have academic staff members who can do research. We need academic staff members with PhD degrees. Our goal is to achieve 100% PhD holders in the future and in the next five years we plan to get 70% of our



academic staff members with PhD. It is a very rigorous goal because at present, we have only 10% PhD holders in our university. So, the first step is upgrading academic staff members. Presently, we have about 500 local academic staff members. Of these 40% (200 academic staff members) are on study leave, half for PhD and the other half for master's degree.

We are rigorously recruiting PhD holders from the local market. It is very difficult to get them, especially in engineering fields because in Ethiopia, there are only few engineers throughout the universities.

For the time being, at least for the coming five years, we are going to utilize expatriate staff members. Up to last year, we employed expatriates mainly for undergraduate programs but starting this year, we recruit by evaluating their research capability very closely. We encourage expatriate staff members to be involved in research as well as undergraduate teaching.

Utilizing Diasporas is a challenging task. Up to now, we have utilized about four to five Diasporas for short block course teaching but we would like to utilize Diasporas who are qualified in science and technology for permanent placement. So, upgrading recruitment of teachers is our primary goal.

The other important factor is students. From this year, under the direction of the Ministry of Science and Technology, we gave entrance examinations for new students for bachelor degrees. We checked mainly their capabilities in science and this year we were very successful in

bringing those students with high potentials in science.

However, as a research-oriented university, we need to strengthen postgraduate programs. Research in a science and technology university is carried out by faculty members and postgraduate students. We are going to focus on recruiting potential postgraduate students, especially PhD students.

The first step we took was decreasing intake of the number of undergraduate students. For instance, this year, we received only 1,365 undergraduate students both for engineering and science. I hope we can continue this trend and then increase the number of students in postgraduate programs. The ratio abroad for most science and technology universities, between undergraduate and postgraduate, is 50:50 or more in postgraduate students.

One of the privileges we have is being under the Ministry of Science and Technology and we were able to have our own curriculum. We don't have to be bound by a harmonized curriculum. So, last year we completed our undergraduate curriculum that mainly emphasized the provision of basic knowledge for our students. In the first year, most of the courses for our engineering and science students were mathematics, physics, chemistry, and computing. Hence, my hope is that the majority of our undergraduate students will continue their postgraduate studies in our university or other universities in Ethiopia or abroad.

Right now, we are working on our postgraduate curriculum. We cannot open many postgraduate programs because we don't have many PhD holders. However, we requested our academic staff members to develop curriculum for all areas of our university and then gradually we can put this curriculum into practice. When we develop curricula, we are benchmarking advanced Korean Science and Technology Universities like KAIST and POSTECH. Our staff members visited the universities to learn their curricula and how they implemented them.

The other challenge is even if we bring qualified staff members; if we cannot provide a conducive environment they cannot be productive. Starting this year, we are going to build laboratories and acquire equipment. I am going to distribute my budget to establish laboratory for those who are ready instead of equally distributing it among different programs and departments.

ASTU has just begun its journey toward a research-oriented university. It is not an easy journey. But we have reached the goal to lead Ethiopia to become a middle income country by 2025. With a combined effort between the Government and the University, it is an achievable goal for ASTU to become a competent research-oriented university.

PANELIST III

Dr Nurelegn Teferra

President

Addis Ababa Science and
Technology University

I would like to share with you the general trend of a research university. What are the national and global agenda? A research university should be committed to excellence, research, training and finally be the focal point of international collaboration. A research university should have high quality staff, i.e. faculty who incorporate research in their work and provide not only postgraduates but also undergraduate research opportunities. Nowadays, research universities incorporate research in their curricula. To do so, we have to have highly qualified staff because top researchers cannot be top instructors.

We also need high quality students who want to do research. This is a challenge mainly in the Ethiopian case because previously all students were simply assigned to different

universities based on their results. But attracting and retaining high caliber academic staff could be a method of attracting high quality students. For example, currently AAU is getting top students because it has high caliber staff and more research is conducted relatively at the university.

An intellectual environment that encourages scholarship is also needed to establish a research university. There should also be state-of-the-art facilities in which teaching and research can be conducted. For this, we need to have adequate budget or funds for teaching and research purposes.

Finally, high quality leadership is very important. The leader must be visionary, should have a

clear understanding of the benefits of research-centered teaching. Student-centered teaching creates a conducive environment for students and staff in addition to teaching/learning conditions. It works toward attracting staff and students.

My question is – is it possible to establish research universities in Ethiopia? Yes, it is but there are two ways. Either we have to transform existing universities into research universities or establish new ones.

Experience from other countries shows that new universities can grow to top quality research universities as in Hong Kong, South Korea, Singapore, and India. But the problem of establishing universities that grow to research universities is attracting top caliber staff. However, this may be overcome by devising different mechanisms and attracting good students.

Addis Ababa Science and Technology University was established in 2011 and up to 2014 it was under establishment phase. We were then under the Ministry of Education. Even if the University was established with a vision to be a hub of Science and Technology and to lead the science and technology field, for the past three years, it operated like other universities. Last year, it became under the Ministry of Science and Technology. Since then, we have developed a strategic plan to become a research university in the coming ten years.

Some of the strategies we already employed were, developing new schemes to attract new staff and retaining existing ones, including the

Diaspora. With this it was possible to attract staff members in the country and from the Diaspora but we are now in the process of recruiting from abroad as well.

The other point is to attract talented students for which we developed admission criteria, giving entrance exams. But attracting students alone may not guarantee quality of education. So, we have to ensure quality by giving tutorials, and engaging students in a research-oriented teaching/learning process.

We set targets for the coming five years. We plan to admit more than 40% of our students at Masters and PhD levels. To do so, we need to attract and recruit qualified staff; upgrade existing ones and 50% should have a PhD degree. Research facilities are also under procurement and being developed.

PANELIST IV

Ato Wondwosen Tamrat

President

St. Mary's University

It may not be common to find people like me from the private sector to be a panelist on such a forum dedicated to research universities which happens to be the major domain of public universities. Consider me as the odd man out here.

As part of a panel that has come last, I do also feel disarmed and dispossessed in terms of most of the ground being covered. So I'll be focusing on points that I think are not addressed and/or require further emphasis. Points that may partly serve as the nuts and bolts of the discussion, as it were. I will try to be deliberately provocative in some of my statements in the interest of generating further discussion on the issue.

I would like to start with a remark made in 2004 by Professor Altbach which may summarize the major points one needs to focus on while discussing about research universities. Regarding research universities, Professor Altbach says, "Everyone wants one; no one knows what it is. No one knows how to get one." I think our discussion should focus on these three major issues of whether there is a need to have research universities; whether we understand what is involved in having research universities; and finally whether we have the mechanisms for creating research universities.

Considering our context, the need for research universities has been in the air for nearly a decade now, albeit using different semantics. As

far back as 2005, there was a call for establishing centers of excellence which share some of the points that have been raised here as characteristics of research universities. When the second generation of Ethiopian universities (13 universities) was to be launched, one of the options sought (but later dropped) was the idea of building these universities on the basis of their comparative advantage which may eventually provide them the chance of becoming centers of excellence. Very recently, both Addis Ababa Science and Technology and Adama Science and Technology Universities seem to have been chosen as research universities with significant emphasis on Science and Technology. One of the reasons why the administration of these two universities was shifted to the Ministry of Science and Technology must be to give the advantage and special treatment that research universities require.

Looking at the plans for the next five years, the Education Sector Development Program V states that three research universities with 50% PhD and 20% of postgraduate students will be established in Ethiopia. I don't know whether such criteria will simply fit into what we have been discussing as research universities and/or whether it would be possible to have this number of additional research universities on top of those already selected.

Whatever decisions are made, political or otherwise, there needs to be a clear definition of a research university in our context and an understanding of the implications thereof. Such a decision has also to be weighed in terms of equitable access which has so far been one

of the major tenets of the Ethiopian higher education sector. The issue of equitable access towards which many of our universities are expected to work may not necessarily be in tandem with the elitist approach that is supposed to be promoted in research universities.

Another point I would like to make is that despite institutional wishes there is a serious implication in being (choosing to become) a research university. The serious implications of choosing to have research universities in terms of human resource, tapping real talent, getting funds, autonomy, and academic freedom should be studied before the choice to have one. The decision to have research universities cannot simply happen through individual choices or self-declaration.

Decisions at the institutional level require vision, a strategic plan and strong leadership but we should ensure that those decisions are shared with the Government because the establishment of research universities has serious implications in terms of policy directions and funding. That is why the act of becoming a research university requires, among other things, the conscious decision made on the part of the Government as well. Institutions can always have aspirations but these should be tempered by realities if they are to achieve what they want to do.

The choice for research universities in a given country should not solely consider the fact that they should be few in number, although this has its own justifications. These universities should

also capitalize on selected areas or specific disciplines they need to focus on as they may not be able to excel in everything. This should not again happen only on the basis of their existing relative strength but alignment should be sought with national priority research agenda, if there's any. I feel that there's an urgent need for having a national research and development system in Ethiopia that identifies what may be called national research agenda which are clearly laid out and communicated among all local actors, including the would be research universities.

Moreover, the discussion on and the place given to research universities in the local context should be judged in light of what are considered as the major actors within the Research and Development framework of a given country: Higher education institutions, Government institutions, business and private, or non-profit organizations. The link, alignment, and distinction among these actors, which I think is currently lacking in our system, may determine the roles ascribed to research universities. Hence, addressing the existing deficiency in terms of creating this alignment is critical in the establishment of research universities in Ethiopia.

Finally, considering all the requirements we have had and the ambitions towards developing research-oriented universities, there is a need for a national information system on Research and Development which is currently lacking in Ethiopia. It is very important to have this system both in terms of understanding what we

are doing and benchmarking which are again critical components of the national research undertaking handled by different actors.

To conclude,

One can say that the concept of research universities in terms of plans is not new to Ethiopia. Nor are some of the components that define their existence. However, how much we have done in terms of translating our ambitions into realities is a serious question to ponder on as a nation, as institutions and as individuals. As they say, it is not enough to talk the talk but more needs to be done in terms of walking the talk.

PANELIST V

Ato Emnet Woldeghiorgis

PhD Student

University of Bayreuth

I am linked to the higher education research team with Dr Christina Scherer. I haven't done research on research universities but would like to share some points. Most of the ideas regarding research universities were mentioned by previous presenters but I would like to reflect on four important issues related to the development of research universities in general.

At a policy level, if we take the experience of other countries, for instance Germany, the relationship between research and teaching becomes one of the foundations of Humboldt movements for a long time. So, the concept of a research university should feed into the teaching process. Teaching should not be static. It should continuously be improved through research. That was the idea behind the Humboldt initiative. But in the 1990's, the World Bank took the initiative to talk about knowledge economy and information society and,

of course, putting research at the forefront of economic development.

It is of great importance to have research universities or at least a national research plan or a national research policy for their establishment. If you take the context of the US, the example Dr. Damtew gave, they developed a national research plan that actually narrated the specific issues that would be undertaken within a specific period of time. It is also important in our context to have a national research plan which could be integrated with the growth and transformation plan. It is important to have a framework to mobilize resources both in and outside of the country to create opportunities for partnership and research collaboration in and outside of the university setting. This may contribute to capacity-building.

Capacity-building is one of the main policy dialogues now among African universities when they launch research universities. Appropriate number of PhD students and researchers is needed in the university so that they can work with researchers in their institutions. Capacity-building can also be achieved through collaboration by sharing experiences and resources with other institutions both in and outside of the country. Centers of excellence, which may not necessarily be linked to the university but to individual research institutes, can be funded by both government and non-governmental sources as the experience in Germany shows. This can also be done through virtual research facilities, including virtual libraries, publications, and data bases that are important to strengthen the capacity of institutions in their journey towards establishing research universities.

It is also important to have a strategic link with university and other research universities which are not necessarily considered academic institutions or which can be independent research organizations or public universities. Having the industry link is necessary when striving towards setting up research universities so that researchers can focus on priority research areas.

University/industry and university/institution linkage is very important. But the whole idea of having a research university is to impact on development endeavors of nations. So, research findings should be communicated to the general public and policymakers. When I was in South Africa for summer school, I had the opportu-

nity to attend a conference where I saw a very important project called science communication. What they do is, translate all publications in a way the public understands. These translations are available for policymakers and the general public. They even use modern communication tools such as Twitter, Facebook and other social media to communicate research findings to the general public.

University of Bayreuth has based itself on research and offered limited courses but engaged in independent research which gives researchers autonomy. It is a bottom-up approach which gives more autonomy to researchers. Professors facilitate and encourage researchers to go deep into research endeavors and encourage young researchers or students to come up with innovative ideas. That is a student-centered approach.



DISCUSSION

Addis Ababa University as a research University

Question

There are many challenges researchers face at Addis Ababa University. What plans does the University have to make changes and what does creating a conducive environment mean in real terms? Creating a conducive environment means making research institutions autonomous and allowing them flexibility to manage their resources and finances. It is also to make them independent and enable them to use their resources as they saw fit without being obliged to follow the rules and regulations of the Government.

Response

One way of creating a conducive environment for researchers is incentivizing them. It has been 2-3 years since AAU has started to implement incentive mechanisms. Other examples are developing research policy and intellectual property rights. AAU started to give some of the money it got from patent to researchers. We also consider the impact factor and pay researchers accordingly. This increases involvement of researchers. We believe that this is one way of creating a conducive environment for researchers. The other one is autonomy. If one attracts a research fund, there should be autonomy for research institutions. Salary is also another issue we consider. It is not adequate. To address this we managed to

help some of the researchers to benefit from the PLC system in consultancy activities. Now researchers and academic staff can make money by devoting their time to research activities and doing consultancy services.

Question

The Senate Legislation of AAU requires its staff members to devote at least 25% of their time to research. How does this legislation go with your aspiration to become one of the top 10 African Universities? The other question is the problem of the threat AAU is facing with respect to aging of the professoriate. What strategies have you put in place to address the challenge because at least a good number of the staff are nearing their retirement age or are already retiring without extending contracts?

Response

We will also hire researchers who devote 100% of their time to research. These are some of the initiatives we are working on. We are trying to address the issue and we are in the process of revising our legislation. We will look for 25% research and 75% academy teaching assignments. If we are going to be a research-intensive university, we should address all those issues.

Regarding aging professors, some of the departments are very reluctant to employ young staff. We are working on this too. It is a serious problem. We are pressing departments to employ young staff members.

VIII

Session IV

Leadership And
Participatory Governance
In Ethiopian Universities

*This Session was chaired by Professor Berhanu Abegaz,
Executive Director, African Academy of Sciences*

SPEAKER-I



Dr Kassahun Berhanu
Department of Political Science and
International Relations
Addis Ababa University

What leadership and governance structures do our universities need?

Since the past four decades, Ethiopian universities have undergone various stages of transformation signified by a number of new developments. These are expressed in the introduction of standalone regulatory regimes and institutional frameworks, overhauling of working systems, and designing of new curricula resulting in the proliferation of private and public institutions of higher education.

The transformation of the Ethiopian higher education system in this manner culminated in the expansion and diversification of undergraduate and postgraduate programs, enhancement of access resulting in expanded student enrollment that led to increase in the number of graduates, and augmented budgetary allocation originating from the public coffer.

The Ethiopian Government deserves praise and appreciation for displaying a robust political will that made these changes to happen for ensuring improvement of state of affairs in Ethiopian higher education system in a manner unprecedented hitherto. The legal instruments that are currently at work governing the establishment and operation of both public and private higher education institutions include Proclamation No. 650/2009 and Council of Ministers Regulations Nos. 210/2011 and 214/2011. These legal instruments extensively deliberated on a wide range of issues covering leadership and governance structures and institutional arrangements on the basis of which higher education institutions operate.

The stipulations in Proclamation 650/2009 on the need for exercising academic freedom and institutional autonomy (Articles 16-18) in the process of engagement of universities in teaching and research could be lauded as a move in the right direction. The foregoing notwithstanding, however, I am of the view that there is still a lot to be desired in terms of entrenching sound leadership and efficient governance systems that could boost the performance of universities in meeting their declared objectives, missions and visions. The inadequacies that I shall elaborate hereafter are not only found in implementing the legal provisions alone but also in the Proclamation itself.

I argue that providing for academic freedom and the institutional autonomy at the policy level by itself doesn't beget substance in the absence of serious commitment in terms of realizing the stated objectives based on responsibility and accountability. Studies, including government documents like the 2004 Higher Education System Overhaul (HESO) underlined that several deficits in leadership and governance underpin the workings of several higher education institutions in Ethiopia.

The HESO document emphasized that if the identified shortcomings are allowed to persist unabated, all efforts and the resources invested for improving the performance of higher education institutions would be rendered futile. I fully share this position based on my modest experience regarding prevalent shortfalls in the modes of operation of some public universities.

Leaving aside the implementation aspect for a while, I seek to highlight shortcomings in leadership and governance in Ethiopian higher education institutions, particularly stemming from the Proclamation itself.

Article 43 of the Proclamation ushered in a situation of overcrowding of governance structures like boards, top management units, senates, managing councils, and university councils, among others, underpinned by overlapping mandates. I am of the view that overcrowding and proliferation of structures with overlapping jurisdictions blur clear differentiation of duties and responsibilities. In turn, the absence of strict and well-designed delimitation of powers and functions, including proper regulatory and monitoring mechanisms. These could be misused in shunning aside the need for accountability of university office bearers.

I am of the view that failures are observed in terms of strictly applying the criteria for appointment of members of governing boards and chief executives of universities as stipulated in articles 45 and 52 of the Proclamation. For instance, the Proclamation states that board members should be past and present holders of responsible positions in teaching and research and commands such traits like exceptional knowledge, experience and commitment.

Based on my limited experience and findings of empirical researches, appointment of board members, in several instances does not strictly follow the aforementioned criteria. Some board members in a number of universities with which I am familiar are devoid of traceable record of engaging in teaching and research and equipped

with academic leadership experience that enable them to manage and guide higher education institutions.

With regards to appointment to the position of university chief executive officers (presidents), the Proclamation states that positions should be publicly advertised and candidates should be drawn from among those with commendable academic leadership experience, managerial ability, commitment, and proven record of achievement. Again from my limited experience, individuals who do not qualify by meeting the said criteria are appointed or superimposed on higher education institutions in Ethiopia.

The Proclamation stipulated that university presidents or chief executives are allowed to nominate three voting board members to be appointed by the Ministry of Education. This is surprising because it is to the detriment of institutional checks and balances. In effect, this means that university chief executive officers can nominate their supervisors or their bosses leaving one with no option than asserting that check and balance as a hallmark of good governance in higher education systems is eroded as a result.

The Proclamation vested overwhelming powers in university presidents who play decisive and unchallengeable roles in spearheading activities of the major university governance bodies. This is often undertaken to the detriment of accountability and the need for embedding fair balance between collegial and managerial leadership. As a result of this, in some universities with which I am familiar, evidences abound that a kind of executive absolutism prevail. This is reminiscent of state of affairs taking place in

private corporate business enterprises rather than institutions that serve as hubs of objective inquiry and scientific knowledge production. As a consequence, the need for maintaining a fair balance between managerial and collegial leadership is grossly ignored by subordinating the major governance institutions like senates to the whims and wills of individual appointees. These ultimately are in the process of culminating in the disengagement and alienation of university students, academic staff, and support personnel. The perpetuation of the aforementioned vices has thus led to the taking shape of impunity and abuse, particularly when controlled by self-serving and short-sighted individuals.

In light of the foregoing, therefore, the need to look into these shortfalls and address them in good time would be in order. I would like to reiterate that in the absence of the requisite will to deal with the identified drawbacks on the basis of foresight and strategic vision. I believe that if the prevailing situation surrounding university leadership and governance is not ameliorated, Ethiopian universities cannot escape the peril of becoming breeding grounds for disaffection, patron-client relations, mediocrity and other undesirable outcomes in the long-term.

In view of the foregoing, the following propositions would be worthwhile:

- Improving the performance of universities in terms of becoming hubs of quality education and research will be farfetched in the absence of innovative and collegial leadership whose entrenchment as a defining feature and mode of operation of university systems is indispensable.

- Well-thought out policies on university leadership and governance does not necessarily beget the desired outcomes unless aspects of implementation of these policies are strictly adhered to.
- Bureaucratic and corporate managerialism that prevail in university leadership and governance systems in Ethiopia do more harm than good. This is particularly so under a situation where unbridled powers are held by self-serving and abusive individuals. Hence, the need to strike a fair balance between managerial and collegial leadership that is inclusive, responsive, transparent, and accountable is imperative.
- In the absence of quality, capable and committed university leadership, scarce resources invested in universities aimed at improving their performance will be rendered useless.

So, what do we need to do?

- We need credible, qualified, legitimate, and experienced leaders with proven achievement records that could ensure their acceptance by the teaching and research communities in their respective institutions.
- We need leaders who can advise and inform policy and decision makers by inducing them to refrain from undue encroachment on academic freedom and institutional autonomy including the legitimate claims and demands of teaching and research staffs.
- We need governance structures and arrangements that are inclusive, responsive, transparent, and accountable.

SPEAKER-II



Dr Tilahun Teklu
School of Management
Addis Ababa University

What does it take to transform university leadership and governance?

Universities are governed by collectives and led by individuals. Hence, leadership focuses on the individual. There are lots of factors that disrupt economies and social orders even when we succeed in higher education, unless it is coordinated with other sectors. For instance, one possible factor which could create problems is unemployment- trained human power. Looking into the history of other countries, mass education (whether this fits Ethiopian context or not is a different issue), which was most successfully implemented came with a host of problems. For instance, in France unemployment was a major problem. Gradually, they created three levels of universities to address the issue. So different societies have faced different types of problems but their problems are different based on the history and context of the countries.

Old problems in the new context

As many speakers maintained, access to education in Ethiopia is still low. Therefore, expansion has to continue. Some of the problem areas we are facing are limited access; (equity, regional distribution of institutes, female enrolment, and affirmative actions); declining supply of government funds (after accounting for inflation) to higher education relative to increasing student enrolment; declining quality of student preparation entering higher education; capacity issues and brain drain (local and foreign - different factors for brain drain are political action by the Government in dismissing staff, non-returning academic staff from abroad, etc.); and governance problems of higher

education both at the macro (sector) and micro (institution) levels: issues of institutional autonomy and academic freedom. These issues revolve around institutional autonomy and academic freedom. So, some reforms have to be done in that regard.

Expansion and reform measures: sector-level problems

Reform measure depends on political will and availability of resources. Interventions such as expansion (investment), restructuring (of old institutions) aim at increasing the impact of higher education. In the Ethiopian case, ratification of higher education Proclamation (351/2003) aimed at expansion: depth (enrolment growth – increased higher education participation rate); expansion: breadth (number of institutions and programs); quality - lowering admission standards to make higher education more inclusive (making the already declining quality, making it worse); and specialized agencies (HERQA, for example).

At the institutional level, expansion and reform focused on awarding substantial autonomy to universities; introducing block grant formula; enabling university boards and staff to choose their own leaders; de-linking non-academic staff from the civil service; encouraging strategic planning and income diversification; and ICT development.

These were very promising issues but we see there is some sort of decoupling between

policy intention and action. I don't have any full-fledged assessment or evaluation research on the total reforms. Anything that I reflect on is based on some literature I come across and my own experience. I am not interested in whether or not there are a number of programs that are introduced rather the manner in which they are introduced.

Expansion and reform measures: at program level

- Introduction of new degree courses, given in response to anticipated labor market, needs to underpin the nation's economic development strategy and preparation of citizens for democratic participation in civil and social affairs
- Expanding graduate program enrolment to increase academic staff supply
- Setting up of national and local pedagogical resource centers to encourage instructional innovation and assistance to less experienced lecturers to shore up quality in the classroom
- Incorporation of ICT into instruction and use it as a vehicle for accessing the global network information in order to add greater efficiency and depth to the learning process

What I am trying to say is that these were the issues that preoccupied leaders in the sector as well as in institutions. It is also important to understand major forces that influenced the reform or expansion process during the last 20 years.

Factors which affected the reform program

- Scripts that have been used in the Bologna process (agreements designed to ensure comparability in the standards and quality of higher education qualifications) were imported without making sure whether or not the contents in which those scripts were developed were applicable to our context
- Ethiopian Public Sector Capacity Building program
- Ethiopia's poverty reduction/eradication strategy programs which began before 2000 but used to influence the magnitude and direction of change and the kind of commitment behind those programs
- On-going process of creation of regional states/governments
- Decentralization of public service delivery
- Cycles of local/national political events

University leaders should be individuals who have knowledge of ideals of higher education. They should be leaders who excel in their own fields of research so that they can understand what it takes to do research. They also have to be trained in management. The question is how to bring leaders who can also govern universities in a participatory manner. The question is how to equip them with the ideas of higher education. These are the issues that need to be discussed.

We didn't do well in terms of having diverse leadership, particularly women. Although we have a plan to have women at leadership positions in GTP I, we didn't do much in that respect. There are a series of initiatives to attract women in universities for staff membership, research and leadership. It should be included in the declaration that we have to try to encourage women leadership and management at all levels at our institutions.

The Education Strategy Center is building capacity of leaders in universities. In the past years, it has been working on building capacities of middle level managers, leaders and presidents of universities. This is one of the major initiatives that the Center will undertake for the coming five years.

There is excessive involvement by Government even in administrative matters. Boards should focus on strategic issues but involve even in resource management, managerial and operational issues which creates academic disengagement, academic discretionary power and freedom in making academic decisions.

It is also important to include in the declaration that higher education institutions should have succession plans for young and emerging aspiring leaders and managers. Given the current situation, managers and leaders at all levels are not necessarily selected through competition and an open and transparency system. There should be a plan in all higher education institutions that prepares young managers and leaders for management and leadership positions. With mediocre leadership, we can

only have mediocre institutions. The remedy is to give precedence to intellect, deep learning, character, competence, experience, and vision. Such individuals can be found with the direct involvement of both faculty and students.

IX

Round Table III

Problems Of Leadership In Ethiopian Universities

*The Round Table was moderated by Professor Gebru Takere, Professor of History
and former Director of the Institute of Ethiopian Studies*

PANELIST I

Dr Teshome Yizengaw



From right to left Dr Teshome Yizengaw, Ato Fitsum Gebremichael, Professor Gebru Tareke, Ato Samuel Kifle and Dr Admasu Shibru.

Let me briefly talk about very important challenges that the higher education system as well as institutions in Ethiopia are facing. I think it is important to distinguish between the system and the institutions. The system includes boards, the Ministry, institutions, and other stakeholders. Institutions are below the MOE. There are challenges at all levels. As we have noted earlier, when people talk about leadership, sometimes it is only at the level of the president. We have to see at the different levels. May be it is important to focus at the president level and when we talk about governance at the board and Ministry levels.

Dr. Kassahun indicated in the Proclamations (referring to the Proclamation in 2009) that board members were required to have requisite skills, experience (I think most members are not meeting that requirement). So, that is one area to be improved upon in terms of governance. Who are the board members? I think it is important to look into the list of board members of Ethiopian universities and look whether or not they are capable of providing vision and guidance in most cases in terms of strategic directions, accountability, resource mobilization, and networking. That is one of the areas that the board should provide governance and leadership to higher education institutions. That is what is lacking in my opinion.

In terms of leadership, I want to focus on the president. Presidents of higher education institutions, as Dr. Kassahun said, should have been publicly advertised and selected on the basis of competition. That has not been practiced. One area where I differ from Dr. Kassahun is I think a university should be run as a university that is what I believe. The collegial

type of management should start below the president level. At the level of the president, the president should be CEO in my opinion that is the practice in many other countries and that the president should not be involved in day-to-day management activities. The president should be somebody who leads by mobilizing resources, by providing strategic leadership, by providing the way forward for transformation, informed in terms of quality, relevance, attaining certain target goals, and deliverance. But now, I think, that is not happening in Ethiopia. Most of the presidents are tied up with trivial matters and that should change.

Going forward, I think it is important to provide, in addition to selection and appointment, they should be provided with induction and short-term training. They should be exposed to different systems of leadership within Africa or other regions and most importantly they should function as CEOs.

Finally, I want to emphasize one area which is usually neglected. If you look at Ethiopian institutions, you don't see women in management as well as leadership positions. I think something should be done about it. So, in my opinion university leaders as well as governance should try to increase the number of women leaders and managers in institutions. There are no women presidents in the thirty-three universities.

Another point I have is all universities should have a succession plan and thus not worry about aging and retirement. We have to replace ourselves with better individuals in terms of academic capability, specific disciplines as well as ability to manage.



Dr Admasu Shibru

Deputy Director General
Education Strategic Center

I believe that the best way of impacting an organization is focusing on leadership. The very basic essence of leadership is to have vision-long-term vision which can be communicated to society and staff members. Previous regimes did not have visions but the current Government is unique in that we have long-term vision which is inspiring in bringing us to a unique stage as compared to where we were. If this is properly administered and if they are having determined leaders, then it is true that we can arrive at that stage of middle income economy. That is why I compared the current Government which is having inspiring vision compared to the previous one.

We have again discussed how we can improve the system to bring the country to the stage of middle income economy. Leadership is very

important particularly in universities because universities are centers of shaping opinions in societies. We produce teachers for general education and of course TVETs, including universities, which shape the minds and attitudes of our students which are going to lead the development in general.

We have problems of governance such as corruption. These cannot be addressed without having a labor force that is qualified, adequate and attitudinally mature and ready to be productive and transform the society.

It is also important to link others to increase the public implementation capacity which is very basic to transform the social-economic system of the country. Having said that, again universities are in a transition period where we don't have national consensus. We have people

with diverse interests which makes it difficult to work together, understand, respect one another and cooperate to transform the economy. Therefore, universities are expected to be led by the proper and ideal leaders.

We have issues of balancing private and public interests which compromise social and public interest. So, leaders have to lead so that others shall follow to have a balance between private and public interest which is a challenging problem of most of the institutions we are having.

The issue of balance for gender is again important without compromising meritocracy in identifying the proper leaders. The issue of leaders cannot again be discussed without having strong institutions. Right now, we can't maintain an institution which is ideal although it may be possible to develop an institution to the desired level but it is leaders that matter.

There is a need to consider different types of skills, knowledge and professional competence when choosing our leaders. Therefore, communication skills, global skills, system level skills, system level information, and national level understanding must be there so that leaders shall consider national vision with their institutions' specific engagements. So, these issues of bringing together different types of knowledge, skills and attitudes are very important. Usually our academicians are not ready or motivated to take leadership roles because of different factors but as citizens, we should be motivated and responsible, and add value to the system.

There are problems of compromising decisions-making which have to be improved, which is not supported by guidelines but biased by attitudes and motivations of individuals.

It is important to have incentives for proper leaders and give disincentive for those who are doing wrong. There are of course leaders who provide wrong or improper reports to satisfy their bosses which need to be addressed as well.

There is a need to revisit the networks of actors that are involved in the leadership of university starting from board, administrative board, regional governments, and the Ministry. Vertical and horizontal linkages must be considered to have and sustain ideal leaders in our institutions. In this regard, the Education Strategy Center has a plan to work on this to improve leadership engagements in our higher learning institutions by having a project to develop a framework or guideline on how to recruit and identify leaders, including staff members in our universities.

There are initiatives to institutionalize centers to improve leadership based on capacity of our leaders, including board members, and to have centers at cluster levels. We have clusters of universities and we have to have a plan to establish centers to improve the capacity of middle level leaders in the universities which need different types of leadership, including instructional, transformational and different types of skills that are required at different levels. The center has been working on developing different modules that can build the capacity of our leaders in universities.

PANELIST II

Dr Samuel Kifle

Ministry of Education

As I am from the Ministry, I sometimes may sound defensive to some of the issues. First, I would like to put things in order. I have to redefine some of the facts presented here. I had an opportunity to attend two presentations in earlier sessions.

The higher education system in Ethiopia is in a state of transformation and the leaders have to be perceived and have to be understood in a way that they are managing turbulences. These leaders are responsible for strategic issues that most of you were raising- responsible only for a long-term vision, responsible only for some macro level issues that they have to deal with. We expect them to be managers, to handle every single thing that happens in the university. We want them to be good administrators as well. Because the law of the land requires that every responsibility at the end of the day falls with the president of that university.

Leaders are accountable to everything that happens in the campus, everything that comes from the influencers, vertically or horizontally.

I fully agree with most of you that we never questioned their academic and research capacity. True they are good researchers and good academicians. Talking about the problems of leadership at this Congress will help us make recommendations. At the end of the day, the whole purpose of academics is about addressing problems and making our future brighter.

Leadership is constrained by several factors. One very important factor is governance. Governance runs from top to bottom. Leaders have to obey the procurement law, they have to obey the financial rules, and have to obey the human resource administration laws, and they have to obey several other proclamations that sometimes conflict with one another.

A university would be having a CEO, a president, a vice president, a chancellor or whatever you call it. There will be board and senate to manage the academic side and board to look after every issue that is left to the top management. But the whole mix as it has been stated by Dr. Kassahun is not as stated in

Proclamation 650. So, where do we go? To have a board or not to have? I would say it is good to have a board of any mix than not to have one.

Second, the leader himself how well is he prepared to be a leader? We have a plant scientist who has spent his life in the laboratory or in a field assuming a position of a dean or a department head. You have to teach that leader the nitty-gritty of running a system not the vision of becoming a middle income or becoming a research university in twenty-five years or having capable graduates that can support our economy. These are ideal issues that come from ideal leaders but these leaders have not been mentored and prepared to assume that position. The choice would be not to have it or have it.

Now, some of our universities have students who have the same population of a single district. A total population of one district has to abide by the decision that a president makes every day. We know the quality of services that we as individuals or as a community received from utility entities in Ethiopia and have to be on the phone for electricity, water, and town sewerage to keep these institutions as safe as possible.

What makes a great leader? I would say a great leader is one who can overcome turbulence not someone who can run the system in a stable setting. Can we expect the leaders to be transformative? To be visionaries? I don't think we have to expect them to be visionaries, transformative, problem-solving, having technical and humanistic skills and the rest of the things that can make a good leader. Human beings have their own limitations.

Competence in research, in academics never guarantees competence in leadership. So, what

should be done? What should be the rule of the academies? I see most faces in this room have assumed responsibilities in universities one or the other way. How? - May be at the dean, president or vice president level. But you still have to take a share of the blame for not mentoring the one who succeeds you. A good leader is one who has been succeeded by a successful leader. Success in leadership comes from the successor not the person leading that entity. How many of our presidents have couched, mentored other vice-presidents to replace them over the coming few years?

The problem I see lingering with us is not only finance. As true to all nations, we have limited resources. What is more important for a sector is how much of that goes to the education system? Higher education has received this fiscal year 34 billion birr which is 15% of the federal Government's budget. This is quite a large amount of money. So, our leaders have to deal with scarce resources and a growing number of students, poor infrastructure, ill prepared lower level managers, leaders, and non-supportive local or national systems.

Sometimes we have conflicting laws that govern the public sector as a whole. But accountability has to be established at all levels. I don't personally believe that there is no accountability rather to be modest; the accountability has to be sensible. As Dr Admasu said, the Ministry of Education and the Education Strategic Center and our development partners like GIC, are working towards improving the leadership capacity, managerial capacities of universities but that is not enough. It is only part of the solution. What solves the problem is academics doing their own researches and giving a sensible recommendation to the Ministry or other stakeholders to solve it.

SPEAKER-III

Ato Fitsum Gebremichael

Hawassa University

Governance and leadership play a pivotal role in changing higher education. As universities are charting towards an uncertain course, towards dynamic transformation, the issue of governance and policy-making comes to the forefront. Governance is about law making - policy provision. Leadership refers to structure and process in decision-making. Management is about operational aspects that deal with operation. When we see the evolution of higher education globally, there are four periods of evolution. I hope Ethiopia is not isolated from the higher education development in the world. Higher education governance and leadership has passed through four eras.

The first is growth and rising expectations when universities are working towards higher education enrollment and expansion. The second is about conflict between faculty and collective bargaining between universities, institutions and faculty. The third is about consolidation and economic recession. Here the university system in the world was hit by economic depressions/constraints. The fourth is about goal definition and change of mission in the universities' strategic directions. We have six models of governing universities because I hope here policy and practice are very much integrated because policies come from theories, models, frameworks, and policies also guide practice.

The first model is the bureaucratic model that is drawn from Weberian terms such as fixed division of labor among participants, hierarchy of authorities, general set of rules and regulations that govern performance. The second is the collegiality model. The model is about governing higher education. That is about considering higher education as a community of scholars with emphasis on participatory and democratic decision-making. The third one is the political model that emphasizes conflict theory: bargaining, influencing, coalition building, and institutions.

The fourth one is the symbolic model, which views university or higher education institutions making decisions as unorganized anarchies which means that there is presumably no structural arrangement or governance - that is the non-rational process. Decision stems from the participants in the faculty with priorities and needs of institutions.

The fifth is the mixed model that combines bureaucratic, collegial and political models. The sixth is university culture model of governance, where governance becomes the social construct reality of higher education institutions that comes with the dynamics of different agents of higher education institutions.

Leadership in the literature of higher education

There are two models of leading higher education: the sailing ship model and the sinking ship model. The sailing ship model focuses on academics involving in the governance of the higher education system, where there is conscious and

intentional involvement of academia or faculty and where decisions emerge or emanate from a huge and dynamic involvement and interaction of academics of higher education institutions. The sinking model is about the corporate model that is leading universities in an industrial context. That is more of a managerial model. This model undermines scholarly involvement.

Then what have we got in Ethiopia? Of course, Ethiopia has made aggressive involvement in higher education expansion when higher education reforms are grounded with legislative ratification made by the higher education Proclamation in 2009. The governance and leadership structure of universities has been operational and a working legislation. Public higher education boards are nowadays serving as supreme governing bodies of institutions.

Universities in Ethiopia are nowadays governed by appointed government officials and politicians serving at federal and state levels. Higher education boards should be selected from different members of the teaching, government and business communities. But nowadays, the practice is less involvement of the partners of the university such as industries, technology centers and think-tank. Involvement in the governance system is either through a voting or non-voting system. There is less or low involvement of academics in the realization of autonomy and effective and decentralized decision-making. The boards have much surveillance on academic or administrative matters of higher education institutions and this heavily affects discretion and the academic decision-making and of course, academic freedom of the faculty.

Board establishment, amendment even dissolving and terminating the board is not a mandate of higher education institutions. They have no say towards that. It is done by the MOE exclusively. The boards are not accountable to the institutions but mainly to the MOE. Any form of amalgamation and change depends on the Ministry's intention or interests. The university president is the only non-voting member of the boards of public higher education systems. The president is the chief executive of the university, leading the highest academic structure of the university. The senate is involved as a non-voting member of the institution where there is no vote in making decisions on research, community service and other pertinent or priority issues. Academic institutions do not have the mandate to elect their own presidents. The global situation shows that the president should be selected from a pool of potential senior academics and researchers.

Recommendations

i. **Reorganizing board composition.** The Proclamation clearly shows that board composition shall be varied. It might include international agents or external partners of the university. As we are striving towards achieving research-intensive universities. As we are working towards producing technologists and scientists, it is very important to make university-industry partnership. In doing so, university boards should reconsider their composition. It should not be a mere representation of the Government only but should also include partners from business,

technology, research centers or think-tank institutions.

ii. **Institutional appointment of the university president.** University presidents should be selected from the pool of applicants who have demonstrated competence in academic research and leadership. There should be merit-based construction of senate composition and merit-based academic involvement. Empowerment of university board members and the university higher level administration is very important. Regarding higher education administration or higher education leadership, I have heard what has been said by the Education Strategic Center which is a good effort because there is a huge gap. Merit-based appointment of deans at the faculty and department levels is also important.

The last point I want to raise is that much should be done to decentralize the academic administration structure towards the level of department. So, it is very important to strengthen the department, decentralize autonomy and decision-making where there is strong engagement of the academics not a simple mere engagement.

VIII

PAPER SUBMISSIONS

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Integrating Research and Education and Recruiting and Training of Undergraduate Research Assistants

One of the main challenges for academic institutions today is to remain the backbone of economic growth by being sources of new knowledge, innovative thinking and skilled personnel. Concern with workforce quality and technological innovation has moved higher education into the forefront of national and international debates with increasing pressures from business and political leaders who insist that colleges and universities help meet the challenges of a new economy.

There is an increasing demand by universities on faculty to do research. There are also de-

mands for increased public accountability on universities to strengthen the connection between research and teaching (Commission, 1998; Jenkins, 2005; Zubrick, 2001). Linkage of research and teaching in academic work makes university education distinctive, and most effective teachers are those engaged in research and scholarship that are able to transmit the excitement of science into the classroom.

It is often difficult to bring current research results into the classroom in the physical sciences and engineering because the hierarchical knowledge structures in those disciplines put most research well over the heads of most undergraduates, and the rigidly constrained curricula limit opportunities to bring in new material (Colbeck, 1998).

However, students' interest in science and engineering courses is enhanced when they see the applications of the course material in real life. Retention of students in science and engineering areas can be facilitated by education that integrates research, since students are strongly attracted to issues and findings with societal relevance (National Academy of Sciences, 2005) and show increased enthusiasm about problems of global importance that have practical consequences (Golding, 2009).

The integration of research and education could be promoted by creation of a research and education environment with research programs that provide multi-disciplinary, team-driven, and system-oriented educational opportunities for students (Tranter, 2007). Complexity of the problem shouldn't be a reason not to integrate research into the classroom. In fact, it should be the very reason to do it.

There is considerable education research evidence that shows that learning occurs when students are given challenging tasks beyond their comfort zone (Vygotsky, 1978). Authentic science engagement (i.e. via discovery-based research courses or independent research on faculty projects, as opposed to standard laboratory courses) encourages individual ownership of projects and provides "a direct way for students to experience real discovery and innovation and to be inspired by science, technology, engineering and mathematics (STEM) subjects" (PCAST, 2012).

Common misconceptions regarding education and research (Avila, 2003) are: (1) Instructors

often assume that the way they learned is *the* way to learn. This attitude ignores the wealth of research in cognitive sciences. (2) Research faculty often think involving undergraduates is a distraction and believe undergraduates can't do research. (3) Scientists often don't think that they have the time to learn about what education experts have to offer. Avoiding these misconceptions and instead looking toward solutions would aid faculty in their efforts to integrate research and education.

Teaching should enhance the skills, knowledge, and competencies students will need to meet the quickly evolving demands of life, work, and global citizenship in the 21st century. Beyond passing exams and assigning grades, teaching and learning should focus on core transferable skills that include: (1) critical thinking and complex problem-solving, the key function of education is to teach students to think critically, creatively, and effectively (Fisher, 2003). It is precisely the capacity to think which enables students to acquire new knowledge and replace old knowledge by new (Hamers, 1997), (2) working collaboratively, (3) communicating effectively across disciplines and cultures, and (4) learning how to learn and wanting to learn. These are skills that would allow graduates to be effective employees in the labor force and are developed through the integration of research and education. The experience from Australia (Brew, 2010) suggests that once faculty members begin to base the design of curriculum on research and scholarship and engage students in a variety of research-based approaches, student experiences are seen to improve.

A number of conceptual models propose ways of bringing teaching and research together in the learning environment. Ron Griffith (Griffiths, 2004) proposed four models of the links between teaching and research:

1) *Research-led teaching* - In this approach the content of a course is selected based on the special research interests of the faculty member teaching the course with the emphasis on understanding research findings rather than research processes. Ways to optimize opportunities for students to actively engage in STEM are accomplished by direct experiences in research labs and field settings, asking questions, collecting data, making interpretations, and developing scientific skills (AAAS, 1989).

2) *Research-orientated teaching* - In this approach more emphasis is placed on understanding the processes by which knowledge is produced. Research and teaching can be integrated more effectively by introducing students in their classes to the research process and research skills.

3) *Research-based teaching* - In this approach courses are designed largely around inquiry-based activities, rather than on the acquisition of subject content. The experiences of faculty members in the processes of inquiry are highly integrated into the student's learning activities, and the division of roles between teachers and student is minimized. It has been hypothesized that students who learn by inquiry-based teaching strategies will show a greater understanding of content and concept

acquisition than students learning through expository learning (Brown, 1997; Rutherford, 1964,2005).

4) *Research-informed teaching* - This approach involves systematic inquiry into the teaching and learning process itself. Here the connection between faculty research and undergraduate teaching is broadened to include forms of scholarship other than conventional frontier research, such as research on teaching and learning (Bransford, 2000), motivations for student learning (Edelson, 2001), and exploring the non-cognitive aspects of learning such as growth mindset, goal-setting, persistence, and delayed gratification (C. S. Dweck, 1999; C.S Dweck, 2006; Carol S. Dweck, 2008; D. S. Yeager & Dweck, 2012; D. S. J. Yeager, Rebecca; Spitzer, Brian James; Trzesniewski, Kali H.; Powers, Joseph; Dweck, Carol S., 2014). If faculty members study innovative instructional methods, evaluate the extent to which the methods improve knowledge acquisition and skills development, apply the outcomes to their own courses, and publish relevant findings that can be used by other instructors to improve their teaching, it is reasonable to hypothesize that improved learning should result.

Universities should place greater emphasis on pedagogies that are student-focused, treating students as participants with emphasis on research processes and problems. Research-led teaching is not just for high-performing students or just for elite institutions, but all students at all institutions need research-enhanced and research-led teaching and learning to be

successful in the 21st century economy.

Engaging students in research projects is frequently cited as an effective way of linking faculty research and undergraduate teaching. Research experiences for undergraduates (REUs) have advantages for students, universities, and industry. Benefits of REUs for students that include improved skills in problem-solving, analysis, writing, communication, and managing time have been documented (EMERSON, 2007; Millsbaugh & Millenbah, 2004; Russell, Hancock, & McCullough, 2007). Institutions benefit because recruitment and retention of good students is increased as a result of undergraduates having research opportunities (Lanza, 1988). Major corporations are also using REU experiences as hiring criteria (Karukstis, 2009).

Undergraduate student research involvement has correlated positively with students' attainment of the bachelor's degree, commitment to the goal of making a theoretical contribution to science, and self-reported growth in preparation for graduate or professional school (Astin, 1994; Heath, 1992). REU experiences promotes cognitive gains (Rauckworst, 2001), and intellectual development (Felder, 2005). Involving undergraduate students in research also promotes the acquisition of research-related skills (Kardash, 2000; Lopatto, 2004; Ryder, Leach, & Driver, 1999; Seymour, Hunter, Laursen, & DeAntoni, 2004; Zydney, 2002). Seymour et al. (Seymour et al., 2004) report student claims that research helped them "think like a scientist," and Lopatto (Lopatto, 2004) reports students' self-assessed gains in

understanding the research process as a result of their own research experiences, lending substantial support to the proposition that undergraduate research is an educational and personal-growth experience with many transferable benefits.

Developing undergraduate research involves recruitment, setting clear goals for the students and faculty, mentoring, and proper design of the educational experience. The book *How to Get Started in STEM Research with Undergraduates* (Schuh, 2013) provides a general discussion of these special issues and discusses ways to deal with them. Examples of such issues include: setting up and managing a research laboratory, designing student research projects, working with administrators, writing successful grant proposals, integrating research into the classroom, dealing with information management, and making optimal use of the primary literature.



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***Inter-Disciplinary Educational and Research
Programs for a Success of Research-Intensive
Universities in Ethiopia***

People with inter-disciplinary training will be in great demand in the future to solve not only major national and global challenges but also to fit into the current complex work environment. The intellectual boundaries of today's research do not always map onto disciplinary frameworks that were developed and organized over centuries. The complex problems of the 21st century that include sustainable energy, improved health, air quality, food and water security, sustainable development, climate change, development of new materials

require inter-disciplinary solutions only possible through the collaboration of physical, biological, and social scientists, and engineers (Edward G. Derrick, 2012; Foundation, 2008; Ledford, 2015; National Academy of Sciences, 2005). They demand graduates who can combine disciplinary depth with the ability to reach out, integrate knowledge, and understand jargon and approaches from many disciplines (NRC (Council, 2012; M.J Amey, 2006). Colleges and universities will need to figure out how to provide students with this training despite their largely disciplinary structures.

Inter-disciplinary research and education (IDRE) is behind many of today's scientific

breakthroughs, including those that provide tangible benefits to society (Catherine Lyall, 2011; Rhoten, 2004). The complexity of nature and society compels researchers to break subject boundaries, drawing on insight and knowledge from a range of disciplines. IDRE links and integrates theoretical frameworks and analytical strengths from two or more disparate disciplines and employs methods and skills from them (Aboelela SW, 2007; Van Hartesveldt, 2008). IDRE promotes intellectual maturity by providing the differing perspectives of collaborating disciplines and preparing students for the complexity of the real world. IDRE allows for higher level cognitive processing by providing the motivation for deeper learning (Ivanitskaya, Clark, Montgomery, & Primeau, 2002).

Universities need to train graduates who can fit into the workforce, not only in universities' and colleges' disciplinary units. The modern workplace is highly inter-disciplinary and global. Graduates entering industry require a much higher level of skills across different disciplines. Over-specialization at any level creates barriers to employment. Opportunities to provide a broader skills base in student training, along with greater contact with industrial research, should be explored through applied and professional science programs (Bililign, 2013). It should be noted that inter-disciplinary training does not necessarily mean that a person becomes "inter-disciplinary," rather that he/she is able to work well with other disciplines, appreciates and has respect for them, and is able and willing to seek them out when there is a need for another discipline.

A number of universities across the world have realized the importance of inter-disciplinary research and have been in the forefront of the effort (Sa, 2008). Some examples in the US include: the Bio-X Program (Niiler, 1999) at Stanford University that supports, organizes, and facilitates inter-disciplinary research connected to biology and medicine. It brings ideas and methods from engineering, computer science, physics, chemistry, and other fields to bear on important challenges in bioscience, creating new collaborative teams, significant biomedical discoveries, and new opportunities in fields outside biology. Bio-X includes 44 faculty more than 400 faculties from across the university.

The Beckman Institute at the University of Illinois ((Ledford, 2015), created 25 years ago, continues to attract distinguished faculty members and large team grants. More than 1,500 researchers from more than 40 different University of Illinois departments as diverse as psychology, computer science, electrical and computer engineering, and biochemistry work within and across four research themes (Biological Intelligence, Human-Computer Intelligent Interaction, Integrative Imaging research, and Molecular & Electronic Nanostructures) at the Institute.

The inter-disciplinary trend is also growing in Asia and Latin America and Australia. (Gandhi, 2014; Holton, 2004; Katrenko, 2015; Siedlok, 2009). A 2015 study by researchers with the publisher Elsevier defined inter-disciplinary papers as those that reference journals that are rarely cited together. The report looked only at countries that routinely publish more than 30,000

papers per year to find the ‘most inter-disciplinary’ countries for 2013. The countries on top in the list are the fast-growing economies, including China, India, Brazil, and South Korea.

Since the start of the 21st Century, national governments and funding bodies in China have put intensive effort into stimulating IDRE and universities in China have launched several cross-cutting centers over the past decade, including the Academy for Advanced Interdisciplinary Studies at Peking University in Beijing. Moreover, the importance of IDRE is recognized in China’s National Guideline on Medium- and long-Term Program for Science and Technology Development 2006-2020.

In the US some private universities—for example Dartmouth and Olin— and public institutions like UC Merced are experimenting with inter-disciplinary organization that involves a non-traditional university structure. When University of California, Merced (UC Merced) was established in 2005, it eschewed traditional department silos and majors in favour of an inter-disciplinary organization (Kemsley, 2013). UC Merced features a unique academic structure that removes barriers to inter-disciplinary research common in traditional departments and fosters strong ties with physical sciences research to life sciences, materials science, and engineering.

Olin College was established in 2001 with a generous endowment and hopes to break with tradition to produce technology-minded engineering entrepreneurs for the 21st century (Irving, 1998). The College **is not** organized with

traditional academic departments. Instead the faculty operates as a single inter-disciplinary unit with offices assigned to faculty members without any regard to discipline. The College intends to develop a culture of innovation and continuous improvement (National Academy of Sciences, 2005). We can learn from the innovative approaches at Dartmouth, Olin, and UC Merced. They demonstrate that radical university structural changes are more easily accomplished with start-up colleges (e.g. Olin and UC Merced). These programs can serve as models for what is to be done in Higher Education and may serve well new emerging universities in the developing World.

Higher education in Ethiopia can learn from these world-wide experiences of countries that consciously decided to invest substantial government revenues in building world-class laboratories to support inter-disciplinary research education and research in science and technology. They have seen enormous returns as evidenced by the growth of their skilled and advanced workforce, undergirding their emergence as major players in the global science-based economy.

The new universities in Ethiopia have the opportunities to be innovative and be organized in a very different way to serve the needs of the country and facilitate economic development. In particular, the new emerging universities can champion very innovative collaborative inter-disciplinary educational and research programs which are proving to be very difficult and challenging in older well-

established universities due a huge inertia for change.

Successful inter-disciplinary programs can be built if some or all of the issues below are addressed.

1. Successful inter-disciplinary research can happen only when it is done by **disciplinary experts** who remain leaders in their field. Any advantages that inter-disciplinary research and education holds depend on the presence of experts with strong backgrounds in their disciplines. Creating inter-disciplinary programs should go hand in hand with strengthening the disciplines.
2. A clear vision, goals, and strategy are essential for inter-disciplinary research. This requires establishing broad research directions and specific research plans. Not all ideas are suited to inter-disciplinary research. The vision should be aligned with the long- and short-term national economic growth strategies.
3. To realize the vision there should be a clear strategy to help remove barriers that hinder inter-disciplinary research and education (university structure, reward system, disciplinary jargon, disciplinary pride, investment priority etc.) (Caruso, 2001; Naomi Jacobs, 2010) by helping to make institutions of higher learning interactive community of scholars who are not defined by the
4. Successful inter-disciplinary research typically requires creating and sustaining an inter-disciplinary culture at universities (J. Klein, 2010; J. T. Klein, 2010). Inter-disciplinary culture is built by making the right decisions about the kinds of individuals to recruit into a program and making an intentional effort to attract people who can excel at inter-disciplinary research (Massey et al., 2006).
5. Individuals participating in IDRE need to understand the risk (Rhoten & Parker, 2004), associated with IDRE. It could be threatening on both a personal and an institutional level. Willingness to sacrifice some independence and autonomy in favor of interdependence and group identity and letting go of individual status and ego and to trust others is needed.
6. Inter-disciplinary programs, centers and institutes can be formed through a top-down (research centers and institutes built by government or university administration to address major scientific or social challenges) or a bottom-up (faculty coming together to solve a problem and seek funding to

arbitrary boundaries of divisions and units (departments) but instead live in an intellectual environment defined by research goals where each member of the faculty is comfortable in collaborating with others to contribute and learn from others (D. Crane, 1972).

do it) process (Sa, 2008), but in either case, institutional leadership is critical. Leaders who are trusted and with integrity to bridge the differences between departments and can effectively negotiate with the departments are needed to make IDRE a success.

7. Centers and institutes should be independently funded and independently administered. These research units should be structured to overcome stagnation by continuous assessment of the programs and the workforce needs (Mansilla, Feller, & Gardner, 2006; Massey et al., 2006).
8. Research centers and institutes should work closely with their academic counterparts (departments) and be encouraged to use new knowledge developed through IDRE to be incorporated into new inter-disciplinary courses. Inter-disciplinary education must supplement disciplinary teaching and learning so that students can learn how to respond to challenges that transcend their specific disciplines, work at the interface of multiple disciplines, and develop research trajectories that do not conform to standard disciplinary paths. Inter-disciplinary programs should have opportunities to hire faculty that have expertise at the interface of disciplines and can be hired jointly by multiple departments. (For example a computational scientist or

engineer can fit multiple departments).

9. The physical location of inter-disciplinary research can be an important factor in its success. This could either be a departmental building, in a building designated for inter-disciplinary research, or off-campus. Building common shared core facilities for research will encourage collaboration and is often very cost effective.

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X

Closing Session

Dr Brhane Gebrekidan

Vice-president, Ethiopian Academy of
Sciences



This Congress was an eye-opener and a successful one. It was the first of its kind, with a richer discussion that enabled us arrive at a list of recommendations and conclusions with which we will all be proud of. We will examine at this Closing Session what we have learnt in the last very informative two days which was complemented by dialogues and feedback from the audience. I think, we did the dialogue and feedback in an honest and academic style as we would expect.

It is very difficult to summarize and capture all the significant reflections on ***Re-envisioning higher education on research in Ethiopia***. I think you all have to await the publication of the entire proceedings from the academy which will come in due course. I believe that at the end of this Session, you will be hearing the recommendations and declarations of this Congress.

It is important to note that this Congress has been impressed by the presence and official

opening by his Excellency Prime Minister of the Federal Democratic Republic of Ethiopia, Ato Hailemariam Desalegn. I have heard the Prime Minister saying one item, which may be an issue which I wanted to hear. He said that the issue of quality of higher education is of concern to the Government and would take the recommendations of this Congress seriously. When we had a similar conference, some three or four years ago at the Haramaya University, we got the overall message that quality of education was not that much of a concern. But when we hear it now from the highest Government body, an ever-expanding higher education with quality is of a concern to the Government is very significant.

We have also addressed every item which was indicated in the program. I think it was addressed very adequately in an academically rich manner. You can see that there was no presentation left unaddressed. That will make us proud and it is very significant in academic discussions.

SUMMING UP OF SECOND SCIENCE CONGRESS



Professor Bahru Zewde

Principal Vice-president
Ethiopian Academy of Sciences

General Context

It is proper to see quality of education from a general context because the problem of quality of education is generic as it is observed across Africa. Phenomenal expansion has been made in higher education in the past two decades. Yet, we have a critical problem of quality (broadly defined). I would like to draw your attention to the Africa Higher Education Summit that was held in Dakar in March 2015 which was a very well-attended Summit with major global as well as continental stakeholders. The Summit was addressed by Mr. Kofi Annan. The Summit came out with a declaration. The major thrust of the final declaration has the following components

among others:

- Pursuit of excellence
- Diversification and Differentiation
- Graduate employability
- Mobilizing the African Diaspora

The declaration was adopted at AU's last Summit in Johannesburg. Four Pillars of the Second Science Congress of the Ethiopian Academy of Sciences are:

- Academic Environment and Fostering critical thinking
- Social relevance and graduate employability
- Differentiation and Diversification of

Higher Education Institutions:
establishment of dedicated
research universities

- Visionary leadership and participatory governance

Opening Address by the Prime Minister

- Higher Education is one of the Government's development priorities
- The need and the determination to raise quality of education
- Commitment to transformative reform
- Looking forward to looking at the findings of the Congress

There were two keynote addresses:

Keynote Address I

- Unitary and comprehensive view of science
 - "No Great Wall of China" between disciplines
- Science as a way of thinking rather than as a body of knowledge so that the aim is
 - Stimulating curiosity to know surroundings
 - Cultivate the capacity to verify or nullify evidence
- Need for collaborative research
- The importance of open access to information

Keynote Address II- giving attention to

- Dramatic expansion of higher education and increase in budget allocation
- Increase in total under graduate enrollment, yet much lower than low-in-

come countries' average

- Low postgraduate completion rate
- Low level of gender equity in both enrollment and staff composition
- Low level of PhD staff, except at AAU
- Challenges in the future is: improving access, investing in postgraduate programs, creating enabling conditions (including institutional autonomy and academic freedom)

First session, Nurturing Critical Thinking: the continental perspective

The continental perspective

- Challenge of creating perfect balance between expansion and quality
 - "Quality is a journey" which indicates the difficulty of quality but the necessity of that exercise.
- Low number of researchers per million and even lower percentage of women researchers
- Importance of mentoring, as distinct from supervision
- Importance of creating research leaders and the mechanisms that AAS has put in place to achieve this

Nurturing Critical Thinking: The National Perspective

- Essentials of critical thinking
 - Ability to think clearly, rationally and independently
 - Ability to acquire and refine knowledge
- Components of critical thinking

- Broad and compulsory general education
- Student participation in decision-making, including transparent and deliberative designing of curricula
- The Ethiopian reality (under all 3 regimes)
 - Merging of general and specific objectives
 - Emphasis on market rather than society
 - Teacher-driven learning process
 - Pervasive culture of plagiarism, thanks to the internet
 - End result: qualification without competence
- Way Forward
 - Putting learner at center stage
 - Evolving a less regimented system
 - Making students both useful and thoughtful

The Second Session

Social Relevance

- Not much said on the subject
- Yet, unique position of HERQA in combining **relevance** with quality
- Definition given to relevance is: convergence of the functions of HE with society's expectations
- Relevance, however, is a matter of prioritizing knowledge for all knowledge is relevant so one has to choose which knowledge to focus on
- STEM and STEAM complementary rather than antithetical

- The US experience and relevance for Ethiopia

Graduate Employability

- Need to differentiate between employment and employability. Employability implies acquiring the necessary skills to make meaningful contribution to one's society or one's employer.
- Divergent perceptions of HE and TVET students and employers on employability
- Professionalization of HE teachers
- Participatory curricular update/reform
- Strengthening university-industry linkage
 - Familiarization of students with future workplace
- Mentoring and career advisory services

Establishment of dedicated Research Universities (RU)

- Centres of Excellence (as prelude to RUs)
 - Cases: China, India, S. Korea, Kenya
- Indispensability of RUs
- Different models of RUs
- Innovative methods of raising funds for research
- Case Studies: Bahir Dar University and its Blue Book (Vision 2025)
 - National context, strategies, dissemination/popularization, Wisdom Heroes (Research Leaders)
 - Striving to make it as locally grounded as possible
 - AAU aspiring to be research-

intensive University by 2025
and taking steps to that end

- The German Experience
 - Initiative for Excellence, with 3 funding lines
 - BIGSAS: programs, partnerships, joint supervision, and mentorship

Leadership and Participatory Governance

- Problems of HE Proclamation
 - Inherent
 - Structural overloading
 - Empowering president to nominate Board members
 - Non-implementation
- Result
 - Prevalence of executive absolutism, accompanied by impunity and abuse
 - Compromising of institutional autonomy
 - Vertical rather than horizontal relationship
- Way out
 - Institution of creative, collegial, inclusive, transparent, and accountable leadership
 - Mentoring the leaders
 - Gender equity
- How?
 - Revision of Proclamation?

Major considerations/priorities

- Concretizing some of the general statements and recommendations
- How do we nurture critical thinkers?
 - The question of General Education (STEAM)
 - We receive raw students and unleash raw graduates on society
 - The implications of the 70-30% formula
- Conducive working environment
 - Student-centered, yes; but also teacher-sensitive
- Harmonization vs. institutional autonomy
- The modalities for establishing RUs
 - RUs or research-intensive/research-oriented universities
- Structural changes
 - National Research Council
 - Ministry of Higher Education and Research?
 - Engaging the Academic Diaspora

VOTE OF THANKS



Professor Masresha Fetene

The Ethiopian Academy of Sciences would like to acknowledge the following institutions and individuals for their inputs to the organization of the Second Science Congress. I will first begin with our co-organizers and sponsors:

Ministry of Science and Technology, Ministry of Education, Education Strategic Center, Unity University, and SIDA that has partially supported the Congress financially;

The Organizing Committee includes Professor Afework Kassu, Dr Bute Gotu, Dr Admasu Shibru, Dr Getahun Mekuria, and Dr Samuel Fikre. They have been very diligent in organizing, selecting speakers, deciding Congress sub-themes, and in galvanizing the Congress;

The chairpersons and moderators also agreed to chair and moderate Sessions of the Congress,

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Finally, I would like to thank the audience for their active participation and engagement.

Declaration of the Second Science Congress

“Re-envisioning Higher Education and Research in Ethiopia”

*United Nations Economic
Commission for Africa,
Africa Hall
Addis Ababa
26-27 November 2015*

PREAMBLE

We, participants of the Second Science Congress of the Ethiopian Academy of Sciences, having deliberated on the need for revitalizing and enhancing the quality of higher education and research in Ethiopia, during the Second Science Congress of the Ethiopian Academy of Sciences held 26-27 November 2015, collectively issue the following Declaration of the Second Science Congress on **“Re-envisioning Higher Education and Research in Ethiopia.**

- Recognizing that the Government of the Federal Democratic Republic of Ethiopia, fully cognizant that education is critical to a nation’s sustainable development, has taken commendable steps to expand higher education as part of its developmental goals;
- Noting that the development path that Ethiopia has embarked upon requires a scientifically and technologically savvy workforce that can

- consciously participate in the country's development agenda;
- Realizing that the purpose of education is to cultivate the intellect, develop reasoning and critical thinking faculties with a view to solving enduring questions, to acquire methods of scientific inquiry, and to create change agents who have a heightened sense of mission to be promoters of change;
 - Aware that the university, where skills for creating, analyzing, evaluating and synthesizing information/knowledge are developed and where the pursuit and production of new ideas is ensured in a spirit of free inquiry, is the ideal space for scholarly research;
 - Believing that higher education should aim at the creation of a new society consisting of highly cultivated, empowered, and motivated individuals, who are dedicated to national development, are inspired by the love for humanity and respect for human rights, and foster equity, justice and prosperity in a multi-cultural space;
 - Recognizing that there is credible evidence that the standard of university programs and the quality of graduates are being seriously compromised by dishonest use of information technology and the internet, with the result that shameless plagiarism and a "copy and paste" culture are fast substituting serious scholarship;
 - Realizing that research universities are uniquely qualified to discover and develop new knowledge, fill knowledge gaps, and provide economic, social, cultural, and organizational trend analyses;
 - Recognizing that a nation requires dedicated research universities with world-class faculty, motivated and highly talented students, academic vibrancy, and a well-resourced research system that meets research needs;
 - Cognizant of the fact that Ethiopia has a large academic Diaspora whose professional attainments and talent remain largely untapped;
 - Realizing that partnership among public and private universities as well as between local and foreign institutions is of considerable benefit both in terms of efficiency and the sharing of best practices;
 - Believing that encouraging healthy competition among universities is a proven mechanism for attracting funding, stimulating student and faculty talent, and encouraging global visibility and competitiveness;
 - Noting that leaders should be visionaries who foster initiative and innovation, that they should be highly knowledgeable in the values and traditions of academia and are capable of providing leadership that unleashes

the creative energies of faculty, staff and students and mobilizes them for cooperative endeavors.

Hereby, call on the Government of the Federal Democratic Republic of Ethiopia, universities and all stakeholders to play their share in revitalizing and enhancing the quality of higher education and research in Ethiopia. More specifically, we:

1. Urge the Government to situate higher education at the center of its development agenda, continuing and enhancing its investment in universities with a focus on improving the quality of teaching, learning, and research; on ensuring gender parity in student enrolment and faculty development; and on improving living and working conditions for academic communities.
2. Strongly recommend the differentiation of university programs across the nation, by taking into account their relative strengths in terms of faculty, local realities, and comparative advantages.
3. Call upon universities and their faculty members to pursue the goal of quality improvement in university education by actively and continuously engaging in curricular review, pedagogical development (including effective use of new information and instructional technologies), staff recruitment and training, as well as building local and international partnerships.
4. Recommend that a National Performance Evaluating and Ranking Scheme be established under the auspices of Public and Private Universities Consortia to initiate healthy competition among universities for funding and student and faculty talent as well as to encourage global competitiveness and visibility.
5. Recommend the development of a viable mechanism to tap the full potential of the Ethiopian Academic Diaspora so that they can contribute their share to national development, more specifically in graduate teaching, curriculum development and research collaboration.
6. Propose developing the entrepreneurial and business management skills of students of higher education institutions in order to ensure employability of graduates, who will increasingly become not only job seekers but also job creators.
7. Urge the Government to aim for a healthy balance between the Science and Technology disciplines and the Social Sciences and Humanities with a view to ensuring

an integrated national development and the cultivation of the full person.

8. Strongly recommend that Government, university leaders, educators and faculty work together to develop pedagogical and didactical approaches that go beyond cognitive mastery of disciplines and promote and facilitate the acquisition by students of skills, competences and capacities for communication, critical analysis, creative work and independent thinking.
9. Recommend that, while perfectly aware of the benefits of the internet revolution in bringing about the globalization of knowledge, its impact on the content and operation of university education should be seriously examined and measures put in place to curb internet-based plagiarism.
10. Recommend that the national mechanism for accrediting and evaluating academic programs be improved and strengthened with the participation of duly established scientific and professional associations as well as of industry bodies.
11. Strongly recommend the establishment of designated research universities with adequate

resources and funding to attract world-class faculty and talented students.

12. Strongly recommend that an autonomous and decentralized system of governance be instituted by which leaders of universities at all levels would be selected in a participatory manner on the basis of their proven commitment to the ideals of scholarship, their impeccable record of honesty and integrity, their deep knowledge of the institutions they seek to lead, and the coherence and feasibility of their visions as leaders.

CLOSING ADDRESS

Dear Board members and Fellows of the
Ethiopian Academy of Sciences

Dear distinguished Congress participants,

Invited Guests,

Ladies and Gentlemen,

It is, indeed, an honor to have our Prime Minister, his Excellency Ato Hailemariam Desalegn to open the Second Science Congress of the Ethiopian Academy of Sciences in the presence of his Excellency Ato Abiy Ahmed, Minister, Ministry of Science and Technology despite their tight and demanding schedules. This of course, shows the attention the Government of Ethiopia has given to the Academy. Like any other country where academies of science are well-recognized and active, the Government of Ethiopia very much supports and encourages the Academy and expects much from it in terms of addressing scientific, technological and social issues and in advising the Government on matters that



H.E. Professor Afework Kasso
State Minister Ministry of
Science and Technology

require scientific analyses and explanations. The Government of Ethiopia has given its utmost support since the inception of the Academy and the support will continue in the future.

Given the colossal expectation the Government has placed on the sector of science and technology and given the long way ahead of us to have the economy of our country to be founded on science and technology, the Ministry of Science and Technology and the Government of Ethiopia at large expect the Academy to do its best in the growth and transformation of our nation.

Dear participants,

We are very much aware that this Congress has given due attention to the mission of giving inputs to the Government to improve quality of higher education in Ethiopia. The thematic areas of presentations and round table discussions are all timely and important topics which are listed in the Growth and Transformation Plan II of the education sector (ESDP5) as priority programs.

In particular, the discussion on how to make our public and private universities places where high-quality manpower is produced to meet the needs of industry, business and all aspects of society and provide a range of competent services to the national development is worth noting.

As you all are aware in the higher education system of our country, we have established technology institutes: science and technology universities. These specialized institutes of higher learning and all other public and private universities in our country are expected

to give due attention to producing graduates of higher and better quality and graduates that are trained to create jobs.

In this regard, much is expected from higher education institutions and all stakeholders in the promotion of science, technology and innovation on one hand and in fighting plagiarism on the other. In addition, our higher education institutions are expected to open relevant academy disciplines on emerging fields of science and technology such as biotechnology, nanotechnology, materials science, space science etc., and establish research technology incubation centers that will help boost our economic growth.

Dear participants,

The future of our country very much depends on the quality of graduates our universities produce. Therefore, it is critically important that EAS produces recommendations of the results of its deliberations of the Second Science Congress that will assist our universities produce better graduates. I am sure the Academy has taken the issue seriously. Furthermore, we expect EAS to continue to organize congresses like this, workshops and meetings where national issues are discussed on a regular basis.

Finally, it is my belief that the objective of the Congress has been successfully met. I would like to thank the organizers of the Congress for a job well done. With this remark, I now declare the Second Science Congress of EAS closed.

I thank you all!

RE-ENVISIONING HIGHER EDUCATION AND RESEARCH IN ETHIOPIA CONGRESS PROGRAM

DAY 1 NOVEMBER 26, 2015	
8:00 - 9:00	Registration
Opening Session Master of Ceremony	Dr Heran Sereke-Brhan
9:00 - 9:30	Introductory Remarks - Prof. Masresha Fetene, Executive Director, EAS Welcome Address - Prof. Demissie Habte, President, EAS Official Opening - H.E. Ato Hailemariam Dessalegn, Prime Minister of the F.D.R.E.
9:30 - 10:00	Keynote Speech 1 <ul style="list-style-type: none"> The vision of the MoE in transforming Ethiopia's higher education and research in GTP2 and beyond - Dr Admasu Shibru, Deputy Director General, Education Strategy Center
10:00 - 10:40	Keynote Speech 2 <ul style="list-style-type: none"> Science for society; Science for humanity: Discerning Knowledge for the Common Good in Africa - Prof. Barney Pityana, Former Vice Chancellor, UNISA, South Africa
10:40 -11:00	Coffee/Tea Break
Session 1	Academic environments in universities, creation of enquiring minds and all-rounded citizens
Chairperson	Prof. Andreas Eshete, Advisor to the Prime Minister, and immediate past President of Addis Ababa University
11:00 - 11:35	Speaker 3 <ul style="list-style-type: none"> Strategic approaches to developing research leaders A continental perspective - Prof. Berhanu Abegaz Molla, Executive Director, African Academy of Sciences

11:35 - 12:10	Speaker 4 <ul style="list-style-type: none"> Can we make graduates both useful and thoughtful? - A personal view of the present and the future of university education in Ethiopia - Dr Tekalign W/Mariam, Addis Ababa University, Former Academic Vice President, Addis Ababa University
12:10 - 13:00	Discussion
13:00 - 14:00	Lunch Break
Session 2	Quality of education, curriculum relevance and graduate employability
Chairperson	Dr Arega Yirdaw, President, Unity University
14:00 - 14:30	Speaker 5 <ul style="list-style-type: none"> Repositioning higher education toward fostering competitiveness and graduate employability - Dr Teshome Yizengaw, Associate Vice President for International Research and Development, and Director of the Office of International Development, Indiana University, USA
14:30 - 15:00	Speaker 6 <ul style="list-style-type: none"> Quality of Training: Perspectives of university graduates and employers - Prof. Tegegne Gebreegziabher, Director, Institute of Development and Policy Research, Addis Ababa University
15:00 - 15:20	Discussion
15:20 - 15:45	Coffee/Tea Break

15:45 - 17:30	<p>Round Table Discussion: Curriculum relevance and graduate employability in Ethiopia</p> <p>Panellists</p> <ul style="list-style-type: none"> • Dr Tesfaye Teshome, Director, Higher Education Relevance and Quality Agency • Ato Wondwossen G. Teklemichael, Director, Institute of International Education, Ethiopian Office • Dr Yalew Endawoke, President, Woldia University • Dr Heran Sereke-Brhan, Independent Researcher and U.S. Liaison of the Ethiopian Academy of Sciences, Washington D.C, USA
Moderator	Dr Getahun Mekuria, Director General, Ministry of Science and Technology
18:00 - 20:00	Reception
DAY 2 NOVEMBER 27, 2015	
Session 3	The need for research-intensive universities in Ethiopia
Chairperson	Prof. Tsige Gebre-Mariam, General Manager, Regional Bioequivalence Center and former Vice President for Graduate Studies and Research, Addis Ababa University
9:00 - 9:25	<p>Speaker 7</p> <ul style="list-style-type: none"> • Building Ethiopia's Research Universities: The Arduous but Indispensable Task - Prof. Damtew Teferra, KwaZulu-Natal University, South Africa
9:25 - 9:50	<p>Speaker 8</p> <ul style="list-style-type: none"> • Vision of Wisdom 2025 - The Blue Book of Bahir Dar University to become a research university - Dr Baylie Damtie, President, Bahir Dar University

9:50 - 10:15	Speaker 9 <ul style="list-style-type: none"> Red Carpets for the Next Generation of Scholars? - The Initiative for Excellence in Germany (2005/2006-2017) and International Graduate Schools as Instruments for Research Training and Mentoring at the Doctorate Level - Dr Christine Scherer, Coordinator Bayreuth International Graduate School of African Studies, University of Bayreuth, Germany
10:15 - 10:50	Discussion
10:50 - 11:10	Coffee/Tea Break
11:10 - 13:00	Round Table Discussion on the making of research universities in Ethiopia <ul style="list-style-type: none"> Dr Admasu Tsegaye, President, Addis Ababa University Prof. Lee Jang-Gyu, President, Adama Science and Technology University Dr Nurelegn Teferra, President, Addis Ababa Science and Technology University Ato Wondwosen Tamrat, President, St Mary's University Ato Emnet Wolde Ghiorgis, PhD Student, University of Bayreuth
Moderator	Zenebeworke Tadesse, Founding Fellow of the Ethiopian Academy of Sciences
13:00 - 14:00	Lunch Break
Session 4	Leadership and participatory governance in Ethiopian universities
Chairperson	Prof. Berhanu Abegaz Molla, Executive Director, African Academy of Sciences
14:00 - 14:20	Speaker 10 <ul style="list-style-type: none"> What leadership and governance structures do our universities need? Dr Kassahun Berhanu, Department of Political Science and International Relations, Addis Ababa University
14:20 - 14:40	Speaker 11 <ul style="list-style-type: none"> What does it take to transform university leadership and governance? - Dr Tilhaun Teklu, School of Management, Addis Ababa University

14:40 - 15:00	Discussion
15:00 - 16:30	Round Table Discussion on problems of leadership in Ethiopian universities <ul style="list-style-type: none"> • Dr Samuel Kifle, Ministry of Education • Dr Teshome Yizengaw, Indiana University, USA • Dr. Admasu Shibru, Education Strategy Center • Fitsum Gebremichael, Hawassa University
Moderator	Prof. Gebru Tareke, Professor of History and former Director of the Institute of Ethiopian Studies
16:30 - 16:50	Coffee/Tea Break
Closing Session	
Chairperson	Dr Brhane Gebrekidan, Vice President, EAS
16:50 - 17:30	Wrap-up of Congress proceedings: <ul style="list-style-type: none"> • What have we learned? • What needs to be done? • What are the priority issues for HE&R in Ethiopia? <ul style="list-style-type: none"> - Prof. Bahru Zewde, Principal Vice President, EAS Adoption of Congress Declaration <ul style="list-style-type: none"> • -Prof. Masresha Fetene, Executive Director, EAS
17:30 - 17:50	Vote of thanks - Prof. Masresha Fetene, Executive Director, EAS Official Closing - H.E. Ato Abiy Ahmed, Minister, Ministry of Science and Technology

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