Agricultural Economics and Extension Research in Ethiopia

Achievements, Challenges and Directions

Edited by
Dawit Alemu
Abebe Kirub

Ethiopian Institute of Agricultural Research
Agricultural Economics and Extension Research in Ethiopia

Achievements, Challenges and Directions

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Introduction

The Ethiopian Agricultural Research System (NARS) has evolved since the establishment of the then Institute of Agricultural Research – IAR in 1966 as an independent public research organization. The evolution has been in terms of expansion in research programs, agro-ecological coverage, human and physical research facility and also research culture. Currently, the NARS is composed of Ethiopian Institute of Agricultural Research (EIAR), the seven regional research institutes, and universities with agricultural faculties with research programs in crops, livestock, natural resources, agricultural mechanization, social science composing of agricultural economics and agricultural extension.

The year 2016 marks the 50th anniversary of the establishment of formal agricultural research in the country. In this regard, EIAR has organized different events that generally presented the research achievements made, challenges faced and expected roles targeting policy makers, researchers, development practitioners and farmers/pastoralists. Among these events, the national conference entitled “Agricultural Research for Ethiopian Renaissance” and four symposia on crops, livestock, natural resources and Social science research were the major events that played crucial role in creating the opportunity to share with the wider audiences the achievements and to get feedback on what should be the future focus and direction in the respective fields of agricultural research.

The social science symposium entitled “Social Sciences Research in Ethiopian Agriculture: Achievements,
challenges and Future Prospects” was held February 24, 2016 at EIAR HQs in Addis Ababa with the main objective of pinpointing key issues that need to be addressed in the short, medium and long term based on an assessment of trends in past and present focus area of the respective research. The publication presents the outcome of the symposium with due focus on

- provision of the overview of the research focus with emphasis on the research coverage in terms of different commodities and agro-ecologies, addressing food security, domestic agro-industries, and export;
- the major contribution of the research in terms of technology and information delivery and transfer;
- evolution of institutional set up of the social science research within the overall Agricultural research;
- the current human and physical capacity of the research;
- Demonstrated impact of Ethiopian Agricultural Research in production and productivity growth, food security, and poverty reduction;
- present and future challenges and expected roles of the research system; and
- the what needs to be changed, improved, and what it requires.

In order to achieve the stated objectives, the symposium was organized in manner where keynote presentation was made followed by views of discussants based on the presented keynote speech. Wider discussion was made through a facilitator focusing on the key issues that the research system need to address in the short medium and long term period. The invited participants of the symposium were policy makers, relevant researchers, beneficiaries and development partners. The selection of
speakers and discussants was made based on the scientific prominence in research and education in the areas of agricultural economics and agricultural extension and extent of engagement as researcher and research manager in the national agricultural research system. Accordingly, this publication presents the speeches made by selected speakers, reflections of selected discussants and overall symposium outcome following the general discussion that involved all participants.
I am extending my warmest welcome to you all and a happy 50th anniversary of the Ethiopian Institute of Agricultural Research.

Consistent with global mega trends Ethiopia is expected to be trending towards high population growth and demographic changes, urbanization and a decline in its farming population resulting in high demand for food and feed, and others like fiber and energy needs. On the other hand, resource scarcity like land and water and climate change will place ever greater strains on agriculture. There will also be an intense competition in export and domestic markets.

If I reflect my viewpoint on what is currently trending in rural Ethiopia, with no empirical data at hand, I can see that rural socio-economic, ecological and environmental landscape is fast changing in various ways. For instance, rural infrastructure like road network, transportation, water, electricity, and telephone; and social services including education, and health institutions are improving. Land reconstruction and in some places speedy ecological restoration is taking place. Agricultural productivity is on the rise; output price is rising and/or fluctuating. Capacity in terms of knowledge, skill, and awareness has improved at all levels. Social experimentation and learning is improving that help snowballing and setting off technical
progress. There appears also rural labor dynamics. Educated youth is on the rise. Input use and management practices have significantly improved; technological/technical changes are taking place contributing to the rise of technological demand, etc. There is a consistent drive towards specialization and diversification. There are also recent initiatives as Agricultural Commercialization Clusters and Integrated Agro-industrial Parks. On the other hand, despite these improvements there are several unexplained issues, for instance, food price is on the rise. Generally, these trends would directly or indirectly influence our research agenda.

Should the country meet food and nutrition security goals and compete in the global market, survive and thrive, therefore, transforming agriculture to the future date of high output is essential through increasing productivity, production and value addition. However, to compete and win in the global market the country among others need to produce more efficiently and competitively based on its comparative advantage. For this, new ways of farming may need to be followed like sustainable intensification and climate smart agriculture to which agricultural research needs to come up with best-bet technologies.

Agricultural economics and research extension has been part of the Ethiopian Agricultural Research System since the beginning as early as 1968. This field of study has been instrumental in diagnosing researchable problems through conducting farming system surveys, resource inventory and case studies, characterizing agro-ecologies and farming systems. It also undertakes technology verification, pre-extension demonstration and popularization activities,
capacity building of farmers and agricultural experts while conveying feedbacks to biological researchers. Also, it does adoption and impact studies, value chains, market, enterprise choice, gender roles etc. Most importantly, it has an important function of liaising agricultural research with formal Extension system.

The above traditional functions are and have been still important. Nevertheless, in the changing rural landscape, the role of agricultural economists and research extensionists might need to be broader. It has to figure out the socio-economic, cultural and agro-ecology trends and feedback to biological researchers and policy makers. There is also a need to properly understand how Ethiopian social and economic transformation process will be unfolding? When we will be having a catch up of developed economies? What amount of produce is enough for Ethiopia? When we will be self-sufficient in some imported agricultural commodities? Can we be self-sufficient at all? While we have currently a vigorous extension program several technologies that have been developed by the agricultural research system have not been taken in full. Although we know that several factors might be affecting adoption undoubtedly one major factor for non-adoption is the farmer/pastoralist itself. The agricultural-economics research should have a clear and full understanding of the why of it. As we enter market-oriented production we need to produce on cost-benefit basis. Develop institutional models to link research and Extension and evolve innovative and better effective technology mechanisms.

This symposium organized in connection with the EIAR’s 50th year anniversary is therefore expected to discuss on
research achievements, gaps and challenges and on the broader and new role of social science research in the agricultural research system.

The 50\textsuperscript{th} year Anniversary that started in mid-2015 is being celebrated with various events with major objectives of documenting its achievements, getting ideas and feedbacks that help shaping its future and making its products and the institution itself more visible to the public and making agricultural research a national agenda. These include:

- televised question and answer contest;
- National conference that brought together over 500 participants;
- Travel workshops to technology demonstrations areas;
- Four Symposia slated for this week: Crop, livestock, Social science and land and water research;
- National technology exhibition scheduled for Feb 25-27, 2016 at the HQ;
- Agricultural Researchers forum, 26-27 February 2016 and
- Closing ceremony on 28 February 2016.

With this, I thank you all for accepting our invitations and at making it to this important forum and celebrate our joint accomplishments over the long journey of EIAR.

I thank you.
It is a great honor and pleasure to officiate the opening of this Symposium on Social Science Research within the National Agricultural Research System in general and the Ethiopian Institute of Agricultural Research in particular which is organized to mark the 50th anniversary of the establishment of the Ethiopian Institute of Agricultural Research; and to address you, distinguished scientists and colleagues. I believe that this is an opportunistic moment which has confirmatory meaning and a rolling stone effect on our effort to build a strong and competitive national agricultural research system that can enhance agricultural growth and support the transformation agenda of the country. As you know, this year is the start of the implementation of the second Growth and Transformation Plan – GTP II, which aspires to contribute to the achievement of the country’s vision of becoming a middle income country by 2025.

As you all know Agriculture is a major critical factor in Ethiopia’s social and economic development efforts. The sector’s share in the national income still hovers above 40 percent; it is still the main livelihood system for most Ethiopians. Even the ambitious industrialization program that Ethiopia wants to pursue over the next five years depends very much on the performance of the agricultural sector. Recognizing its strategic role, the GTP II has
stressed that agriculture will continue to be the main source of economic growth over the next few years.

In spite of its critical role, we all know that the agricultural sector continues to face formidable challenges that have hampered its fast transformation and productivity growth both within the crop and livestock sub sectors.

Agricultural productivity in major crops is still very low and the sector is still vulnerable to weather conditions as it is predominantly a rain-fed system. So, climate resilience and adaptation issues become crucial success factors for Ethiopian agriculture. In addition, the increasing population has led to increasing land scarcity in the major highland agricultural zones of the country. Poor physical infrastructure restricting market access, inadequate use of water resources, weak information base, low use of improved technology and weak implementation capacity are additional problems confronting the Ethiopian agriculture.

As a result of these and many other challenges that I did not mention, Ethiopia is still a net importer of agricultural commodities including dairy products, vegetables, cereals, flour and malt, animal and vegetable oil among others. Due to the frequent shocks related to weather conditions, Ethiopia is forced to depend on massive food imports both in the form of food assistance and commercial imports. Imports of cereals, mainly wheat, have been on the rise particularly after 2008. According to FAO and WFP figures, for instance, between 500 000 and 790 000 tons of wheat have been imported per year between 2008 and 2011. Though the country has achieved strong economic growth,
the growing dependence on imported wheat tends to threaten this growth trend as well as food security of its population.

I could go on enumerating the challenges facing the Ethiopian agricultural system which you all know well and even better than me. But the reason I am mentioning these challenges is simply to underscore the need for research both physical sciences research and social science research in agriculture. The root causes of the challenges and the possible remedial measures need proper investigation. As scientists we need to work hard to develop appropriate technologies and innovation systems based on sound research and help and encourage policy makers to make informed decisions. In this regard, like the agronomic research, social science research or what is commonly called as the socio economics research becomes equally important and relevant in agriculture.

Social science is the science of people or collections of people, such as groups, firms, societies, or economies, and their individual or collective behaviors. While the natural sciences are very precise, accurate, deterministic, and independent of the person making the scientific observations the social sciences, tend to be less accurate, deterministic, or less unambiguous. And for many people research is simply equated with working in a lab wearing a white gown. Because of that notion, social science research is often considered as inferior to physical science research.

When I asked a group of undergraduate students to imagine a scientist and to tell me what they imagined, their answers were quite intriguing. First, virtually every student
said that their imagined scientist was a male. Second, most of the students reported that they imagined that the scientist was wearing a white lab coat and working in some kind of a laboratory that always contained technical scientific equipment of one kind or another. Some students imagined a chemist, surrounded by substances in test tubes and beakers. Other students thought of a biologist peering into a microscope. Still others conjured up a physicist working with sophisticated electronic equipment. Most interesting was the fact that although these students were studying economics, not one of them thought of an economist being a scientist.

The responses of these students were probably typical of what most people would say if asked to imagine a scientist. For most people, the prototypic scientist is a man wearing a white lab coat working in a laboratory filled with technical equipment. Most people do not think of economists and other behavioral researchers as scientists in the same way that they think of physicists, chemists, and biologists as scientists.

Economics and other social science fields are, however, not only professions that promote human welfare through various social interventions, but also are scientific disciplines that study behavior and mental processes following standard scientific procedures. Just as biologists study living organisms and astronomers study the stars, behavioral scientists conduct research involving the behavior of rational agents often human beings.

I noted earlier that most people have greater difficulty thinking of behavioral sciences as science than regarding
chemistry, biology, physics, or astronomy as science. Whether an area of study is scientific has little to do with the topics it studies, however. Rather, science is defined in terms of the approaches used to study the topic. Social science research is also considered as a “scientific research” as (1) it contributes to a body of science, and (2) it follows the scientific method. The scientific method, as applied to social sciences, includes a variety of research approaches, tools, and techniques, such as qualitative and quantitative data, statistical analysis, experiments, field surveys, case research, and so forth. The distinction between natural science research and social science research in agriculture is artificial as one cannot produce good results without the other. For me, social science research is the human face of physical science research. The two are complementary and, therefore, require equal attention and recognition.

I know social science research, which includes research on agricultural economics and extension has been one of the major components of the agricultural research programs of the Ethiopian Institute of Agricultural Research with the aim of generating information required to improve the internal and external efficiency and uptake of agricultural research in our country. The Research aimed at improving internal efficiency focuses at enhancing the effectiveness of the research system to develop appropriate technologies by availing much needed data and information on the priorities and challenges of agricultural producers in general and smallholder farmers in particular by conducting diagnostic surveys, technology verification exercises, technology adoption and impact studies. The Research that improves the external efficiency of research, on the other hand, focuses on ways and means of raising
the utilization of agricultural technologies developed by the agronomic research system among the end users of research products. In this regard the agricultural economics and extension research program of the Institute has been active in creating demand for agricultural technologies generated by the Institute through targeted demonstrations, popularizations and pre-scaling up efforts. Furthermore, the program has also generated a wealth of information that has played critical roles in shaping the input and output marketing, the food and agricultural extension systems and the like.

Historically, the social science research within the Institute has travelled a long way in terms of institutional set-up, number and composition of researchers, research coverage as well as amount of budget allocated over the years. I have come to know that currently the social science research is organized into two research programs, the agricultural economics and the agricultural extension research programs.

I believe that the Ministry of Agriculture and Natural Resources clearly understands more than ever the critical role of social science research in generating timely information for the agricultural transformation efforts especially at this time when the agricultural sector is expected to ensure adequate supply of agricultural raw material required for the emerging domestic agro-industries, generating foreign currency through agricultural export, addressing the challenges of climate change, and ensuring food security at national and household levels.
Looking into the ever increasing demand for social science related information as an input for the research and for the development, I expect that this symposium will deliberate on the research depth, content and coverage; the required human and physical capacity requirements; and the institutional setup considering the decentralization of the country’s research system and existence of diverse actors, and come up with appropriate recommendations for improvement and we look forward for the outcome of the symposium.

With this short message, I wish you a very productive deliberation and declare that the symposium is officially opened.

Thank you!
It gives me a great pleasure to present a keynote speech at this Symposium on Social Science Research within the National Agricultural Research System in general and the Ethiopian Institute of Agricultural Research in particular which is organized to mark the 50th anniversary of the establishment of the Ethiopian Institute of Agricultural Research. My speech is nothing more than a stock-taking exercise about the historical development of social science research, its organizational setup, trends in research investment, as well as the attention given to social science research and research outputs. The final part of my presentation highlights the key challenges and the way forward.

Agricultural research and extension in Ethiopia began in 1953, following the establishment of the Imperial Ethiopian College of Agriculture and Mechanical Arts (IECAMA) popularly called ‘Alemaya College of Agriculture’, now Haramaya University (HU).

The academic program of the College was modelled after the Land-grant College system with three fundamental but related responsibilities training qualified manpower in the various fields of agriculture; promotion of agricultural research; and dissemination of appropriate technologies. In 1963, the national agricultural extension work was transferred to the Ministry of Agriculture, with the
suggestion that IECAMA concentrates its outreach efforts in its vicinity. In 1966, the Imperial Government transferred the responsibility for agricultural research to the newly established Institute of Agricultural Research (IAR). The IAR was established in February, 1966 with a mandate: to formulate the national agricultural research policy; to carry out agricultural research on crops, livestock, natural resources, and related disciplines in various agro-ecological zones of the country; and to coordinate national agricultural research (Negarit Gazeta, 1966). Until its replacement by the Ethiopian Agricultural Research Organization (EARO) in 1997, the IAR had been the only organization in the country with a clear mandate solely for agricultural research. EARO was made accountable to the Ministry of Agriculture and Rural Development on 13 January 2004.

The Proclamation which established the EARO states that its objectives are to generate, develop and adapt agricultural technologies that focus on the needs of the overall agricultural development and its beneficiaries; coordinate research activities of agricultural research centers or higher learning institutes and other related establishments which undertake agricultural research on contractual bases; build up a research capacity and establish a system that will make agricultural research efficient, effective and based on development needs; and popularize agricultural research results (Federal Negarit Gazeta, 1997). On the 25th of October 2005 EARO was renamed the Ethiopian Institute of Agricultural Research (EIAR)
Social science and organization of agricultural research in Ethiopia

For many years, agricultural research in Ethiopia had concentrated mainly on high input agriculture and cash crops. The country followed highly specialized discipline oriented research in crops, livestock, and agricultural mechanization. Over the years the research programs of different disciplines have grown apart and there has been little success in integrating the results. It was only since the middle of the 1980s that attempts have been made to understand the operation of peasant farms as well as the interaction of the different elements within the farms (Farming Systems Research or FSR). In 1988, the IAR reorganized its activities and adopted the "commodity" approach at a national level. Agricultural research underwent significant reform in the 1990s when the new government committed itself to put in place a decentralized political system in the country. More precisely, in 1993, some IAR centers were decentralized to create independent research centers run by the respective regional governments, and became the Regional Agricultural Research Centers (RARCs). Over the past few years, all the Regional States have established their respective Regional Agricultural Research Institutes (RARIs). The Ethiopian National Agricultural Research System (NARS) is made up of six types of institutions:

- The EIAR (consisting of 17 federal research centers) is the umbrella body for the Ethiopian NARS;
- The regional agricultural research centers/ institutions (RARCs/ RARIs);
- Agricultural institutions of higher education;
• Agribusiness operators (large commercial farm operators, farm operators in the high-value export sector and agribusiness organizations such as breweries, flour factories etc.);
• NGOs which undertake adaptive/applied research and popularizing improved technologies to support the development needs of their intervention areas; and
• Development agencies and partners

Social science research and Investment

Ethiopia has extremely low research expenditures. The African Ministerial Conference on Science and Technology (AMCOST) adopted Africa’s Science and Technology Consolidated Plan of Action in 2005. This plan calls for substantial increases in national R&D budgets, with each country taking concrete measures to allocate at least 1 percent of its Gross Domestic Product (GDP) to R&D. So far only South Africa has committed close to that level of investment- about 0.9 percent of its GDP. For instance, in Ethiopia only 0.24% of GDP was devoted to GERD in 2011 (UNESCO/ISSC, 2013).

Table 1: Gross expenditure on research and development as a percentage of GDP by region

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>1.55</td>
<td>1.52</td>
<td>1.57</td>
<td>1.63</td>
<td>1.70</td>
</tr>
<tr>
<td>Africa</td>
<td>0.36</td>
<td>0.37</td>
<td>0.36</td>
<td>0.40</td>
<td>0.45</td>
</tr>
<tr>
<td>Asia</td>
<td>1.24</td>
<td>1.30</td>
<td>1.39</td>
<td>1.46</td>
<td>1.62</td>
</tr>
<tr>
<td>Europe</td>
<td>1.60</td>
<td>1.56</td>
<td>1.58</td>
<td>1.70</td>
<td>1.75</td>
</tr>
<tr>
<td>North America</td>
<td>2.59</td>
<td>2.45</td>
<td>2.57</td>
<td>2.66</td>
<td>2.71</td>
</tr>
<tr>
<td>Latin America</td>
<td>0.56</td>
<td>0.55</td>
<td>0.59</td>
<td>0.67</td>
<td>0.69</td>
</tr>
<tr>
<td>Oceania</td>
<td>1.56</td>
<td>1.72</td>
<td>2.09</td>
<td>2.19</td>
<td>2.07</td>
</tr>
</tbody>
</table>

Source: Compiled from UNESCO’s online statistical database
Different reports point to the fact that Africa’s contribution to the global knowledge generation is negligible. A recent World Bank Study (2016) reported that sub-Saharan Africa accounts for 12.5 percent of the global population and only for about 1 percent of the world’s research output.

Table 2: Share of government funding spent on research

<table>
<thead>
<tr>
<th>Year</th>
<th>Recurrent</th>
<th>Capital</th>
<th>Total</th>
<th>% share of budget allocated to AgECEG*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004/2005</td>
<td>38,799,430</td>
<td>42,349,377</td>
<td>81,148,807</td>
<td>1.54</td>
</tr>
<tr>
<td>2007/2008</td>
<td>63,408,515</td>
<td>55,986,728</td>
<td>119,395,243</td>
<td>1.75</td>
</tr>
<tr>
<td>2009/2010</td>
<td>74,126,255</td>
<td>86,783,957</td>
<td>160,910,212</td>
<td>NA</td>
</tr>
<tr>
<td>2010/2011</td>
<td>72,914,810</td>
<td>91,297,780</td>
<td>164,212,590</td>
<td>0.50</td>
</tr>
<tr>
<td>2011/2012</td>
<td>112,525,720</td>
<td>135,843,870</td>
<td>248,369,590</td>
<td>0.52</td>
</tr>
<tr>
<td>2012/2013</td>
<td>122,208,460</td>
<td>172,937,960</td>
<td>295,146,420</td>
<td>0.56</td>
</tr>
<tr>
<td>2013/2014</td>
<td>131,763,350</td>
<td>192,859,100</td>
<td>324,622,450</td>
<td>2.47</td>
</tr>
<tr>
<td>2014/2015</td>
<td>143,665,640</td>
<td>209,713,085</td>
<td>353,378,725</td>
<td>2.09</td>
</tr>
<tr>
<td>2015/2016</td>
<td>222,050,290</td>
<td>269,705,500</td>
<td>491,755,790</td>
<td>2.57</td>
</tr>
</tbody>
</table>

Source: EIAR

The last column of Table 2 shows the percentage of the EIAR budget allocated to Agricultural Economics, Extension and Gender related research. It is extremely important to note that only a very small proportion of the research budget goes to social sciences related research undertakings.
Research organizations depend heavily on government funding and generate only a very small fraction of their budget. Over the years, some programs have received research funds from external sources and carried out research projects, which in some cases do not fit into local/national priorities. For research to be effective research agenda need to be set locally.

Table 3: External research funding by research program and year (in USD)

<table>
<thead>
<tr>
<th>Year</th>
<th>Research program</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Crop</td>
<td>Livestock</td>
</tr>
<tr>
<td>2009</td>
<td>5,455,454.0</td>
<td>152,397.2</td>
</tr>
<tr>
<td>2010</td>
<td>6,732,404.4</td>
<td>256,939.2</td>
</tr>
<tr>
<td>2011</td>
<td>6,851,330.7</td>
<td>34,421.3</td>
</tr>
<tr>
<td>2012</td>
<td>7,469,282.0</td>
<td>264,153.4</td>
</tr>
<tr>
<td>2013</td>
<td>4,610,687.0</td>
<td>418,543.0</td>
</tr>
<tr>
<td>2014</td>
<td>7,941,092.7</td>
<td>420,528.3</td>
</tr>
<tr>
<td>2015</td>
<td>5,971,184.7</td>
<td>2,670,717.6</td>
</tr>
<tr>
<td>Average</td>
<td>81.8</td>
<td>6.5</td>
</tr>
</tbody>
</table>

Source: EIAR (2016)

Social science research staffing situation

The staffing situation can be represented by a pyramid structure, where it is massively skewed towards B.Sc. and M.Sc. Holders and serious gender imbalance. Holding a doctorate degree or M.Sc. had been a prerequisite for being accepted as a researcher in the earlier periods but this does not seem to be the case now.
Table 4: The research staffing situation of EIAR (2015)

<table>
<thead>
<tr>
<th>Research Directorate</th>
<th>BSc</th>
<th>MSc</th>
<th>PhD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop</td>
<td>260</td>
<td>148</td>
<td>32</td>
<td>440</td>
</tr>
<tr>
<td>Land and Water Resources</td>
<td>118</td>
<td>58</td>
<td>10</td>
<td>186</td>
</tr>
<tr>
<td>Livestock</td>
<td>18</td>
<td>78</td>
<td>17</td>
<td>113</td>
</tr>
<tr>
<td>Agricultural Economics, Extension and Gender</td>
<td>33</td>
<td>23</td>
<td>6</td>
<td>62</td>
</tr>
<tr>
<td>Agriculture and Nutrition Research Laboratories</td>
<td>41</td>
<td>6</td>
<td>0</td>
<td>47</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>24</td>
<td>15</td>
<td>3</td>
<td>42</td>
</tr>
<tr>
<td>Climate and Geospatial</td>
<td>10</td>
<td>11</td>
<td>3</td>
<td>24</td>
</tr>
<tr>
<td>Agricultural Mechanization</td>
<td>15</td>
<td>7</td>
<td>1</td>
<td>23</td>
</tr>
<tr>
<td>Plan, Monitor and Evaluation</td>
<td>9</td>
<td>12</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>Technology Multiplication</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Pastoral and Agro-pastoral and Emerging Regions Capacity Building</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>531</td>
<td>365</td>
<td>75</td>
<td>971</td>
</tr>
<tr>
<td>Percentage of staff</td>
<td>54.7</td>
<td>37.6</td>
<td>7.7</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: EIAR (2016)

The age composition of researchers indicate “the greying of the research corps”, where senior researchers are at the late stage of their career. Key staff related concerns include

- Poor mentoring and evaluation system;
- Inadequate training and capacity building initiatives in emerging sciences and technologies; and
- Lack of critical mass of experts in the research centers (the problem is more pronounced for the socio-economic program).
Table 5: Women researchers in sub-Saharan Africa, 2013 or closest year (%): With regional average 30 %

<table>
<thead>
<tr>
<th>Country</th>
<th>% of female researchers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Namibia 2010</td>
<td>43.7</td>
</tr>
<tr>
<td>South Africa 2012</td>
<td>43.7</td>
</tr>
<tr>
<td>Mauritius 2012</td>
<td>41.9</td>
</tr>
<tr>
<td>Cabo Verde 2011</td>
<td>39.8</td>
</tr>
<tr>
<td>Madagascar 2011</td>
<td>35.8</td>
</tr>
<tr>
<td>Ghana 2010</td>
<td>18.3</td>
</tr>
<tr>
<td>Mali 2011</td>
<td>16</td>
</tr>
<tr>
<td>Burundi 2011</td>
<td>14.5</td>
</tr>
<tr>
<td>Ethiopia 2013</td>
<td>13.3</td>
</tr>
<tr>
<td>Togo 2012</td>
<td>10.2</td>
</tr>
</tbody>
</table>


**Attention Given to Socio-economic Research**

The Agricultural Economics, Extension and Gender Research Directorate is responsible for socio-economic related research work. However, available evidence shows the relegation of social sciences (socio-economic) programs to the role of mere “Support Provider”. Expressions of concern over the rationalization of the programs during the BPR period by professionals fell on deaf ear. The process made the Institute oblivious to professional advice and expectations. The signal that the process conveyed was that research priorities were increasingly steered from above.

**Organizational structure**

The organizational setup of the different disciplines dealing with social science research has been always the target of
all the institutional reforms made within the research system. As indicated in Table 6, before the Business Process re-engineering (BPR), social science research was carried out by three independent departments. Following the PBR, there was an assumption that social sciences are part of the biophysical research programs and accordingly, it was decided to phase out the departments and assign social science researchers into the other four research programs (crops, livestock, soil and water and agricultural mechanization). However, it was realized during implementation phase that there was a need to have central coordination for social science research. Accordingly, two coordination units were established, namely Agricultural Economics, Extension and Farmers’ Linkage Coordination, and the gender coordination. These two coordination units did not have a well thought out and structured BPR document as they came into picture late during implementation. Following the Business Process Improvement (BPI), which came as an initiative following the change of EIAR management, the two coordination units were merged and became one directorate bearing the name Agricultural Economics, Extension and Gender Research Directorate.
Table 6: Evolution of the organizational setups dealing with social science research

<table>
<thead>
<tr>
<th>Phases - restructuring</th>
<th>Organizational setups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Departments dealing with social science</td>
</tr>
<tr>
<td>Pre-BPR</td>
<td>Three departments</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>After BPR</td>
<td>Two coordination units</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>After BPI</td>
<td>One directorate</td>
</tr>
</tbody>
</table>

**Research coverage**

The research themes covered included Characterization of agricultural production systems, technology adoption and impact studies, input and output marketing, production and natural resource economics, and agricultural policy analysis within the agricultural economics field. Moreover, technology demonstration, popularization, and research on extension methods and policy were the focus of the agricultural extension research component. Gender research mainstreamed in the stated research program also got attention.

Though, the public research played crucial role in social science research, many socio-economic studies are undertaken by CGIAR centers, Institutions of Higher Education, Development Agencies, Consultancy firms, bilateral and multilateral organizations. Graduate students in the fields of Agricultural Economics, Rural Development, Agricultural Extension, Agribusiness and Value Chain management produce hundreds of theses and dissertations every year. Similarly, consultancy firms and private
consultants undertake baseline and impact assessment studies.

One way of sustaining the socio-economic disciplines is a range of attempts to promote ‘inter-disciplinary’ research and alignment and participation of different research actors including CGIAR centers, Institutions of Higher Education, Development Agencies, Consultancy firms, bilateral and multilateral organizations.

**Research outputs**
In its fifty years of existence, the National Agricultural Research System (NARS) has developed/evaluated and released (recommended):

- nine hundred sixty improved varieties of crops;
- ninety six improved technologies for livestock management and breeds;
- forty five improved technologies for natural resources management;
- nine improved technologies for agricultural engineering (farm implements); and
- five improved technologies for forestry. Research on fruit crops seems to have received marginal attention (Table 7).
Many studies on research in Ethiopia have been focusing on input statistics related with funding, Infrastructure, Equipment, Human Resource etc. It might be more meaningful to focus on tangible outputs of research related with quality, quantity and appropriateness of technologies; and governance system such as priority setting, policy framework, environment for research, management competences, and M&E system.

Performance of Ethiopian researchers expressed in terms of technologies, management practices, publications, and patents is often considered to be low. Low research productivity is a relative term as international indicators under-represent African research output. The Scientific’s Citation Indices (Google Scholar, Research Gate, Scopus, and Thomson Scientific) fail to capture the publications that appear in national and regional journals. Quite often socio-economic studies focus on local issues and areas of
interest (engagement and contributions to national development needs) and most of the research activities rarely result in formal publications. Research articles are more often published in local scientific and professional journals and this makes international visibility and comparability very difficult.

Challenges Facing the Research System and the Way Forward

As indicated in the discussions above, the main challenges facing the research system in general and the social science research in particular can be summarized in to four key categories:

- shortage of highly qualified, competent and experienced staff;
- inadequate infrastructure and facilities;
- shortage of funding for research in general and socio economic research in particular; and
- research management and partnership issues linked with reforms.

Though shortage of highly qualified, competent and experienced staff is the main challenge to the whole research system, it is much pronounced with social science research where there is generally a small number of researchers and also higher level of staff turnover. This requires due attention to retain experienced researchers and also to increase the total number of social science researchers.
In terms of research funding, social sciences research programs bear the brunt of fund limitations (austerity budget), there is exclusive or near-exclusive reliance on Government funding for research and extension undertakings and also limited capacity of researchers and administrators in project preparation and implementation, resource mobilization, and partnership development and management along with limited international research partnerships and rampant practice of incorporation of individual researchers into an externally-driven project. These challenges have resulted in the social science research programs to be rather followers of events and leaders; limited focus in addressing current and emerging issues such as climate change, migration, resettlement, and commercial farming; and limited interactions and linkages with users and potential clients of research.

In terms of research management and organization, there is a considerable missing function of planning, coordination, and evaluation of research, i.e., strategic plan, roadmap for the programs, and performance evaluation system. This is also evident at national level where the NARS does not have a mechanism that provides an independent voice for its external stakeholders; lack of clear framework for developing collaboration with other institutions/organizations; and in general weak and uncoordinated components of the NARS.

In terms of research program reform, the trends indicate that research institutions are overburdened by constant reforms without fully implementing the previous ones and whenever there is a decision to “rationalize programs” (reform process) the best candidate are the social sciences
programs. In these processes, there is a tendency to lump different “areas of research” together under the guise of Cross Cutting Issues; namely, Agricultural Economics, Agricultural Extension, and Gender. The successive reforms revealed that it is impossible to completely “rationalize” the Social Science programs, thus the quest or figuring out how to live with them.

Addressing these challenges needs to be the priority for social science research within the national agricultural research system if the social science dimension of agricultural development is to be adequately addressed.
Introduction

The brief reflections presented below attempt to summarize the history of agricultural economics research in Ethiopia in general and in EIAR in particular, the evolution of a systems approach and subsequent development of the Agricultural Economics and Farming systems Research Department whose immense set of activities led to the reorientation of agricultural research to adopt a participatory approaches in the subsequent years. The reflections also try to highlight the eventual contributions of FSR approach to agricultural research in Ethiopia and the gaps and future directions.

The Keynote presenter covered the history of agricultural research in Ethiopia by giving a historical perspective. I wish the speaker made a thorough analysis of the topic under consideration with recommendation how to move agricultural economics research to a higher and the next level. The following topics were covered

- The genesis of Agricultural Research;
- Composition, program structure and content;
- Institutional arrangements of the current Ethiopian NARS-Decentralization and national level coordination;
- Resource allocation and utilization;
- International partnerships;
Organization of Ethiopian Agricultural Research service went through a series of changes. The institutional evolution of the research was:

- The college based research at Ambo, Jima, and Alemaya colleges of agriculture;
- Establishment of Institute of Agricultural Research (IAR);
- Reorganization of the research and establishment of Ethiopian Agricultural Research Organization (EARO) and Regional Agricultural Research Institutes (RARIs); and
- Renaming of EARO into Ethiopian Institute of Agricultural Research (EIAR)

The institutional changes have also resulted in changes in research setup mainly shifts from disciplinary to commodity/zonal systems participatory Farming systems approaches; decentralization of the research system where there are now federal and Regional research programs; and continuous redesigning of strategies and work plans. These changes were also linked with management Changes, where there were 12 Director Generals (DGs) in the life of the Institute (2 DGs 1966-1974, 4 DGs-1975 -1991; 6 DGS 1992-2016). This might be a positive sign of dynamism and adapting to change but it was also associated with considerable staff attrition, instability, lack of continuity and disjointed approach to common vision.

Over the years, the policy documents were always considered agricultural development and agricultural research as vital and necessary foundations to the country's
economy. Relative to other African NARS, only South Africa and Ethiopia have consistently allocated national budget for their respective NARS. In Ethiopia, during the successive three governments, only a small proportion of external assistance complimented the country’s NARS budget (less than 10 %), which allowed independent setting and defining of the research agenda. In addition, there have been unparalleled capacity building efforts in training highly qualified researchers. It is reported that EIAR only has 971 agricultural researchers in 2015, which is larger than the number of researchers SADC region of 15 countries excluding South Africa.

It is also important to mention that Ethiopian NARS has strong partnerships with CGIAR system during the last three decades. This has played important role in capacitating the research system through germplasm and human resource exchange. Among the major CGIAR centers are that have been closely working with EIAR are CIMMYT, ICARDA, ICRISAT, CIAT, and ILRI.

**Agricultural Economics Research in Ethiopia: born in the 1950s still going strong**

Given the symposium is on agricultural economics and extension research in Ethiopia, this discussant highlighted the historical genesis of the program in Ethiopia as follows

- As early as in 1953 the Land Grant system on which Alemaya College of Agriculture was designed had the Departments of: Agricultural Economics; Agricultural Engineering; Animal Sciences; Plant Sciences and Agricultural Education/Extension;
• In 1968 the then IAR established Agricultural Economics research program with FAO supported expert and an Ethiopian agricultural Economist. The focus of the research activities was on Farm Management studies – enterprise budgets, record keeping;
• In early 1970s country wide farm management studies with FAO were initiated;
• 1976 - Outreach demonstrations near Bako and Holetta Research Stations were undertaken to evaluate the performance of the technologies. However, the packages demonstrated gave no superior results and farmers were reluctant to accept them;
• In the late 1970s, multidisciplinary surveys and package testing activities were initiated. These were different from conventional surveys that focused on inputs and outputs and resource flows. The focus was on the identification of farmers’ problems as perceived by farmers problems, which accelerated the interactions of researchers with farmers and extension staff to understand the farming systems underway;
• Following the establishment of the Department of Agricultural Economics and Farming Systems Research (AE-FSR) in 1984. As early as in 1977, IAR started a participatory research approach which later appeared as the new approach—FSR as promoted by many donor supported projects in other Asian and African countries. Package testing and multidisciplinary surveys were modified to On Farm experiments and Diagnostic surveys—to adopt the FSR approach. In support of these initiatives, there were IDRC grant the first FSR project at Nazareth and Bako started in 1984 and World Bank supported FSR in Holetta, Hawassa, Adet and Jima research centers.
• Contributions of FSR in Ethiopia- “Research With Farmers: Lessons From Ethiopia” (Steven Franzel and Helen van Houten ed. 1992) summarized what the different multidisciplinary teams in the above listed research centers
accomplished in implementing the approach and the lessons learnt. In general, the AE-FSR research activities provided:

- plant breeders with info on characteristics of needed varieties
- Agronomists and other scientists with farmers crop management practices and farmers’ production problems
- Feedback on the performance and observed problems (as reported by farmers) of new technologies
- Formulate recommendation appropriate to small scale farmers
- Recommendations to policy makers (Farm gate price review, relaxing fixed coffee price)
- Capacity building on FSR methodology
- Input on socio economic perspectives and farmers' evaluation at the National Variety Release Committee
- Inputs for annual research proposal reviews on identified farmers’ felt needs
- Facilitated the national coordination of RELC
- Immense methodological contribution to institutionalize the approach that helped in the design of adaptive research and on farm testing by other research Departments

- In recent years, the agricultural economics and extension research program has been evolving covering diverse areas due relevance in improving the internal efficiency of the research system (problem identification and prioritization, and technology verification, adoption), and also the external efficiency of the research (input and output marketing systems, policy analysis, and natural resource economics).

**Research gaps and the way forward**

In order to clearly understand the main gaps in agricultural economics and extension research endeavors, it is important to raise the following questions

- Do NARS need Agricultural economics (Social Sciences) research portfolio? Are we relevant? If yes, have NARS
invested in human and financial resources to the social science research?

- What have been the value additions of social science research in the Ethiopian NARS?
- Are there new areas of research that are currently needed under the changing socioeconomic environment? and
- Are we globally competitive in producing the required global public good? The answers to these questions are left to the social scientists themselves and the EIAR managers at federal level and RARI managers at regional levels.

Given the on-going research demand and global trends, the possible future focus areas for social science research within the NARS are

- **Understanding Adoption and impact New Technologies**, which will be related with
  - identification of the main factors that influence farmers’ adoption of new technologies (crops, Livestock and NRM technologies);
  - identification of the implications for research and policy;
  - ex-ante analysis of potential impacts of technologies to have figures to justify investments in R&D; and
  - generation of relevant information to stakeholders to improve the political and economic environment for farmers’ adoption of new technologies;

- **Understanding of Market structure and the organization of agricultural businesses**, which need to deal with (i) linking Farmers to input and output Markets through Innovation systems/platforms, value Chain Analysis of priority commodities; evaluation and assessment of alternative market linkage initiatives; and exploring the possible application of ICT( mobile phones and SMS), (ii) understanding of consumption and food supply chains, and (iii) agricultural risk and uncertainty;
• **Environmental and resource economics**: this will help
  - to understand and quantify the economic effects of climate changes on food security;
  - understanding and quantifying effects and benefits of promoting climate smart agriculture; and
  - understand how the green economy help smallholder farmers carbon markets.

• Agricultural Policy research, which may cover
  - agribusiness and value chain development policies;
  - technology innovation and resource management policies;
  - seed Systems Policies;
  - gender, youth, and inclusivity policies; and
  - crop Livestock Interactions.

• **Development of a Gender Research Agenda**: This may aims to understand the dynamics of domestic agricultural production by investigating the roles that various household members play in household production and consumption according to their age and sex. Clearly, gender analysis is not concerned only with females or female-headed households, but rather with intra household structure and function. In the context of agricultural research several questions should be addressed by a gender research program
  - how do intra household structure and function affect the adoption of a particular technology T technology?
  - once adoption has occurred, what are its impacts on intra household structure and function? and
  - how can we predict the impact of a technology on household structure
Conclusions

In as much as we cherish the good foundations laid out to enhance the contributions of agricultural research through the integration of agricultural economics, extension and gender research in Ethiopia, we need to be cognizant of the necessary and sufficient conditions to be met for the challenging years ahead. Having agricultural economics research program is a necessary condition but having in place skilled and analytical teams with the necessary financial, infrastructure and management support is a sufficient condition that the EIAR management has to always keep in mind.
Discussant Reflection Note

Bezabih Emana
General Manager, HEDBEZ Business and Consultancy

Purpose

This paper provides overview of the historical focus of the Ethiopian Agricultural Research Institute (EIAR) and identifies gaps in Agricultural Economic and Extension Research. The paper emphasizes on the institutional objective of EIAR which shaped the research agenda of the institution. Finally, the paper provides suggestions on what should be done to strengthen socio-economic and extension research.

Historical focus of EIAR

The Ethiopian Institute of Agricultural Research (IAR) was established in 1966 to formulate national agricultural research policy, to carry out agricultural research on crops, livestock, natural resources, and related disciplines in various agro-ecological zones of the country, and to coordinate national agricultural research (Negarit Gazeta, 1966). This implies that socio-economics research was put on the forefront of the objectives of the IAR. As actions are derived from the organizational objectives, the lagging of the socio-economics and extension research started just at the start of the research system, although efforts were
made to conduct farming systems research with aim to conduct problem solving crop and livestock research.

IAR evolved into the Ethiopian Agricultural Organization (EARO) in 1997. EARO had organizational objectives to generate, develop and adapt agricultural technologies that focus on the needs of the overall agricultural development and its beneficiaries (farmers of different typologies). It added a new dimension of objective, i.e. popularizing agricultural research results (Federal Negarit Gazeta, 1997), which introduced agricultural extension component to the research system. The organization adopted commodity based research programs- but had no mechanism to ensure integration of the different research components. Here again, the role of agricultural economics research was overlooked.

**Social and Economic Research at EIAR**

As stated above, institutional objectives dictate organizational settings and resource allocation. For long, the socio-economics and research wing had not been put on high profile except its current directorate position, which paralleled crop, livestock and natural resources directorate. However, it still lags behind in terms of budget allocated to it which is 2.57% of budget in 2015/16 and staffing 6% of all staff (6% of all MSc and 8% of PhD of the institute). When divided to the research centers, the budget does not allow conducting research of sound national implications. Senior staff in the centers is few or none. Those available are also engaged much with administrative and management tasks than research as such.
The socio-economics, extension and gender directorate is considered as a cross-cutting or support service for commodity based research and engage more on popularization, adoption, impact studies, leaving little room for social and economic research in its broader sense.

**Gaps in EIAR’s Research Agenda**

The socio-economic and extension research in the Ethiopian Agricultural Research System seems to put aside policy, institutional and system based research to guide the agricultural and rural development policy and strategy of the country. Apparently, the following major research issues are not on the agenda of EIAR.

- Policy research;
- Poverty, food security and nutrition;
- System and institutions; for example, extension system, market, rural credit, and cooperatives;
- Commercialization and marketing, i.e., value addition and supporting industrial park?
- Environmental economics, i.e., responding to climate change and impacts; and
- Integrated and sustainable farming system.

**How to Fill the Gap?**

Filling the above gap requires attitudinal change at the research management and policy environment. A true attitudinal change towards Agricultural and Extension Research making starts when the following happen:

- Aiming to play proactive role in the Ethiopian agricultural development process;
• Focusing on social and economic research should be triggered by the law establishing EIAR;
• Understanding Social and Economics is not a commodity. It can work with a commodity but its role is far beyond it; and
• Understand that the social and economic research guides technical research and development policy and strategy

The change in attitude to push agricultural research agenda is triggered and necessitated by high level of achievement in commodity research but low level of economic growth which resulted in persistent food insecurity, malnutrition and poverty. The section below gives an overview of how successful Ethiopia has been in this regard.

**Success in yield but persistent in low growth**

It is apparent that yield of major crops in Ethiopia has increased overtime. The contribution of agricultural research to the yield increment is eminent. Success often measured as outputs (No. of agricultural technologies) and relative gain in yield. Although huge yield increase for maize and wheat has been report on research plots and model farmers, the national yield of major crops is still at relatively low level. More importantly, the average yield is much lower than that of other countries such as Egypt. Crop production in Egypt is highly intensive in terms of use of yield increasing inputs such as fertilizer, improved seed, chemicals and irrigation. Here the bottom line is that success of our research system is measured by the change in the livelihood and food security of farmers, which is not possible with the current scenario. For example, malnutrition is still high in Ethiopia with 44.4% stating,
28.7% underweight and 9.7% wasting of children under five in 2011 (Table 1).

Table 1: Nutritional status of under five children

<table>
<thead>
<tr>
<th>Category</th>
<th>Nutritional status (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stunting</td>
</tr>
<tr>
<td>Sex:</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>46.2</td>
</tr>
<tr>
<td>Female</td>
<td>42.5</td>
</tr>
<tr>
<td>Total</td>
<td>44.4</td>
</tr>
<tr>
<td>Residence:</td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>31.5</td>
</tr>
<tr>
<td>Rural</td>
<td>46.2</td>
</tr>
</tbody>
</table>

Source: EDHS(2011)

Why low yield or production in Ethiopia?
Production is a function of area and yield. Obviously the largest farming population in Ethiopia operates small and fragmented land size with an average of less than 1 ha. Some of these farmers may never produce surplus to feed the non-agricultural sector. Increased yield would enable such small farmers to feed their families or narrow their food gaps while it enables the larger farmers to produce surplus to feed the non-farming population and the processing sector.

Yield is also affected by many factors. Erratic rain which is becoming common in Ethiopia and beyond due to climate change is making the agricultural sector vulnerable. The yield potential of improved seeds, number of farmers using them, size of land allocated to improve seeds and the package of associated inputs such fertilizer, chemicals, irrigation water and farm management practices determine the yield level. The proportion of farmers using improved
varieties of crops stood at 22.9% where only 8.4 of the crop land is covered by improved crop varieties. Irrigation water is the least used yield increasing input where only 8.6% of the farmers used and only 1.3% of the crop land is irrigated. Fertilizer is the most commonly used yield increasing commercial input where about 80% of the farmers used it and about 47% of the crop land is covered with fertilizer. This implies that part of the fertilizer is used for local seeds and with incomplete package and hence resulting in below potential yield. Higher interest for use of fertilizer has been triggered by declining soil fertility and increasing soil degradation.

Considering wheat and maize varieties, corps for which improved varieties are largely available, the proportion of farmers using improved varieties and associated yield increasing inputs is extremely low. As shown in Table 2, about 27% and 1.7% of maize and wheat producers, respectively, used improved varieties and irrigation is not a common input for maize and wheat production. About 23% and 34% of the maize and wheat producers, respectively, used fertilizer in 2012/13. But the intensity of fertilizer use is below the recommended rate of 100 kg urea and 100 kg DAP.
Table 2: Farmers using agricultural technologies and land covered by the technologies (%)

<table>
<thead>
<tr>
<th></th>
<th>Improve d seed</th>
<th>Pesticide</th>
<th>Irrigation</th>
<th>All fertilizer</th>
<th>Average use (kg/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize Farmers</td>
<td>27.6</td>
<td>5.0</td>
<td>2.9</td>
<td>22.6</td>
<td></td>
</tr>
<tr>
<td>Maize Area covered</td>
<td>40.0</td>
<td>5.7</td>
<td>1.4</td>
<td>69.1</td>
<td>83.4</td>
</tr>
<tr>
<td>Wheat Farmers</td>
<td>1.7</td>
<td>36.6</td>
<td>0.9</td>
<td>33.8</td>
<td></td>
</tr>
<tr>
<td>Wheat Area covered</td>
<td>10.2</td>
<td>47.2</td>
<td>0.4</td>
<td>77.9</td>
<td>101</td>
</tr>
</tbody>
</table>

Source: CSA (2012-2013)

Essential question is why low adoption rate and what factors are associated with this problem. The problems may be associated with low popularization of the technologies, input supply constraint, input and out market imperfection, affordability, or poor extension system. Social science research in general and agricultural economics and extension research in particular should be responsible to look into these systemic and institutional issues to lead agricultural productivity and production growth and contribute to realization of the vision of the country to leave poverty and hunger behind it.

Consequences of Weak Socio-economics Research at EIAR

At least five major consequences of the strategic failure of the research system associated with low emphasis on social and economic research could be mentioned:
• **The national research system lost its position to lead agricultural development strategies of the country.** National research became follower of the agricultural development plan instead of leading it through knowledge and evidence based guide to national agricultural development planning;

• **Ethiopia largely depended on international knowledge market.** Agricultural extension system and institutional research of national interest and policy research are subjects of global bid. International agencies such as IFPRI and international consultancy services benefit much from knowledge generation to inform policy and strategy;

• **Establishment of other policy and social science research institutions** such as IDRI, IDR of Addis Ababa University and CGIAR in Ethiopia. The weaker the national research system in meeting the countries need for institutional, policy and systemic research the more demand is created by others to fill the gap;

• **Low resource attraction.** Existing data at EIAR shows that the socio-economics and extension research attracted 8.7% of external research fund. The national research budget allocations is also little to conduct research topic at national scale; and

• **Low job satisfaction by staff and high turnover:** The position of agricultural economics and extension in the research is one of the prime motivators for attraction for senior staff. Low emphasis and attention in the organizational structure, lack of priority in human resources development and pay incentives resulted in low staff satisfaction and hence high turnover.

**Recommendations**

Overhauling the position of social science in agricultural research system requires the following actions
• **Revisit the goals and roles:** This starts with reformulation of the goals and objectives of EIAR in such a way that enables the institute to play proactive and reactive roles. It should enable it conduct systemic and policy research to play proactive role in guiding agricultural development planning of the country. It must also enable it to respond to needs of the agricultural sector in supply of innovative and improved agricultural technologies and practices. This requires a move away from business as usual and thinking out of the box;

• **Reorganize the social research wind in an innovative and dynamic manner.** Its organization should not necessarily follow the structure of technical research which requires critical mass of the staff in each research center. It might be cost effective structure to have critical mass of senior staff at the headquarters and few experts and support staff at centers where activity planning and implementation is guided from the headquarters;

• **Provide adequate resources:** Resource is critical for realization of ambitions and plans. Social science research should be among the priority research programs in resources allocation (both human and finance); and

• **Employ incentive mechanisms to ensure quality output and outcome.** Financial and non-financial incentives remain to be critical to motivate staff, retain senior staff. But there should be mechanisms to ensure that the desired research outputs are delivered and outcomes are meeting the national needs.
Throughout its life time, the formal agricultural research of Ethiopia has undergone a number of structural as well as other changes to make research and technology transfer more relevant in terms of meeting farmers’ circumstances and needs. The different attempts and effects can be summarized as follows:

- Basic attitudinal changes happened as a result of introduction of the farming systems research approach. Farming systems research and the methods that followed attributed the problems technology dis adoption to the deficiency inherent the technologies rather than blaming the farmer for ignorance and reluctance. Then came participatory research that further attempted to improve research and technology adoption through participation of farmers in the research process beyond consultation and requesting/negotiating to provide resources. In this aspect, farmer participatory research which includes client oriented research, participatory variety selection, farmer research group, farmer field school etc. are part of the Ethiopian agricultural research and extension agenda. From among these, FRG is being intensively applied.

- The other reason which is frequently mentioned for limited adoption was the issue is lack of linkage among stakeholders which either resulted in duplication of efforts and or resulted in miscommunication/disconnection. On this aspect several linkage modalities were tried and most of
them have helped to progress. The initial linkage modalities were REALC then REAC to link research, extension and farmers. Recently the name changed to ADPLAC to emphasize the importance of other stakeholders involved in agricultural development the basic essence being linking research with stakeholder (mainly farmers). The problem is not yet over as reported by different experts.

- The establishment of research as extension department in the EIAR has served a number important issues including linkage, technology transfer, promotion of the farmer participatory research agenda and to a lesser extent conducting research in agricultural extension. However, the department is still limited to technology transfer activities with very minimum extension research. This is not different in the university set though they are better placed to do more. For example, research in extension methods and approaches that could have received better attention due to their relevance is still overlooked.

Some of the research areas which could be explored in this regard are:

1. What did we want to achieve in our technology dissemination work and how do we know we have achieved it or not?

- We feel this have happened as a routine work for the division. However, most of the dissemination activities done by the extension division are without having targets on how much farmers or develop agents in certain years should be reached. If we don’t have this it is difficult what we have achieved. Only proposing whatever number of the dissemination activities to be carried per year and reporting whatever is carried should not be enough because it doesn’t
tell what is achieved, why and why not. In addition, method is not developed how success in this area is measure. Therefore, if the division sets target for its dissemination activities and develops methodologies how this will be tracked it will be a useful research area for the institute.

2. Action research on option x context in technology dissemination

• Blanket technology recommendation most of the times entails blanket technology dissemination. However, the division can carry out extension research activities that will help to move from this. This can be done through action research which will help to describe the different contexts of the target population and work with them to refine the recommended technologies/options which suits if not for each farmer at least for each context. This is one useful research area that can be carried out by the extension division.

3. Knowledge, technology and practice gap assessment based

• Dissemination activities are carried out with little knowledge or understanding of what farmers, know or practice. We feel this is a big area which can help to design the dissemination activities and to some extent the research agenda.

4. What influences the extension workers effectiveness

• Generally for extension workers to be effective they need to be motivated, should have the capacity and infrastructure. However, information related to this is not well documented and not being used for the purpose for planning extension
activities by the ministry. In addition, little is known how much these influences technology adoption?

This again is one useful research area which has greater scalability.

5. Participatory action research in prototyping efficient and effective agriculture

- Most of the times what are being disseminated are technologies for crops or animals what the farmer is already producing. This is assuming that the farmer could only do what he or she is currently doing. However, the objective of any farmer is better income, better employment to the family and sustained growth. This can come not only from what he or she is doing but there could be better options similar or different to what is doing. Therefore, the extension division can help in assembling researchers to work on this kind of action research. There is good in this regard as reported by Vereijken, P. (1994).

For the division to create a motivated and capable research who will engage in a useful and scalable extension research work more should be done. These include;

- Extension research in EIAR had limited opportunity to build their capacity to carry out research. This has its own background. Almost all CGIAR centers do not have an extension department or work on extension. As a result, extension researchers in the institute had limited opportunity to learn from. Therefore, a tailored capacity building intervention in extension research to create a critical mass of researchers is required;
- Create national or international mentorship options for junior researchers;
- Initiate competitive funding opportunity for extension research;
- Think of a different promotion arrangement for extension researchers that recognizes their role in technology dissemination since most of this work doesn’t lead to publication; and
- Carry out a thorough review/reflect on the outcomes of the BPR and decide what can be done in the short and long term.
Discussant Reflection Note

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Preamble

This discussant note for the Ethiopian Institute of Agricultural Research (EIAR) 50th anniversary symposium on “Agricultural Economics and Extension Research and the Way-Forward” is structured on the basis of the guideline received from the organizers of the event. The organizers guide indicates that the discussants can focus on the following lead points but with a room to deviate as deemed necessary.

- Agricultural research achievement;
- Contribution of the achievements mainly in terms of improvement in production and productivity trends;
- Current and expected challenges for social science research;
- Expected roles and challenges given the national and international trends in the agricultural sector; and
- What needs to be improved and what it requires to strengthen the social science research so that it can deliver what is expected in the near future?

The author of this note recognized the lead paper presentation has fair coverage on research achievements and contribution of agricultural economics and extension research to the achievements. Hence it was not that much relevant to repeat the same in this discussant paper. On the other hand the lead paper as well as the subsequent discussants presentations has used the following
phraseologies without explanations of similarities or identicalness. These are

- Agricultural Research;
- Agricultural Economics Research;
- Agricultural Extension Research;
- Socio Economics Research; and
- Social Science Research

**Use of phraseologies**

The author of this discussant note expressed his doubt about the existence of agricultural extension research in the past 50 years of IAR/EIAR existence. Agricultural extension activities existence within EIAR is not for purpose of doing research but to support the institute’s effort in promoting technologies and knowledge generated from the crop and livestock research programs. If the institute plans to conduct agricultural extension research then its human resource situation as well as program designs calls for change.

Agricultural economics is just one area of study/ discipline within the social sciences. It is one of the study areas like those of economics, sociology, geography, anthropology, social works, etc. If EIAR is interested to dwell on social science research then it should also review its organizational, human resources, program and infrastructural arrangements. In the past the phraseology “Socio- Economics” has been used to the extent of becoming as lead indicator of the responsible research Department within IAR. The present Directorate name “Agricultural Economics, Extension, and Gender Research” may consider
a review to use the relatively broader but seemingly appropriate phrase of “Socio-economic”.

Living the discussions and changes to be considered for those working within EIAR, it is important to discuss about the role of agricultural economics and extension research in the past and in the near future given the present state of Ethiopia’s economy and the economic and institutional dynamics of the agriculture sector. This requires first a clear understanding of what agriculture is and the institutional arrangements within the agriculture sector. Secondly, institutional arrangements further need a focused discussion on the prevailing institutions and their coordinated and integrated work relationships and linkages.

**Agriculture and the Agriculture Sector**

It is not a rare incidence that many, even in academic institutes, equate agriculture with farming, and farming with crop farm, mostly annual cropping practices. Without having a clear understanding of what agriculture and the agriculture sector constitute, it is difficult to undertake agricultural economics and extension research. Agriculture has the following farm, natural resources, services, processing, marketing and trade components.

- Farm (crop, livestock hence the pastoral economy);
- Related Natural Resources (Land/soil, water, forest);
- Services;
  - Research,
  - Multiplication (the seed system)
  - Extension,
  - Education and training
• Agri-business (warehouse, transport, etc.);
• Agro-processing; and
• Agri-Marketing and Trade (input-output)

The above components of agriculture reflect the type of institutional arrangements the agriculture sector of any economy requires. Furthermore they are indicators of why the integrated development principle of Ethiopia's agriculture and rural development policy and strategy formulation has paramount importance. Here it is important to note agriculture often go together with food policy and strategy issues. Hence agriculture and food research shall be the center piece of any future socio-economic research review.

At present, Ethiopia has three core ministries that has primary responsibility for successful implementation of GTP II of the agriculture sector. These are MoANR, MoLF, MoPE. MoPE has a vital role to play by making the ESE and AISE, as well as the agricultural mechanization and machinery services tuned to the development targets of the MoANR, and MOLF. In addition to these, MoWIE, MoT, MoFA, MoI, MoE have expected significant role to play within the agriculture sector. Since the purpose of the symposium is not to deal with such issues, the author leaves to the readers inquire for the complications one may have to conduct social science research in the agriculture sector.

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1 MoANR=Ministry of Agriculture and Natural Resources; MoLF=Ministry of Livestock and Fisheries; MoPE=Ministry of Public Enterprises; ESE=Ethiopian Seed Enterprise; AISE=Agricultural Inputs Enterprise; MoWIE=Ministry of Water Irrigation and Electricity; MoT=Ministry of Trade; MoFA=Ministry of Federal Affairs; MoI=Ministry of Industry; and MoE=Ministry of Education.
Research Areas

It is in the context of the above scope of agriculture and institutional arrangements of the agriculture sector that the present EIAR has to review its expected role in the sector specifically in terms of its expected contribution to make GTP II of the agriculture sector four pillars targets be met. Overall, the Agricultural Economics, Extension and Gender Research Directorate shall address issues of resource allocation, optimal use and production, choices of inputs and outputs, maximization of income and wellbeing of all actors in agriculture and food sector. This Directorate has to make its research programs and projects investigate problems, explain causes and effects, and provide advices/knowledge for policy makers; decision makers with appropriate emphasis to producers, distributers, and consumers, and academicians.

Broadly, the Agricultural Economics, Extension and Gender Directorate research shall design problem solving or subject matter research activities encompassing the following areas.

- **Systems/approaches** (recall the era of Farming Systems Research - FSR, Client Oriented, FFS, Training and Visits - TVs, as well as the Agricultural Extension Systems Research Task Force of the late 1980s);
- **Management**-farm and non-farm entities (Farm management-the neglected area);
- **Consumption/ adoption** (input/technology- focus area of agricultural extension research);
- **Price** (input/output);
- **Marketing and Trade**;
• **Natural resources** and the environment (use and management);
• **Food and raw materials** for agro-processing industries;
• **Policy**: NR and environment, input, production, output, marketing/trade;
• **Institutions** (the dynamics of organizations, institutional arrangements and capabilities); and
• **Transformation**- agents (small commercial farmers), structural changes (farm sizes for modern and commercial agriculture) within agriculture and towards industrialization, rural/ASAL

At this juncture it may be important to raise two rhetorical questions. First, have the agricultural economics and extension research of the last 50 years addressed the aforementioned subjects or research areas? Second, were there institutional impediments or confusions to address the problems, subjects of agricultural economics and extension research? I leave the answer, whether yes or no, to readers, specifically those who may start reviewing the socio-economic research programs in institutions of the present Ethiopia National agricultural Research System (NARS).

Specifically in the areas of agricultural economics/extension and gender, or in the broader social science research, toady the several institutions have stake. These should be looked at during reform exercises of the EIAR institutional and program arrangements in the social science research undertaking. Some of the institutions are

• EIAR (Agricultural Economics, Extension, and Gender Research Directorate);
• Regional Agricultural Research Institutes of (RARIs);
• Ethiopian Development Research Institute (EDRI);
• Ethiopian Policy Research Institute (EPRI);
Higher Learning Institutions (HLIs) (more than twenty public universities faculties/colleges of agriculture, veterinary sciences and natural resources, as well as social science research in the private universities such as Unity and Saint Mary universities);
Consultative Group for International Agricultural Research (CGIAR) including ILRI, and IFPRI, CYMMIT;
Development partners such as the World Bank, and African Development Bank and UN Agencies, as well as Non-Government Organizations including bilateral such as USAID AKLDP and ELAP programs or DFID and the like;
Private Consultancy firms (increasingly become influential on policy, strategy and institutional formulation and reviews); and
CSOs (AESE, EAAP... there are about 15 professional associations/societies within the agriculture sector.

**The challenge and way forward**

The present and expected challenges of the agriculture research system at large and that of the social science research is *coordination and integration (within and outside NARS)*.

What needs to be improved and what it requires to strengthen can be seen from two perspectives: short-term and transitional.

In the short-term the following shall be addressed:

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2 CSOs=Civil Society Organizations; AESE=Agricultural Economics Society of Ethiopia; EAAP=Ethiopian Association of Agricultural Professionals.
• Enhance the Government (Federal and Regional) and public institutions use of Ethiopian professionals;
• Change the professionals attitude and competence to become independent and professional researchers; and
• Let the professionals in existing government and public institution do the research that is given to private national and international research and consultancy firms on competitive basis and be rewarded on the basis of the winning proposal (technical and financial) they submitted for.

The author of this note published a book in 2015 titled *Ethiopia’s Indigenous Policy and Growth: Agriculture, Pastoral and Rural Development*. Chapter 22 of this book listed and discussed more than thirty issues and challenges of Ethiopia’s agriculture and pastoral economy. The last section of this chapter deals with the roles and challenges of agricultural professionals and associations. In the book it is stated that there has been a drift between government and professionals and professional associations. The professionals and their associations’ role has been minimal and had they been adequately and appropriately engaged in the policies and strategies formulation as well as in the implementation of the same the agriculture sector growth and for that matter the growth of the overall economy would have been even higher than what has been registered thus far.

The issue of drift is still relevant and I have not noticed big change even now in terms of narrowing the drift between GoE and the professional and professional associations. Both of them have points to blame one another for the drift. In any case, however, the exclusion of one from the other in the economic/technological and socio-cultural policy and
strategy dialogue is a detracting factor for the countries need of rapid and accelerated growth and development. Unless both come to converge to work for one nation and its peoples, Ethiopia’s dependency on foreign bodies, including social scientists, may increase as well as the ground for their exploitation interventions be conducive.

It is time that both, government and professionals, have to make a move to work together for the interest of this country. One major detractor from strong bondage formation is politics and its place in the research system. Specifically in the research system (EIAR and RARIIs) the government should not expect all scientists/researchers for that matter support staff to become members of the ruling political party or identify them as proponents of other political parties or undertakings. The leaders in the research institutes could be those with established scientific credentials but with a leadership quality that bridge scientific knowledge and technology generation within national development policies and strategies. They should have a good grasp of the prevailing government political positions and the policies and strategies it advances. This, however, does not imply that they should be appointed because of their political allegiance and submissiveness. They should be placed by their reputation as researcher/ scientist and associated scientific merit. The rest of the scientific community within the research institutes has to dwell on the science and the research they are expected to work on and delivery. The scientists on their part should be restrained from politics and confusing politics with science. If they have a political interest they should leave it at the gate when they enter the research institutes and centers. Or be politicians in an open manner
and join any political party of their choice instead of destabilizing or denuding the research institutions capacity and capability to generate technology and knowledge.

In a nutshell, research institutes should be freed from the mix of politics with science in a destructive manner. Researcher should be a researcher and only the designated leaders of the research system become politicians to advance the interest of researchers and research institutes within the national agricultural development policies and strategies framing. Besides, political leaders at various levels of Federal and Regional governments must take agricultural research as a lead agenda in the transformation process. They have to take all measures to enable Ethiopia’s NARS constituents, specifically those contained within EIAR and RARIs to do the required types of research (subject matter, problem solving or disciplinary) in a manner that minimize the dependency on foreign institutions and consultants. In the social science research, National and Regional Directorates, Agencies and Institutes (DAIs) within NARS must be guided to compete with international and continental institutes for research and consultancy works to be done in Ethiopia, and eventually with enhanced capability and competence in Africa and elsewhere. For this to happen in the transitional period effort has to be made to establish a coordination organ.

In the transitional period, could be in the GTP II period, the social science research shall establish an umbrella **Agricultural Policy and Development Research Organ** (APDR). The word organ is used for decision makers to decide whether it should be an Institute, Center of Excellence, or Agency etc. This organ is primarily to
coordinate and lead the social science/ socio-economic research within EIAR and RARIs under the auspices of Ethiopia’s Agricultural Research Council (EARC). Other constituents of NARS such as HLIs have their own arrangements. This organ will take advantage of scale and size for the agriculture sector agriculture and food policy, development and transformation problems/subjects research with well-designed capacity component focused on capability and competence building. It is such organ that can support the Government of Ethiopia through research and studies that investigate the problems and constraints associated with the high value commodities (exportable) productivity, production and marketability; the economics of integrating the smallholder farmers, with the many jobless but educated youth with those of private investors; promoting the small commercial farmers by researching on the economics of agricultural finance, mechanization, and institutional advantages of cooperatives; and to research/study within agriculture sector structural changes, including the need for farm size changes and the implications of these for transformation expediting policy and strategy changes. For example, will Ethiopia’s agriculture sector get transformed and support the transformation to an industrial economy without addressing the fragmented farm lands consolidation to promote the emergence and expansion of medium and large scale modern and commercial farms originating from existing small commercial farms? Which social science research DAIs will address this question? Hope the EIAR review of the existing Agricultural Economics, Extension and Gender Research Directorate will provide an answer for such types of questions.
Symposium Conclusions and Recommendations

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Achievements
EIAR has made major contributions to Ethiopian agricultural research and development with several products developed. In this endeavor, the socioeconomics research program has made significant contributions to EIAR’s achievements and success in many areas even though the contributions of socioeconomics research are not separately documented and hence under-reported or often under-valued.

In general, the socioeconomics research seriously suffered from the frequent structural realignment over the years, which often resulted in reduced funding, staffing, and associated limited output in terms of publications and national visibility.

Currently socioeconomics is organized at level of Directorate (Agric Econ, Extension and Gender) both at EIAR and at the different RARIs and this change is a welcome development and shall be maintained to ensure
proper integration and meaningful contribution into EIAR research.

**Challenges for strengthening socioeconomics research**

Socioeconomics has been a primary victim of institutional structuring: all reorganization of the research system both at federal and regional level targeted the socioeconomics research programs that have resulted in instability of staff, research programs, and limited visibility. Specifically;

- Often the first one to be targeted for downsizing or “rationalizing” under the constant cycle of reform. Socioeconomics research was one without any Business Process reengineering document (BPR) as it was decided to abolish the independence of the program. In some RARIs, agricultural extensionists were told to move to regional bureaus of Agriculture. This was the main reasons for attrition of many of the well experienced senior research from the research system;

- Research is largely fragmented: the framing and design of socioeconomics research programs based on the needs and feasibility of biophysical research programs resulted in socioeconomics research that is research center based with limited relevant to policy making; and

- The stated framing the research design has also resulted in lack of flexibility to address emerging and pressing needs of the country;
However, socioeconomics remains key pillar of agricultural research for development as it has a paramount importance in addressing the following key issues

- Integration of socio-economics input in planning, designing, priority setting and evaluation of agricultural research programs;

- Identifying and resolving social, economic, institutional and policy constraints that limit technology adoption and farmer investments in crops, livestock and natural resource management;

- Developing innovations that address the special needs of target groups e.g. women, youth, elders, farmers in remote areas and emerging markets; and

- Enhancing national and local competence and capacity in agricultural policy analysis and associated timely interventions

**Recommendations**

**Expanding the Scope and coverage**
The traditional focus of socioeconomics research has been on major crops and small-scale farmers. This has led to the relative neglect or under-emphasis or lack of active research in several important areas including

- Mapping the economics of technology impact domains to help targeting;
- Pastoral areas and livelihood strategies and development pathways;
Mechanization for small-scale agriculture (including harvesting and post-harvest processing);
Small-scale irrigation;
Prices, trade and competitiveness;
Risk, resilience and adaptation to climate change;
Agricultural policy and agricultural transformation process – strategic research in agricultural development policy;
Gender research – youth, women, adoption gaps;
Environmental and resource economics—land, water, land fragmentation, tenure security, forestry, fishery, natural resource degradation; and
Need to focus on the entire food system—including nutrition and marketing of agricultural produce

**Strengthen the socioeconomics research**

a. **Design socioeconomics specific organizational setup within EIAR**

- It is important to recognize crucial value of socioeconomics research to the national agricultural research system. Thus, socioeconomics research program should not be the target of any reform;

- There is a need to establish a core team of agricultural economists at central level to provide disciplinary home, mentorship, peer review and exchange of ideas and link with the policy community. This will allow to undertake relevant and timely socioeconomic research activities that can serve as policy inputs; and

- Progressively increase staffing – critical mass – expertise in different fields
b. **Collaboration and synergy with organizations engaged in socioeconomics research**

- Identify a critical niche for engagement;
- Identify potential partners with critical mass in conducting research in the specific area;
- Develop working relationships with international institutions in the country like CGIAR centers, EDRI, and universities; and
- Initiate joint activities that will contribute progressively to building and enhancing EIAR critical mass in the specific area

c. **Proper design of alignment with other research programs**

- It is important to avoid disciplinary silos – work with other programs; and
- Design proper mechanisms of alignment and integration of socioeconomics research with other research programs in crops, livestock, natural resources and agricultural mechanization;

d. **Capacitate the socioeconomics research program**

- Proactive leadership at national level and links with international partners;
- Increase core funding – allocate growing operational funds to address the growing needs in the emerging areas;
- Progressively increase staffing – critical mass – expertise in different fields;
- Succession planning – recruitment and retention of staff;
- At least 1 senior PhD level researcher supported by 2 MSc and 3-5 BSc level socio-economists in each of the research centers;
• Utilize existing expertise in the country – domestic and diaspora;
• Provide periodic training in new methods/ tools such as GE, and RCT modeling;
• Provide incentives for researchers attracting funding such as financial, and career promotion, recognition; and
• Identify and establish partnerships with selected institutions with excellence in social science research;

**e. Enhance the visibility of the socioeconomics research program**

• Enhance the visibility through an annual platform and synthesis of what has been achieved and the main products from socioeconomics research;
• From documenting data and descriptive analysis to documenting lessons, take away messages and policy implications
• Create strong incentives; for example, financial rewards, career promotion, and recognition, to publish and referred journals with impact factors—mentorship, writing skills, and exposure
• Regular engagement through policy forums;
• Enhance regular publications of outputs in different formats such as research report, and policy briefs
• Periodic review of research achievements and future priorities of socioeconomics to enhance relevance, quality and accountability

**Overall conclusion**

• Stability in socioeconomics research is critical—funding, staffing;
• Strength of socioeconomics is good for EIAR research and development and shall not be seen as tradeoffs between
socioeconomics and biophysical research—both socioeconomics and agricultural research benefit from working together—this will enhance relevance, quality and impact of agricultural research;

- No alternative to multi-disciplinary research where socioeconomics is one of the core pillars of EIAR; and
- Reflection and learning needs to be a culture; for example, forum for dialogue on Ethiopian agriculture