Development of Conceptual Research Framework for Assessing Transformation within Watersheds Connected to Sustainable Resource Management Program in North Gondar (SRMP-NG)

and

Selection of Potential Candidates for PhD and MSc Studies

Organized by

Dr. Zerfu Hailu UoG, Forest Ecology	Team leader
Ato Adisu Gedif UoG, Anthropolgy,	Team member
Ato Asaminew Tassew BDU, Animal science	,,
Dr. Birru Yitaferu ARARI, Soil Science	,,
Dr. Dessalegn Mengesha UoG, Animal health	,,
Dr. Getachew Alemayehu BDU, Crop Science	,,
Dr. Michael Hauser BOKU, Ecology	,,
Dr. Tadesse Amsalu BDU, Land Administration	,,
Dr. Teshome Tessema ARARI, Forestry	,,
Ato Zenebe G/Medhin UoG, Crop Science	,,

August/2011, Bahir Dar

1 Introduction

1.1 Background

Ethiopia is one of the poorest countries in the world. It is situated in the Horn of Africa and accommodates about 85 million people on around 1.123 million square kilometre surface area. The annual growth rate of the population is about 3%. Agriculture is the mainstay of its economy, and it contributes about 56% of the country's Gross-Domestic Product (GDP) and employs more than 84% of the labour force. The production system is smallholder dominated agriculture practiced under rain fed condition. Agriculture is traditional and characterized by subsistence mixed farming with crop and livestock husbandry. Most of the rural areas undergo rapid change, and in most cases changes are driven by natural resource quality decline, varying weather conditions and rural-to-urban migration that is done in the anticipation of better income in towns and cities. There are also opportunities for positive social, economic and technical transformation that gradually improves lives and livelihoods of farmers. Against this background, agricultural development receives special attention by the Ethiopian Government and the current government development policy is spinning around agriculture led industrialization.

In the Amhara region, Ethiopia, there is high potential for wide spread social, economic and technical transformation that gradually improves lives and livelihoods of farmers. These include technical improvements in agricultural and natural resource management, the realisation of new income opportunities, and thus the transformation from rural worlds with farmers living in poverty and social injustice to a rural society experiencing equality and prosperity. The realisation of this potential is certainly challenging and requires public and private actors to join forces with farmers and rural communities.

In the Amhara Region, agriculture takes place mostly on small-scale farms with less than one ha. These farms are extremely diverse, and one farm usually incorporates a variety of agricultural practices. Farmers combine crop and livestock production, farm forestry as well as homestead horticulture and provide ecosystem services such as soil and water conservation measures. Unfortunately development blueprints have not worked in the past. Most of the livelihood opportunities as well as the realisation of the potential for wide spread social, economic and technical transformation cannot be addressed by using a disciplinary approach. Given the high variability of agro-ecological zones, risks, and resource constraints that rural households face, there is a need for research and development interventions that take into account household assets and the great diversity of conditions they are facing. This calls for multidisciplinary and multi-stakeholder partnerships that help understanding diversified farmers' priority constraints in the areas of livestock, crop, natural resource, socio-economic, so as to contribute and impact to the broader goals of sustainable resource use, food security and competitiveness of farming enterprises.

1.2 Watersheds

The selected three micro-watersheds are among the SRMP-NG operating watersheds in North Gondar Administrative zone. They are named *Wujraba*, *Godinge*, and *Mezega* which are found in Chilga, Dabat, and Debark woreda respectively. The total area of the watershed is 560 ha, 330 ha and 316 ha for Wujiraba, Godinge and Mezega respectively.

The watersheds are agro-ecologically distinct. It ranges from tepid moist (*Weyna dega*) in Wujraba, cool moist (*Dega*) in Godinge, cold to very cold moist (*Dega to Wurch*) in Mezega. The watersheds are also distinct in rainfall, potential evapotranspiration and temperature. Maximum annual average temperature is 23.9^{o}c, 18.8^{o}c, and 19.9^{o}c for Wujraba, Godinge and Mezega respectively. The annual rainfall is 1,300 mm, 1,200 mm, and 1,450 mm at Wujraba, Godinge and Mezega respectively. The topography of the watersheds is generally rugged mountains and undulating hills on the upper part of the watersheds.

Various indigenous tree and shrub species are found in patches around villages, churches, and hilly slope areas. Eucalyptus camaldulensis and Eucalyptus globules are also common species planted around homes and sometimes along farm boundaries. Springs are the main sources for human and livestock consumption. According to the farmers, river flows and spring water are decreasing year after year due to degradation of recharge areas and variability in rainfall.

From the existing land use data it can be said that both at Wujraba and Godinge crop land shares the largest area (70 %) followed by grazing land (20 %), whereas at Mezega, crop land takes about 38 % followed by 33 % and 24 % of grazing and forest land, respectively. The current land use in all the three watersheds is strongly constrained by competition and conflict of uses, land degradation problems, and fragmented holdings due to increased population. Land degradation is a common phenomenon in all sites even though there is no quantitative data and information about the extent of degradation. Farmers are aware of the degradation problem but they are slow to take remedial action particularly on communal lands.

Total human population of the three micro-watersheds is reported to be 1,575 for Wujiraba, 780 for Godinge and 2,419 for Mezega. In all the three watersheds, the numbers of male headed households are much higher than female headed households. Average family size is found to be in the range of 4-5.7 per household. Collectively, 45% of the population is below the age of 15, and about 3.4 % is more than the age of 64. The settlement patterns in the three micro-watersheds are found to be clustered and the type of housing is shifting from thatch grass roofing to corrugated iron.

Livestock population, in Tropical Livestock Unit, is found to be 1,137 at Wujibara, 968 at Godinge, and 1,442 at Mezega. Diversity of livestock species is witnessed in all the study sites which is an indication of the different functions played by each livestock species. Such diversity is as well intended to minimize the risk of vulnerability of the farming community which might be resulted from numerous natural calamities.

Social services such as schools, access road to villages, market places, health centres, rural saving and credit cooperatives, farmers training centres, different cooperatives, associations, kebele administrative offices, flour mills, security and community policing offices are found either inside the watersheds or near by the watersheds in the three watershed areas.

1.3 Objectives

The main objective of the project is to strengthen the transformation competences of Gondar University, Bahir Dar University and ARARI in research and training. Such transformation competences demand institutional capacities that translate into new partnerships and learning alliances allowing higher education and research to become more effective development partner and community service providers. Based on this main objective, the project will realise four specific objectives.

1. Adapting existing and developing new methodologies for inter- and transdisciplinary research, training and outreach that facilitate institutional learning and rural transformation.

2. Develop the human and institutional capacity of Gondar University, Bahir Dar University and ARARI in education, research and outreach enabling them to become facilitators of intended transformation in rural areas.
3. Generating knowledge for understanding and facilitating institutional learning, rural transformation and change in the Amhara region.
4. Institutionalising self-reflective learning procedures and methodologies across disciplines, units within and beyond partner institutions for sustaining transdisciplinary academic partnerships.

2 Conceptual framework

2.1 General approach

Territorial approach is designed to have a research ground for the consortium. For this purpose, three micro-watersheds are selected, baseline survey conducted and information are documented. The selected three micro-watersheds are among the SRMP-NG operating watersheds in North Gondar Administrative zone. Establishing such a research area is believed to facilitate situations for farming system and social process study. The consortium will establish a group PhD and MSc students selected from partner institutions based on competence. The students will conduct their research in the framework developed by the consortium. Synergy between research activities and researchers will be seriously followed.

2.2 Systems research

Education, research and extension are the three pillars of development. Healthy functionality of each and healthy functionality at the interface between them is highly essential. In TRANSACT, from system perspective, the linkage between research, extension and education will be emphasized to allow them to function together and to contribute for ongoing rural transformations. A systematic feedback mechanism will be operated for institutional learning and improvement to enable partner institutions to take proactive measures on how to lead rural transformation in desired directions. Furthermore, opportunities will be exploited for smallholder farmers, researchers, practitioners and academicians to conduct research together, to come up with appropriate methodologies and technologies that satisfy all stakeholders and make enhancement on ongoing rural transformations. A special attention will be paid on farming system research.

2.3 Process research

There are processes taking place in the rural settings that contribute to rural transformations. These processes can be in socio-economic sphere, political sphere, natural and environmental sphere, in sphere of collective and private decision making. The effect could be negative or positive. It is essential to look thoroughly the process how they are taking place, how they are constructed, where they are heading, and what will be their effect. This will help to put constructive and proactive measures for enhancement of rural transformation in desired directions. In this regard, household decision making processes and processes of collective decision making will be the central part of the research activities.

3 Research lines

3.1 Core themes

3.1.1 Sustainable intensification

1. The existing complex and traditional farming system is characterized with land shortage, population pressure, landlessness, loss of soil fertility, huge livestock population but with very low productivity, and Eucalyptus dominated forest production. With all these situations the capacity of current farming systems to mitigate existing and pressing problems seems weak. This calls for critical assessment of the farming system and design possible solution from short and long term perspectives. How? (PhD)

2. The demand for improved agricultural technologies is increasing not only because of increased demand but also due to the increased constraints of the farming system, increased livelihood challenges, and climate change problems. As a result there are several agricultural constraints that demand an improved agricultural technologies and simple technology supply systems. In this regard the main concern is the capacity of the research system to generate relevant and adequate technologies (both integrated and commodity specific) that responds to the farming system problems. However, for those available technologies, the absence of proper technology delivery or supply system which also enables to conduct quality control should be considered as one of the research thematic areas by involving many stakeholders such as the extension provider, research, private agricultural enterprises, farmers' cooperatives, technology manufacturers, and traders, etc. How? (PhD)

3. According to the group discussions, it is realized that lack of awareness and low adoption of technologies by farmers as well as their dependency on the extension service are the major constraints for inefficient dissemination of improved technologies and its long term adoption. On the other hand, the extension service gave much focus on input service delivery than on education, demonstration, experience sharing and participatory learning and advisory services about improved agricultural technologies and rural transformation. FTC is the institution designed for the purpose of providing training to farmers about technologies and rural development. But it has not yet well organized and functioning as it was expected. The system is expected to examine common approaches that enable to integrate different stakeholders such as farmers, extension workers, researcher, university student, and NGOs as well as interdisciplinary and trans-disciplinary aspects in order to enhance the technology adoption and diffusion. Not only the knowledge aspect but also the sociological aspect would also have an important contribution for the adoption of technologies. (MSc)

4. Historically, crop production was the main source of income to rural households augmented by livestock production. Through time, livestock became an asset that can be liquidated in time of household difficulties such as crop failure or other accidental causes. But, as per the information obtained from the farmers forest product is replacing the status of livestock to be an asset that can be easily marketed. However, still the farmers are not linked with markets to deliver their product to the market and to make the optimum profit out of their effort. There are too many middle men that collect forest products such eucalyptus poles and bring it to the market. What should be done to organize farmers to enable them to market their product direct in the market? (MSc)

5. Climate change impacts have the potential to undermine and even undo progress made in improving socio-economic well-beings. The negative impacts associated with climate change are also compounded by many factors, including widespread poverty, los of biodiversity, shortage of water, new human and livestock diseases prevalence, and high population density, which are estimated to double the demand for food, water, and livestock forage. The

discussion made with farmers, in Mezega micro-watershed, revealed that they have the feeling in temperature rise and change of cropping patterns. In their area, it was not possible to grow peas and fava beans due to low temperature. These crops are now performing very well in very high altitude areas. Taking this case as an indicator are there more detail adaptive measures that the farmers make in their farming system? How they can be supported to make further adaptation and mitigation? (PhD)

6. A serious shortage of water was brought in the discussion conducted with watershed development committee of Godingie. The area is one of the highland areas that receive high annual amount of rainfall. In other areas, technologies such as water harvesting and drip irrigation are tried and are largely failed although there are few farmers practicing and still using the technologies. Hydrolocal studies on how to enhance the water supply for irrigation livestock and domestic use. How? (PhD)

3.1.2 Livelihood diversification

1. Eviction of farmers from their holdings and redistribution of land to the landless is abolished by the regional land law. The new generation in the rural highland areas cannot get new unoccupied land because almost every piece of land is occupied by a lawful holder. During group discussion a farmer explained that by the time the land was allocated to him, he had only two household members, himself and his wife. Now he lives on the same holding with eight household members. Hence, alternative livelihood means have to be developed. In the study watershed areas, more than half of the total households either they do not have land or do not engage in any off-farm and on-farm activities in the locality. Many of the landless and youths as well as some of the households who have land used to move to lowland agricultural investment areas to fill the shortage of seasonal labor in the time of crop harvest and weeding. Others are engaged in weaving, selling local beer, and charcoal making activities in their locality. In fact the problem is further aggravated with an increasing population. Is there any potential in the three micro watersheds to create alternative livelihood means? (PhD)

2. Distribution of modern bee hives is made at a greater scale in all rural areas. Significant production increase is reported from the use of the modern ones compared with the traditional. However, in wujraba watershed the farmers seriously complained that pests are destroying the honey comb and chase the bee colonies from the hives. Why this happened? Is it because of the technology or management? Furthermore, the rate of expansion is very limited. Why? (MSc)

3.1.3 Multi-stakeholder innovation

1. The Government has a plan to upgrade diploma holder DAs to a degree level and to make all DAs degree holders at kebele level with increased number in each kebele. Increasing the number of DAs is intended due to increase of volume of work and big size of the households in each kebele. However, there are arguments that advocate for reduction of the number of DAs and putting resources to train farmers and use them as extension agents. Which way is more appropriate for speedy rural transformation? Who can be an appropriate extension agent in terms of education and knowledge of the farming system, reaching farmers easily, convincing power, etc? How to create motivated and stable extension worker at local level?

Furthermore, the case of availability of the DAs seems very serious. Due to these serious gaps all the woredas entered to hire contractual DAs that didn't pass through the formal diploma level of education but finalized 10th grade schooling. Instability of staff in the extension system at wored and kebele levels is at its critical stage. As explained by discussants at woreda level, the gap persists in the future unless staff instability causes are thoroughly investigated and solutions are sought. (PhD)

2. The general response received from experts indicated that university trainings are by far theoretical with little or no relevance to practical problems found in the farming system. With this situation, skills and knowledge of experts working in the extension system needs a very serious attention to be examined. Numerous complaints have been heard from a number of graduates on the teaching methodology of local universities. In addition in some of the disciplines the curriculum is not very much aligned with the existing situations. How is that possible to offer practical training with very limited costs? (MSc)

3. In the current extension system, there are many committees, associations, cooperative and different farmers' groups operating to give service for the same dwellers of the kebele. The extension system is heavily organized at kebele level which is beyond the capacity of the kebele leaders and development agents. There is a lot of burden both for the kebele administration and DAs to handle the day to day extension activities and organizing and coordinating several committees. The committee members do not share responsibility equally. In addition, there is an extended information flow from SMS down to DA, development group, small groups and then to individual farmers. This likely will result in distortion of information and lack of responsibility among the team members. During group discussion it became apparent that integration is not established. How to design a roadmap to realize integration and to make all endeavors effective and productive? (MsC)

3.2 Cross-cutting themes

3.2.1 *Demographic and environmental dynamics*

1. The current situation in the micro-watersheds is the result of many interactions occurred between man and nature at least for many decades. During the baseline survey elder farmers informed the team that land degradation happens in their area due to deforestation, overgrazing and inappropriate farming practices. The reason behind is explaining to be human and livestock population growth. Collectively, 45% of the population is below the age of 15, which indicate the potential for fast human population growth in near future. The livestock sector is operated with fodder deficit. Taking into account the past and present situation, trend analysis has to be worked out to predict the future and to make corrective measures to enhance rural transformation. (PhD)

3.2.2 Gender relations

1. The numbers of male headed households are much higher than female headed households in the three micro watersheds, which is about 78% at Wujraba, and about 83% at Godinge and Mezega. This may be an indication of stable marriage system. However, the number of female headed households is still big for special consideration. This may be taken as indicator on the need to design a unique extension approach to put in place an affirmative action to support female headed households. Group discussions have revealed that husband and wife have equal right in decision making on their household assets in the

whole study area. As explained by discussants, this happened due to policies, legal frameworks and affirmative action implemented by the government. The regional land law obliges that wives have equal rights like that of husbands. Due to this affirmative action the land that a household possess is registered in the name of the husband and wife. There are claims that say divorce in rural areas has declined after implementation of the new land administration system. Financial institutions cannot lend money without the consent of both husband and wife. However, more work remain to be done to empower women at household level and in the whole societal areas of development. How? (MSc)

3.2.3 Participation

1. The government claims that farmers' participation in any rural development is indispensable. The discussion conducted with the three watershed development committees does not reflect the claim of the government. Some of the committee members complained that decisions are made without their knowledge. What should be the road map to enhance participation of farmers in watershed development and in other developmental needs? (MSc)

2. A number of complaints were surfaced out when discussed with agriculture staffs, wereda and kebele levels, pointing that farmer are reluctant in accepting technologies. This is of course a paradox by itself where a farmer living under a very deep poverty level is not willing to improve his and his family live through the use of technologies. Such situations have to be studied whether it is because of the farmers' socio-cultural behaviour or is it associated with other internal and external factors related to each of the technologies provided. (MSc)

3.2.4 Institutions and polices

1. The concept of integrated watershed management is theoretically understood that it creates integration and synergy among different natural and human systems. It also involves participatory planning, implementation and monitoring and evaluation at a manageable unit of operation or planning from both biophysical and human dimensions. However, the watershed approach in the study watersheds was not practically feasible due to many factors. It needs highly skilled experts in order to apply the concept and integration of systems. The watershed committees at kebele and watershed levels have less power and lose their responsibility of coordination of the watershed activities. Their level of understanding is also low to apply the whole concept of integrated watershed management. On the other hand integrated watershed development is a development direction (development model, tool) selected and put in practice by the government for rural areas. To facilitate implementation, Community Based Watershed Development Guideline has been prepared by the Ministry of Agriculture in collaboration with development partners in 2005. Since then, countless and repeated trainings have been prepared and offered by responsible government institutions and others engaged in rural development. However, the intended change is not realized. Why? (PhD)

2. In the rural setting, there are communal areas set aside for communal use. These areas are mainly meant for fuel/construction wood production and grazing of livestock. However, as practice shows these communal areas are seriously misused and area damaged due to competition on communal land resources for different uses such as encroaching for crop production, grazing and hay production, and tree production lead to poor management. Deforestation and biodiversity losses are also serious problems. There are no properly

structured community arrangements and bylaws to make the land productive and bring about sustainable management. Why? What should be done? (MSc)

3. Though it is a new development, land administration started in the region in the year 2000. The system is expected to create sense of ownership by the users in order to enable them to invest their labor, time and money to protect the land from degradation ultimately to make it productive. As per the discussion, it seems far from this assertion. Why? What should be done? Rental land transaction is believed to operate in the rural areas. How? (PhD)

4 Organisation

Selected PhD and MSc students will attend the course work in Vienna at the University of Natural Resources and Life Sciences, UNI-BOKU or in other universities. The duration of the studies will be 36 months and 24 months for PhD and MSc respectively. Centre for Development Research (CDR) will facilitate to find advisors for the candidates. The scholarship will be covered from the APPEAR program component two. The three Ethiopian partner institutions will support the students while they are conducting the fieldwork.

Annex 1. Official announcement and thematic areas

The project on "Strengthening Rural Transformation Competences of Higher Education and Research Institutions in the Amhara Region, Ethiopia (TRANSACT)" requires competent academic staff and/or researchers to train at PhD and MSc/MA levels.

The TRANSACT project is a joint consortium among the University of Gonder, BahirDar University, Amhara Region Agricultural Research Institute and Boku University of Austria.

Eligibility Criteria for the PhD and MSc/MA Researchers in the TRANSACT Project

No.	PhD	MSc/MA
1	Age maximum 45 yrs	Age maximum 35 yrs
2	Experience minimum 3 yrs after the 2nd degree in research/ teaching	Experience minimum 2 yrs after the 1st degree in research/ teaching
3	Authenticated CV and copies of academic credentials	Authenticated CV and copies of academic credentials
4	A candidate apply only for one thematic area announced	A candidate apply only for one thematic area annonced
5	Able to submit thesis/dissertation synopsis (not more than 5 pages)	Able to submit thesis/dissertation synopsis (not more than 2 pages)
6	Deadline (18 August 2011 at 2:00 pm)	Deadline (18 August 2011 at 2:00 pm)
7	Have relevant educational background to the specific area of research	Have relevant educational background to the specific area of research
8	Women applicants are encouraged	Women applicants are encouraged

Research work will be in the North Gonder of Amhara Region and the enrolment will be at Boku University, Austria.

Applications are to be submitted at;

1. University of Gonder (TRANSACT Coordination Office at The president Building Room No. 27 or 24) or through e-mail: zenebegebremedhin@yahoo.com
2. Bahir Dar University (TRANSACT Coordination Office at College of Agriculture Room No. xxx) or getachew.64@gmail.com
3. Amhara Region Agricultural Research Institute (TRANSACT Coordination Office Room No. 404) or at e-mail: birru_yitaferu2002@yahoo.com

Announced research thematic areas for the PhD and MSc/MA studies in the TRANSACT Project

No.	Thematic description	Position
1	The existing complex and traditional farming system is characterized with land shortage, population pressure, landlessness, loss of soil fertility, huge livestock population but with very low productivity, and Eucalyptus dominated forest production. With all these situations the capacity of current farming systems to mitigate existing and pressing problems seems weak. This calls for critical assessment of the farming system and design possible solution from short and long term perspectives. How?	(PhD)
2	The demand for improved agricultural technologies is increasing not only because of increased demand but also due to the increased constraints of the farming system, increased livelihood challenges, and climate change problems. As a result	(PhD)

	there are several agricultural constraints that demand an improved agricultural technologies and simple technology supply systems. In this regard the main concern is the capacity of the research system to generate relevant and adequate technologies (both integrated and commodity specific) that responds to the farming system problems. However, for those available technologies, the absence of proper technology delivery or supply system which also enables to conduct quality control should be considered as one of the research thematic areas by involving many stakeholders such as the extension provider, research, private agricultural enterprises, farmers' cooperatives, technology manufacturers, and traders, etc. How?	
3	According to the group discussions, it is realized that lack of awareness and low adoption of technologies by farmers as well as their dependency on the extension service are the major constraints for inefficient dissemination of improved technologies and its long term adoption. On the other hand, the extension service gave much focus on input service delivery than on education, demonstration, experience sharing and participatory learning and advisory services about improved agricultural technologies and rural transformation. FTC is the institution designed for the purpose of providing training to farmers about technologies and rural development. But it has not yet well organized and functioning as it was expected. The system is expected to examine common approaches that enable to integrate different stakeholders such as farmers, extension workers, researcher, university student, and NGOs as well as interdisciplinary and trans-disciplinary aspects in order to enhance the technology adoption and diffusion. Not only the knowledge aspect but also the sociological aspect would also have an important contribution for the adoption of technologies.	(MSc)
4	Historically, crop production was the main source of income to rural households augmented by livestock production. Through time, livestock became an asset that can be liquidated in time of household difficulties such as crop failure or other accidental causes. But, as per the information obtained from the farmers forest product is replacing the status of livestock to be an asset that can be easily marketed. However, still the farmers are not linked with markets to deliver their product to the market and to make the optimum profit out of their effort. There are too many middle men that collect forest products such eucalyptus poles and bring it to the market. What should be done to organize farmers to enable them to market their product direct in the market?	(MSc)
5	Climate change impacts have the potential to undermine and even undo progress made in improving socio-economic well-beings. The negative impacts associated with climate change are also compounded by many factors, including widespread poverty, los of biodiversity, shortage of water, new human and livestock diseases prevalence, and high population density, which are estimated to double the demand for food, water, and livestock forage. The discussion made with farmers, in Mezega micro-watershed, revealed that they have the feeling in temperature rise and change of cropping patterns. In their area, it was not possible to grow peas and fava beans due to low temperature. These crops are now performing very well in very high altitude areas. Taking this case as an indicator are there more detail adaptive measures that the farmers make in their farming system? How they can be supported to make further adaptation and mitigation?	(PhD)
6	A serious shortage of water was brought in the discussion conducted with watershed development committee of Godingie. The area is one of the highland areas that receive high annual amount of rainfall. In other areas, technologies such as water harvesting and drip irrigation are tried and are largely failed although there are few farmers practicing and still using the technologies. Hydrolocal studies on how to enhance the water supply for irrigation livestock and domestic use. How?	(PhD)

7	Eviction of farmers from their holdings and redistribution of land to the landless is abolished by the regional land law. The new generation in the rural highland areas cannot get new unoccupied land because almost every piece of land is occupied by a lawful holder. During group discussion a farmer explained that by the time the land was allocated to him, he had only two household members, himself and his wife. Now he lives on the same holding with eight household members. Hence, alternative livelihood means have to be developed. In the study watershed areas, more than half of the total households either they do not have land or do not engage in any off-farm and on-farm activities in the locality. Many of the landless and youths as well as some of the households who have land used to move to lowland agricultural investment areas to fill the shortage of seasonal labor in the time of crop harvest and weeding. Others are engaged in weaving, selling local beer, and charcoal making activities in their locality. In fact the problem is further aggravated with an increasing population. Is there any potential in the three micro watersheds to create alternative livelihood means?	(PhD)
8	Distribution of modern bee hives is made at a greater scale in all rural areas. Significant production increase is reported from the use of the modern ones compared with the traditional. However, in wujraba watershed the farmers seriously complained that pests are destroying the honey comb and chase the bee colonies from the hives. Why this happened? Is it because of the technology or management? Furthermore, the rate of expansion is very limited. Why?	(MSc)
9	The Government has a plan to upgrade diploma holder DAs to a degree level and to make all DAs degree holders at kebele level with increased number in each kebele. Increasing the number of DAs is intended due to increase of volume of work and big size of the households in each kebele. However, there are arguments that advocate for reduction of the number of DAs and putting resources to train farmers and use them as extension agents. Which way is more appropriate for speedy rural transformation? Who can be an appropriate extension agent in terms of education and knowledge of the farming system, reaching farmers easily, convincing power, etc? How to create motivated and stable extension worker at local level? Furthermore, the case of availability of the DAs seems very serious. Due to these serious gaps all the woredas entered to hire contractual DAs that didn't pass through the formal diploma level of education but finalized 10^{th} grade schooling. Instability of staff in the extension system at wored and kebele levels is at its critical stage. As explained by discussants at woreda level, the gap persists in the future unless staff instability causes are thoroughly investigated and solutions are sought.	(PhD)
10	The general response received from experts indicated that university trainings are by far theoretical with little or no relevance to practical problems found in the farming system. With this situation, skills and knowledge of experts working in the extension system needs a very serious attention to be examined. Numerous complaints have been heard from a number of graduates on the teaching methodology of local universities. In addition in some of the disciplines the curriculum is not very much aligned with the existing situations. How is that possible to offer practical training with very limited costs?	(MSc)
11	In the current extension system, there are many committees, associations, cooperative and different farmers' groups operating to give service for the same dwellers of the kebele. The extension system is heavily organized at kebele level which is beyond the capacity of the kebele leaders and development agents. There is a lot of burden both for the kebele administration and DAs to handle the day to day extension activities and organizing and coordinating several committees. The committee members do not share responsibility equally. In addition, there is an extended information flow from SMS down to DA,	(MsC)

	development group, small groups and then to individual farmers. This likely will result in distortion of information and lack of responsibility among the team members. During group discussion it became apparent that integration is not established. How to design a roadmap to realize integration and to make all endeavors effective and productive?	
12	The current situation in the micro-watersheds is the result of many interactions occurred between man and nature at least for many decades. During the baseline survey elder farmers informed the team that land degradation happens in their area due to deforestation, overgrazing and inappropriate farming practices. The reason behind is explaining to be human and livestock population growth. Collectively, 45% of the population is below the age of 15, which indicate the potential for fast human population growth in near future. The livestock sector is operated with fodder deficit. Taking into account the past and present situation, trend analysis has to be worked out to predict the future and to make corrective measures to enhance rural transformation.	(PhD)
12	The numbers of male headed households are much higher than female headed households in the three micro watersheds, which is about 78% at Wujraba, and about 83% at Godinge and Mezega. This may be an indication of stable marriage system. However, the number of female headed households is still big for special consideration. This may be taken as indicator on the need to design a unique extension approach to put in place an affirmative action to support female headed households. Group discussions have revealed that husband and wife have equal right in decision making on their household assets in the whole study area. As explained by discussants, this happened due to policies, legal frameworks and affirmative action implemented by the government. The regional land law obliges that wives have equal rights like that of husbands. Due to this affirmative action the land that a household possess is registered in the name of the husband and wife. There are claims that say divorce in rural areas has declined after implementation of the new land administration system. Financial institutions cannot lend money without the consent of both husband and wife. However, more work remain to be done to empower women at household level and in the whole societal areas of development. How?	(MSc)
13	The government claims that farmers' participation in any rural development is indispensable. The discussion conducted with the three watershed development committees does not reflect the claim of the government. Some of the committee members complained that decisions are made without their knowledge. What should be the road map to enhance participation of farmers in watershed development and in other developmental needs?	(MSc)
14	A number of complaints were surfaced out when discussed with agriculture staffs, wereda and kebele levels, pointing that farmer are reluctant in accepting technologies. This is of course a paradox by itself where a farmer living under a very deep poverty level is not willing to improve his and his family live through the use of technologies. Such situations have to be studied whether it is because of the farmers' socio-cultural behaviour or is it associated with other internal and external factors related to each of the technologies provided.	(MSc)
15	The concept of integrated watershed management is theoretically understood that it creates integration and synergy among different natural and human systems. It also involves participatory planning, implementation and monitoring and evaluation at a manageable unit of operation or planning from both biophysical and human dimensions. However, the watershed approach in the study watersheds was not practically feasible due to many factors. It needs highly skilled experts in order to apply the concept and integration of systems. The watershed committees at kebele and watershed levels have less power and lose their responsibility of coordination of the watershed activities. Their level of	(PhD)

	understanding is also low to apply the whole concept of integrated watershed management. On the other hand integrated watershed development is a development direction (development model, tool) selected and put in practice by the government for rural areas. To facilitate implementation, Community Based Watershed Development Guideline has been prepared by the Ministry of Agriculture in collaboration with development partners in 2005. Since then, countless and repeated trainings have been prepared and offered by responsible government institutions and others engaged in rural development. However, the intended change is not realized. Why?	
16	In the rural setting, there are communal areas set aside for communal use. These areas are mainly meant for fuel/construction wood production and grazing of livestock. However, as practice shows these communal areas are seriously misused and area damaged due to competition on communal land resources for different uses such as encroaching for crop production, grazing and hay production, and tree production lead to poor management. Deforestation and biodiversity losses are also serious problems. There are no properly structured community arrangements and bylaws to make the land productive and bring about sustainable management. Why? What should be done?	(MSc)
17	Though it is a new development, land administration started in the region in the year 2000. The system is expected to create sense of ownership by the users in order to enable them to invest their labor, time and money to protect the land from degradation ultimately to make it productive. As per the discussion, it seems far from this assertion. Why? What should be done? Rental land transaction is believed to operate in the rural areas. How?	(PhD)

Annex 2. Minutes of Recruitment

19-23/2011, ARARI-Bahir Dar, Ethiopia

Recruitment Team Members –

1. Dr Birru Yitaferu (ARARI)
2. Dr Getachew Alemayehu (BDU)
3. Dr Desalegne Mengesha (UoG)

Agenda – Selection of Scholarship Applicants

- As per the communications made to the above team members, the team members met on Friday at 9:00 AM in the morning at ARARI.
- The documents of applicants from the three partner institutions were presented by the respective team members.
- The number of applicants is indicated in the table below

Table 1 – Number of applicants in each institution

	Gondar	**Bahir Dar**	**ARARI**	**Total**
PhD	28	23	11	62
MSc	5	8	22	35
Total	**33**	**31**	**33**	**97**

- Screening was made based on the following criterion which was previously agreed by the steering committee.

Table 2 – Screening criteria used

Sr No	**Eligibility Criteria**	**Requirements for**		**Remark**
		PhD	MSc	
1	Service Year *	3 years	2 years	
2	Age	Less than 45	Less than 35	
3	Synopsis with in the context	✓	✓	
4	Complete credentials **	✓	✓	

**service year was considered after their last degree*

*** Those applicants who did not attached their credentials were screened out*

- After screening all the documents, the following criteria, which were previously agreed upon were used in the selection process

Table 3 – Selection criteria

Sr No	**Criteria**	**Weight (%)**
1	Undergraduate grade	40
2	Relevance of the profession to the selected theme	20
3	Quality of the synopsis	20
4	Presentation (Language proficiency, confidence, coherence and clarity of the subject matter)	20
5	Gender	5

	Total	100+5

- Accordingly the following applicants were selected

Table 4 – TRANSACT PhD Candidates short-listed and passed through further evaluation

Theme 1	**Institute**	**Eligibility**	**Grade BSc/BA (40%)**	**Prof. relev. (20%)**	**Quality of Synopsis (20%)**	**Presentation (20%)**	**Gender (5%)**	**Total (%)**	Final Result
Zenebe Gebremedihin	UG	OK	31.5	19	18	18.2	0	86.7	Pass
Mengistie Taye	BDU	OK	35.1	15	15.5	17.3	0	82.9	Reserve
Theme 2									
Yeshitila Merinie	ARARI	OK	32	14	15	18		79	Pass
Girmachew Siraw	BDU	OK	26.3	16	15.5	16.3	0	74.1	Reserve
Theme 5									
Abebe Azene	UG	OK	34.8	14	15	16.2	0	80	Pass
kehali Jembere	UG	OK	34.8	16	12	14.3	0	77.1	Reserve
Theme 6									
Menilik Getaneh	ARARI	OK	28	19	18	16.7	0	87.7	Pass
Fenta Nigatie	BDU	OK	29.3	18	16	16.7	0	80	Reserve
Theme 7									
Kumela Gudeta	UG	OK	24.8	18	15	18.5	0	76.3	Pass
Sefinew Alemu	UG	OK	23.2	13	16	13.7	0	65.9	Reserve
Theme 9									
Chalachew Tarekegn	BDU	OK	35.3	18	18	18.3	0	89.6	Pass
Assefa Tsegaye	UG	OK	31	18	16	17.3	0	82.3	Reserve
Theme 12									
Asaminew Tasew	BDU	OK	33.5	16	17.5	18.7	0	85.7	Pass
Belete Debebe	UG	OK	28.4	15	14	16	0	73.4	Reserve
Theme 16									
Kassahun Gashu	UG	OK	31.4	19	17	16.3	0	83.7	Pass
Ebrahim Esa	UG	OK	28.2	15.5	15		0	58.7	Reserve
Theme 18									
Seid Hussein	BDU	OK	34.9	18	16	18.2	0	87.1	Pass
Beneberu Tefera	ARARI	OK	29.3	14	16	16.5	0	75.8	Reserve

Table 5. TRANSACT MSc/MA Candidates short-listed and passed through further evaluation

Theme and Name	Institute	Eligibility	Grade BSc/BA (40%)	Prof. relev. (20%)	Quality of Synopsis (20%)	Presentation (20%)	Gender (5%)	Total (%)	Final Result
Theme 3									
Solomon Fentaw	UG	OK	35.5	14	14.5	12.7	0	76.7	Pass
Theme 4									
Ambachew Getinet	ARARI	OK	34.5	17	14	15	0	80.5	Pass
Theme 8									
Assemu Tesfa	ARARI	OK	38.5	18	15	15.7	0	87.2	Pass
Tewodros Fantahun	UG	OK	37.7	16	13	13.7	0	80.4	Reserve
Theme 10									
Eneyew Wondifraw	BDU	OK	37.2	15	14	13.8	0	80	Pass
Theme 11									
Seid Ali	BDU	OK	37.2	16	14	12.3	0	79.5	Pass
Theme 13									
Yonas Worku	ARARI	OK	37.8	17	16	16	0	86.8	Pass
Theme 14									
Demilie G/Sellassie	ARARI	OK	32.2	17	13	14.3	0	76.5	Pass
Theme 15									
Kibrom Fekadu	UG	OK	39.4	18	16	18	0	91.4	Pass
Shambel Sebsibie	UG	OK	38.7	17	14	16.8	0	86.5	Reserve
Theme 17									
Getu Abebe	ARARI	OK	35.5	10	13	14.2	0	72.7	Pass

- The result of the selection process was summarized and the distribution is indicated in the following table

Table 6 – Distribution of scholarships per institution and qualification

	Gondar University	Bahir Dar University	ARARI	Total
PhD	4	3	2	9
MSc	2	2	5	9
Total	**6**	**5**	**7**	**18**

However, the team was highly impressed on some other PhD candidates who were failed just because of the limited opportunities given in this project. In case, if there could be a need to recruit additional researchers on the on-going TRANSACT project, the has strong recommendation for candidates such as Mengistie Taye (BDU), Assefa Tsegaye (UG) and Beneberu Tefera (ARARI).

- The team members discussed on the selected applicants and agreed on the equitable distribution between institutions.

- The final result was communicated to the selected applicants accordingly.
- The team discussed that the selection process took more time than expected due to
  - The high number of applicants
  - Many vague and incomplete documents
  - Difficulties of placing applications to the appropriate themes
  - Long oral presentations and giving evaluation points
  - Summarizing evaluation points

Lessons from Avtivity 3.2

- In this regard, the partner institutes have got a lesson on how priority problems of an area could be identified and tailored as research agenda.
- Thinking holistic than pieces – the research agenda prioritized were focused on systems and approaches to solve an inter-woven problems in the process of rural transformation than addressing individual problems
- Weighting problems and assigning them PhD or MSC/MA level of study is another that can make the process more economical.
- Thinking at a consortium level is really found to be more productive and holistic. Problems that could be a priority for researchers have been shared by the teaching institutes and by development practitioners. Similarly, problems encountering development practitioners while they are working with the farmers could be traced back from academic and research institutions. For example, an extensionist working with farmers is a trainee of academic institutions and delivering technologies developed by research institutes. Therefore, failure of delivery of technologies or knowledge system during the rural transformation process could be tailored into the problem of the quality of the training process, failure during the development of technologies or it could be the institutional problem at the development partners.
- Usually, when training opportunity or capacity building is planned, the priority thinking has been giving the chance to anyone who has long service year or with other merits. However, the most relevant thing that has been missed was matching the trainees' professional proficiency with the identified thematic problem and loss of concern on the research outputs to be delivered.
- Even though the core aim of the TRANSACT project was to improve the competence of research and academic institutions in the process of the rural transformation of the Amhara Region, engagement of competent and high potential researchers in the research and capacity building process could be essential to bring the aspired outcomes. In doing so, the team at activity 3.2 has tried to get competent researchers based on a number of criteria and ability to deliver quality synopsis within the short period of time.
- From previous Austrian PhD and MSC training programs, the team understood that supervision of students was made by university professors from Boku University alone. However, practically, this approach has some weakness on the close supervision and helping the students. In this TARANSACT program, the team recommends to include local supervisors from the partner institutes (University of Gonder, Bahir Dar University and ARARI) based on selection of senior professionals.