Theme 5: Institutions, Innovation Systems, and Economic Development

Available data on completed and on-going research works, particularly in the mandate area of Haramaya University, were collected from different sources- proceedings, thesis abstracts, Theme 5 records, and on-line searches. The specific issues addressed by completed as well as on-going research projects were compared with the research areas planned to be undertaken under Theme 5. In addition to this, desk review of policy documents such as the GTP-2 (Growth and Transformation Plan) was done so as to identify research need that goes with the national plan. Finally, the research issues which were planned but not addressed by both completed and on-going research projects were identified. Accordingly, the following priority research areas have been recommended for the 2016/17 call:

5.2. Innovation Systems and Impact Evaluation Studies

5.2.1 Technology demonstration and popularization

The aim of this sub-theme is to identify and demonstrate innovative solutions to address priority challenges facing smallholder farmers, youth and industry in HU mandate areas. For instance, technologies and improved practices in agriculture aiming to improve income and nutrition can include, but are not limited to, small-scale irrigation technologies like drip irrigation, improved bee-hives and honeybee production and processing, home gardening (i.e., keyhole gardening to produce vegetables and fruits to address household nutritional requirements), quality protein maize, orange-flashed sweet potatoes, beans, tilapia production, improved poultry house, dairy, and small ruminants. Other technologies and improved practices relating to post-harvest (handling, storage, preservation, processing, package, marketing, etc), natural resource management (water harvesting, soil conservation, etc), health, and energy (solar cells, biogas, etc) can be considered here.

Another focus of research in this sub-theme aims at assessing the performance of such technologies and improved practices against traditional ones. This can provide an *ex-ante* feedback to those contemplating on scaling up these technologies and improved practices. The planning and implementation of such action research projects require multi/inter disciplinary team consisting of relevant subject matter researchers (technologist(s)) as well as extension/socio-economic researchers.

In addition to this, research aiming at investigating the perceptions of potential collaborators (i.e., stakeholders including farmers, pastorals, agro-pastorals, development agents, health extension workers, nutritionists, representatives of NGOs, etc) and users' evaluations towards the improved technologies and practices is also encouraged. Likewise, research in this category can focus at processes and strategies to invigorate popular participation in the generation and wider dissemination of improved technologies and practices. In addition, the research can also explore mechanisms to facilitate research-extension linkages and ways forward to address existing linkage problems (for example, through a systems approach and/or social network analysis).

5.2.2 Dissemination and scaling up of technologies and best practices

The focus of research in this sub-theme is to explore innovative strategies to scale up already available technologies and practices – some of which are mentioned above – by uncovering underlying issues in innovation diffusion. For instance, issues such as farmer-to-farmer transfer of improved seeds; role of community-based organizations in the dissemination of technologies and

best practices; contribution of ISSD established seed producing cooperatives and farmers' training centers (FTCs); and innovative technologies and practices developed by small and medium scale enterprises (for example, as a means to create employment opportunities for the youth) can be considered here. Moreover, the role of NGOs in improved technology dissemination and popularization as well as coordination of them with public sectors can form another potential area of collaborative research in this sub-theme.

5.2.3 Technology adoption and impact assessment studies

This category of research is devoted to the investigation of how technologies and improved practices diffuse across individuals and communities (in space and time) and their impact on selected outcome indicators. In relation to innovation diffusion, a research can aim to analyze, for instance, the barriers in the innovation-diffusion-adoption process and ways to mitigate them. A systems approach is particularly useful here to document patterns in technology adoption and constraints facing the process. Another possible strategy can be the implementation of stakeholders' analysis to unleash the actors, their influences, the resources they have, etc in facilitating the process of technology adoption.

Research proposals related to impact evaluation are expected to be of high caliber/rigor, combining both qualitative and quantitative methods of impact evaluation to evaluate short-/ long-term causal effects. In this regard, a specific attention needs to be given to uncovering the underlying processes through which inputs yield outputs and outcomes. One way of ensuring this is through an innovation systems approach. Another way can be through a mixed research design that appreciates quantitative indicators of impact to be explained by qualitative data. In addition, previous shortfalls in impact evaluation, such as lack of baseline data, sub-standard design and analytical methods, and lack of implications for future research and intervention should be clearly addressed. Moreover, innovative technologies and best practices to deal with the challenges posed by climate change – in a move towards climate smart agriculture – and their impacts need specific attention.

5.2.4 Systematic review

Lack of integrated information on available technological and institutional options that could meet the persistent problems of food and nutrition security, climate change adaptation, youth unemployment, etc. remains a challenge to make problem-based/need-based development interventions. Thus the aim of the systematic review is to generate database containing inventory of available technologies (on shelf, in use but in small scale that are worth scaling up, in wider use) and institutional innovations. The expected output from this research undertaking is digitized database with high quality standard that can be made available online, specifically, targeting different stakeholders, researchers, farmers, industries, etc.