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) and recent literature was done so as to identify research need that goes with the national plan and emerging issues. Moreover, important inputs were solicited through the Annual Community Day and other knowledge sharing events organized by Haramaya University. Finally, the research issues, which were planned/are emerging but not being addressed adequately by both, completed and on-going research projects are identified. Accordingly, the following priority research areas, listed in degree of importance, have been recommended for the 2020/21 call:

Subtheme 5.1. Economic Development, Policy and Institutional Analysis

- Analysis of vulnerability to climate change and extreme events and intervention options to generate policy-relevant evidence and recommendations geared towards addressing problems relating to climate change adaptation, mitigation, and biodiversity management. Climate smart agriculture (CSA) technologies and practices, farming systems and livelihood linkages, agriculture-nutrition linkages (e.g., nutrition policies) are relevant areas.
- Institutions and policy for ensuring fair access to and sustainable use of surface and subsurface water, particularly for agriculture.
- Watershed management interventions performance and their socio-economic and environmental impact assessment.
- Analysis of social capital/ networks, local knowledge and different livelihood strategies used by the society in relation to their contribution to reducing poverty and building sustainable livelihoods.
- Trends in inflow of Foreign Direct Investment (FDI) to Ethiopia and evaluation of effectiveness of FDI against its objective, alignment of economic sectors where FDI to

Ethiopia are involved and economic sectors where the country demands FDI, and measuring magnitude of benefits derived from FDI;

- Demand and supply conditions and trends in factor as well as product markets. All types of market like labor, input, product, financial, and capital market are areas of interest. (e.g., supply, accessibility and affordability of housing/urbanization; inflation; land economics;
- Goods and services that meet the quality standards of the local and world markets at prices that are competitive and provide adequate returns on the resources employed or consumed in producing them;
- Efforts made by different institutions and organization (stakeholders) to incentivize unemployment reduction and labour productivity improvement, and assessment of existing opportunities and constraints for reducing unemployment.
- Internal and external business environments for the successful establishment and flourishing of business institutions, particularly family businesses. Proposals on business plan development/record keeping, micro/small enterprises, tax system, and role of financial institutions are also a priority.
- Analysis of the role of social capital/networking in commodity value chain and basis /limitations for backward and forward linkages between different business entities. Knowledge based bio-economy and resource optimization are relevant aspects here.
- An analysis of behaviour of economic agents for policy and institutional innovation/development (e.g., business ethics and corporate governance; newly emerging theories in studying public decision making).
- Societal trends such as decentralization, de-concentration, big society, participation society; good governance and governance measurement indices
- Linkages between monetary, fiscal and macro prudential policy

Subtheme 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, improved poultry house, etc. Other technologies and improved practices relating to post-harvest (handling, storage, preservation, processing, package, marketing, etc), natural resource management (water harvesting, soil conservation, etc), 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 improved and climate smart 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, institutional innovations, and best practices

The focus of research in this sub-theme is to explore innovative strategies to scale up already available technologies, institutional innovations, 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. Action-oriented research on institutional innovations in improving smallholder crop and livestock producers' climate change adaptive capacity, social capital, and access to market are highly encouraged. Moreover, the role of NGOs, private sector, and public-private partnership (PPP) in linking smallholders to input- and out-put market and 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. In particular, barriers to adoption of climate smart technologies and practices are of particular priority. 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, substandard 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.