



**Working Paper Series on Rural-Urban-Linkage Theme
of the Global Mountain Programme (GMP)**

Working Paper 1

**Fostering New Development Pathways: Harnessing
Rural-urban Linkages (RUL) to Reduce Poverty and
Improve Environment in the Highlands of Ethiopia¹**

**Rural-Urban-Linkage Conceptual Framework
(Draft)**

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¹ This working paper builds on the recommendations and key priority areas for action research and development identified by the stakeholders planning workshop held on August 29-30, 2006 in Addis Ababa. The workshop underscored that RUL has been a missing element in Ethiopia's development endeavor in the past and considers consideration of RUL in PASDEP as an opportunity and recognizes the timely nature of this project in providing vital information in addressing the current gap in the country.

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Acronyms

AAU	<i>Addis Ababa University</i>
CGIAR	<i>Consultative Group for International Agricultural Research</i>
CPP-SLM	<i>Country Partnership Programme on Sustainable Land Management</i>
DAG	<i>Development Assistant Group</i>
EIAR	<i>Ethiopian Institute of Agricultural Research</i>
EPA	<i>Environmental Protection Authority</i>
GIS	<i>Geographic Information System</i>
GMP	<i>Global Mountain Program</i>
HLI	<i>Higher Learning Institutes</i>
IWM	<i>Integrated Watershed Management</i>
MoARD	<i>Ministry of Agriculture and Rural Development</i>
MoUDW	<i>Ministry of Urban Development and Works</i>
MTP	<i>Mid Term Plan</i>
NARS	<i>National Agricultural Research System</i>
NGO	<i>Non Governmental Organization</i>
NRM	<i>Natural Resources Management</i>
PASDEP	<i>Plan for Accelerated and Sustainable Development and Eradication of Poverty</i>
PSNP	<i>Productive Safety-Net Program</i>
RUL	<i>Rural Urban Linkage</i>
SWAT	<i>Soil and Water Assessment Tool</i>
UA	<i>Urban Agriculture</i>
UNDP	<i>United Nations Development Programme</i>

1. Introduction

1.1. Rural-Urban Linkage: Opportunities and Challenges for Community Development

Rural-urban interactions are important elements of the livelihood strategies of both rural and urban households, either in the form of flows of people (migration), natural resources, products, goods and services, information and money, or in the form of income diversification such as urban agriculture and non-farm rural employment (Tacoli, 2002). However, often rural and urban development are considered in isolation. Their inherent linkage with each other's development is less considered or reduced to only market linkages. Although market linkages play significant role, Rural-Urban Linkage (RUL) is beyond this linear kind of assumption and it encompasses many complex interactions and processes. It is important to recognize the close relation between urban and rural systems because efforts and initiatives in one area, when properly conceived and planned, can have a positive spillover effect in the other. For example, changing food consumption patterns in urban centers as a result of rapid urbanization and income growth offer good opportunities for food producers in peri-urban and rural areas, with the possibility for food producers to focus on high value agricultural products and on contract farming schemes with supermarket chains. Understanding and capitalizing over such patterns of RUL is expected to help urban residents to satisfy their growing food demand and to improve the income and livelihood of rural food producers. If, however, the linkage between these two systems are not well understood and properly harnessed, the system will be threatened and doomed to failure. A good example in this case would be imbalance between the demand for natural resources, on the one hand, and their supply and management, on the other, that might lead to extreme poverty and degradation of natural resources at last.

Unless its multi-faceted linkage with the rural economy is well managed, urbanization inflicts formidable pressure on natural resources and agricultural land. The poverty-land degradation-food insecurity nexus, heavily contributed by poor RUL as illustrated in Figure 1, is clearly visible in many parts of Ethiopia. For instance, if we take only one component, i.e., energy, the growing urban centers require huge amount of wood for fuel to meet their daily household energy demand. This often results in overexploitation of the forest resources of surrounding rural areas. In this case, Addis Ababa is a perfect example where the original forest around the city has been cleared long ago to support

the energy and construction demands of the growing new town. Now part of the natural forest area has been planted by eucalyptus forest and partly degraded and/or converted to cultivated land.

The consequences of pressure created by urban centers on such resources as forests are far reaching beyond imagination. Often, as observed in many parts of Ethiopia, when forest resources are getting scarce, and when reforestation efforts are minimal, with no widely disseminated alternative energy sources, shortage of fuel wood has been supplemented by cow dung and crop residues. This leads to heavy mining of soil fertility and deterioration of soil physical properties. Such chains of processes driven by the growing cities or urban systems lead to poor infiltration capacity of the soil, a phenomenon that reduces recharging effect of the aquifers and enhance high runoff and soil erosion rates. Again, this leads to siltation of dams and reservoirs as well as groundwater droughts which, in turn, significantly reduces water supply available for drinking and power generation purpose. Because of this, many urban centers in Ethiopia are forced to look for other sources of water (both surface and subsurface), in most cases in distant rural areas. The water could otherwise be used for agricultural purpose in rural areas. Apart from diverting water use away from agricultural use, the incidence often results in displacement of rural communities. Such actions and, in some cases, competition for water and other natural resources are sources of conflict between rural and urban systems. Moreover, it is not only shortage of water supply and energy generation because of reduction of storage capacity but also water system pollution from sediments (see Figure 1) results in high purification costs of the water supply system of major cities (Nkonya *et al.*, 2006). These are but some of the challenges facing Addis Ababa and many other cities in Ethiopia as a result of growing urban population.

Furthermore, the growing urban systems are not only sinks of major natural resources and products from the surrounding areas but, unless properly managed, they are also heavy polluters of the environment, mainly the water system. In many developing countries, the polluted water has been used for urban agriculture by the urban poor and in the peri-urban areas. However, use of polluted water for agricultural purposes, driven by many factors and processes as shown in Figure 1, can contaminate products with considerable health hazards. According to Azeb (2006), supply from urban and peri-urban agriculture around Addis Ababa covers about 7.1% of the city's fresh vegetable

demand but covers 70% of the supply. This might enhance entry of heavy metals into the food chain with serious implications on human health both in urban and rural areas.

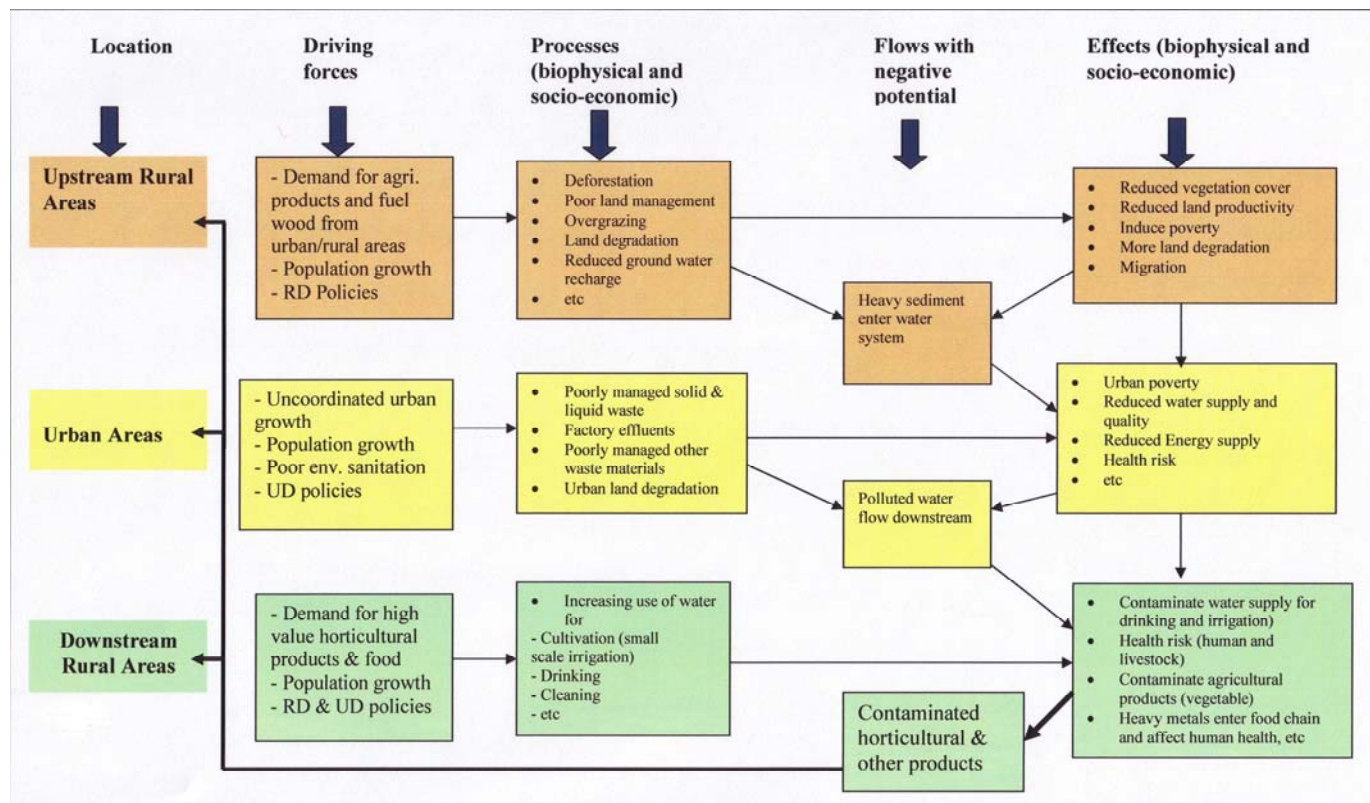


Figure 1: Sample illustration of chains of NR flow, causes and effects to show the connectivity between rural and urban areas and the importance of having strong RUL for the wellbeing of rural and urban communities (draft)

As observed from the above simple illustration, the rural and urban systems are highly interlinked and processes in one of them can positively or negatively affect livelihood situations on both sides. Livelihood strategies in rural and urban areas, which straddle the rural-urban divide, are the outcomes of the opportunities and constraints arising from wider transformations in the socio-economic context and of specific and local historical, political, socio-cultural and ecological factors (Tacolli, 2002). In line with this, current trends in flows of natural resources, people, goods, money and information and patterns of occupational diversification as well as level of poverty and environmental degradation in Ethiopia reflect a dynamic process of ecological, economic, social and cultural transformation that needs to be better understood and guided towards better direction using the changing situation as an opportunity. The high rate of urbanization, which is among the highest in the world (UNDP, 2003), though important, can have

disastrous consequences on the already fragile eco-environment, unless properly managed. Therefore, particularly under the current situation of high population growth and declining returns from agriculture for smaller farmers, food insecurity and serious environmental degradation, as also argued by UNCRD (1996) and Tacoli (2002), strengthening rural-urban linkages can play an increasingly significant role in local economies and in the livelihoods of large numbers of people,

1.2. The Need for Strengthening Rural-Urban-Linkage in Ethiopia in the Context of Current Development Efforts

As indicated above, the combined forces of extreme poverty and serious land degradation problems are the two major challenges in the Ethiopian Highlands. These problems are often aggravated by lack of proper Rural-Urban Linkages. Like that of many other countries urban centers in Ethiopia have been and are major sinks for agricultural products and natural resources including, water, nutrients, and energy from the rural areas. They are destinations of migrants from nearby and far-off rural areas. They are also sources of different forms of livelihoods including urban agriculture and they provide goods and services to rural areas. On the other hand, the rural systems are also sources of various products and labor used by the urban system. They are source of market and livelihoods for the urban system. However, despite these and other functions and interdependencies to each other, the linkage between these systems and the changing pattern in it has not been properly understood, coordinated and planned. As a result, the urban systems, through heavy extraction and consumption of resources mainly supplied from rural systems, have been heavily contributing to the current state of environmental degradation in many parts of Ethiopia.

Today, influx of people from different parts of rural areas to urban centers of different size, in search of employment opportunities, is by far greater than the capacity of urban centers to deliver adequate services. This creates huge pressure on the already fragile urban infrastructure and, consequently, exacerbates the urban unemployment problem, the spread of HIV/AIDS, the number of people living in urban slums, and contributes to the ever-increasing environmental pollution and degradation in many parts of the country. Despite these challenges, predictions show that urbanization in this country

(currently about 16%), is anticipated to grow at a faster rate than before and will account for about 19% of the total population by the year 2015 at a growth rate of 4.3% per annum (Demes, 2006). Therefore, precautionary actions have to be taken so that the growth of urban centers should not be at the expense of the already fragile and degraded mountain/highland ecosystem as it used to be the case in the past.

In most cases, the poor RUL is a result of biased national development strategies and policies towards either urban or rural development in isolation. History shows that the development strategy of Ethiopia, except the newly crafted Plan for Accelerated and Sustained Development to End Poverty (PASDEP), has been either urban or rural biased. For instance, Tegegne (2005) argues that the development history of Ethiopia has been urban biased until the last decade and rural biased since recent years. Such kind of development strategy with unbalanced focus on either rural or urban centers as poles of economic growth and development undermines the fertile opportunities for sustainable economic development that could be tapered from coordinated RUL. Lack of proper and strong linkages between rural and urban systems at different levels, mainly emanated from uncoordinated development strategies of the two systems, often creates unbalanced situation and lead to extreme poverty and degradation of renewable natural resources.

The other major concern is the issue related to payment for environmental services. The urban system could be highly beneficial from proper management of natural resources in upstream areas and supply of clean products, both from upstream and downstream rural areas. The growing urban centers enhance high consumer demand for high value horticultural products and this often stimulates production of the same by rural communities. The quantity and quality of product to meet the growing demand in the urban centers, however, needs critical attention for the maintenance of the resource base and natural environment in upstream areas. This helps to maintain and improve the natural environment in the upstream areas and helps to prevent land degradation (which affects water supply system and soil productivity). It also ensures supply of better quality products to the urban system. Delivery of clean water to downstream peri-urban agricultural areas, also a result from a well maintained resource base and natural environment in upstream areas, helps to prevent the entry of pathogens, hazardous

chemicals and heavy metals generated from urban system into the food chain through the direct use of polluted water for irrigation. The two actions have wider implications and could be done in many different ways, either directly through public awareness and controlling mechanisms or indirectly through incentive mechanisms particularly to high polluters. Therefore, the major question here is how can we design a workable system to enhance payment for environmental services (PES) that benefits both urban and rural communities?

Therefore, this project is aiming at contributing towards the improvement of the above-mentioned situation and other challenges related to rural-urban linkages and ultimately improvement of the two systems by focusing on activities that harness RUL and capture current trends of urbanization in the country as an opportunity to support sustainable economic development and natural resources management in the highlands of Ethiopia.

2. The RUL Project

Given such context, it is important to understand the nature and pattern of existing rural-urban-linkages in Ethiopia to better inform and guide subsequent interventions at different levels. Hence, this project by the Global Mountain Program (GMP), towards understanding and strengthening rural-urban linkages in selected sites of Ethiopia, through action-based research and provision of development support, is indeed a timely one to exert a positive effect on communities' livelihoods and their ability to manage their environment in a sustainable way.

2.1. Key Project Issues

By reflecting on the following issues, the project will provide valuable information, tools, options and methods for the successful implementation of the ongoing rural-urban development and poverty reduction strategies in Ethiopia, such as the newly crafted PASDEP (which focuses on growth with particular emphasis on greater commercialization of agriculture and development of the private sector and on scaling-up of efforts to achieve the Millennium Development Goals (see also annex 1)²) and others such as the Productive Safety Net Program (PSNP), the newly initiated Country

² Annex 1 presents how the RUL project is instrumental to help implement some of the key strategic actions of PASDEP

Partnership Framework on Sustainable Land Management (CPP-SLM), etc. The lessons from this project can be easily transferred to other parts of the country and Africa.

Major issues to be addressed are:

1. What are the directions, scales and nature of flows of natural resources, products and goods, migration, etc, between urban and rural areas?
2. How best can we develop and link rural and urban systems and use the power of large urban centers, which are sinks for much of rural resources (natural resources, products, nutrients, labor, etc) to enhance the quality of life of both rural and urban populations and to improve the management of agriculture and natural resources in mountains/highland areas?
3. In addition, how rural-urban linkage can be made efficient and used to enhance NRM-based development of mountainous/highland areas in Ethiopia, in particular, and in Sub-Saharan Africa in general?

2.2. Key Working Hypotheses

1. Stronger and coordinated linkages between rural and urban areas concerning the flows of agricultural products, natural resources, labour, goods and services, knowledge and information, infrastructure, enabling policy and institutional environments are fundamental components for improved livelihoods and for better management of the environment in mountainous/highland areas.
2. Growing urban centers can be drivers for rural transformation and sustainable natural resources management (NRM) in mountainous areas through improvements in RULs.
3. Information, tools and technologies provided through RUL research results can have significant impact on shaping and directing the planning and decision-making processes towards the right direction in rural and urban areas.
4. Enhancing institutional (rural and urban institutions) and community capacity is instrumental in strengthening RUL and improving both rural and urban environment and community wellbeing.

2.3. Project Goal

The goal of the project is to harness Rural-Urban-Linkage for effective poverty reduction and enhancement of sustainable management of natural resources in the highlands of Ethiopia.

2.4. Project Objective

Action based research, aimed at bringing about sustainable development by harnessing RUL, is one major avenue to improve rural and urban wellbeing and to promote sustainable management of the environment in mountain/highland areas. Accordingly, a draft conceptual framework is developed (Figure 2) to guide the research undertaking on the global benchmark and selected satellite sites in Ethiopia. Hence the two major objectives of this project are:

- I) To create better understanding of RUL situation and identify system requirements to harness RUL for better livelihoods and NRM options
- II) Generate information, tools and technological options to help improve baseline situation, build capacity and introduce improved models of RUL to enhance sustainable development and better environment
- III) Facilitate development of an operational framework that enables research to connect effectively with development efforts through National and local RUL platforms (for dialogue and action) and RUL research support groups through an alliance of GMP-CGIAR with national and international institutions

Specific objectives are:

- 1. To assess baseline situation and develop clear understanding of RUL issues in Ethiopia using the benchmark site and selected satellite cities and their regions of influence as per the conceptual framework indicated in Figure 2. Specifically:
 - a. Map out clear picture of natural resource flow, including its temporal and spatial dynamics in the benchmark site and its regions of influence³;

³ For instance:

a. Investigate flows of water and pollutants, taking watershed as a planning unit, as it relates upstream and downstream issues and translate the knowledge into concert proposals with planning and decision-making tools to relevant stakeholders in the platform.

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- b. Map product flow and value chains in and out of the benchmark site and its regions of influence;
 - c. Investigate policy and institutional setups and gaps to strengthen RUL in enhancing livelihoods and NRM;
 - d. Investigate current livelihood strategies and possible options and opportunities that could be instrumental to help improve the wellbeing of both rural and urban people through effective RUL;
 - e. Investigate migration issues, risks and opportunities including its interrelation with planning, policy, health, gender, age, and income aspects;
 - f. Investigate knowledge and information availability, flow and management.
2. To assess tools and options that help improving current livelihood and environmental situation.
 3. To design and test effective mechanisms of payment for and valuation of natural and environmental resources and services to help improving rural and urban environments and the wellbeing of both rural and urban communities.
 4. To create a platform for stakeholders where the CGIAR, NARS and other stakeholders take part to coordinate and consolidate their efforts for the improvement of RUL and wellbeing of communities
 5. To investigate, develop and test improved models of RUL as per the proposed conceptual framework.
 6. Identify gaps in terms of capacity and design a strategy and implement effective capacity building to harness RULs in collaboration with key stakeholders.

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- b. Investigate and propose cost-effective and environmentally friendly waste management and recycling systems.*
 - c. Understand the fuel wood and building material dynamics in the country as it is related to NRM and translate these options into concrete policy and planning actions.*

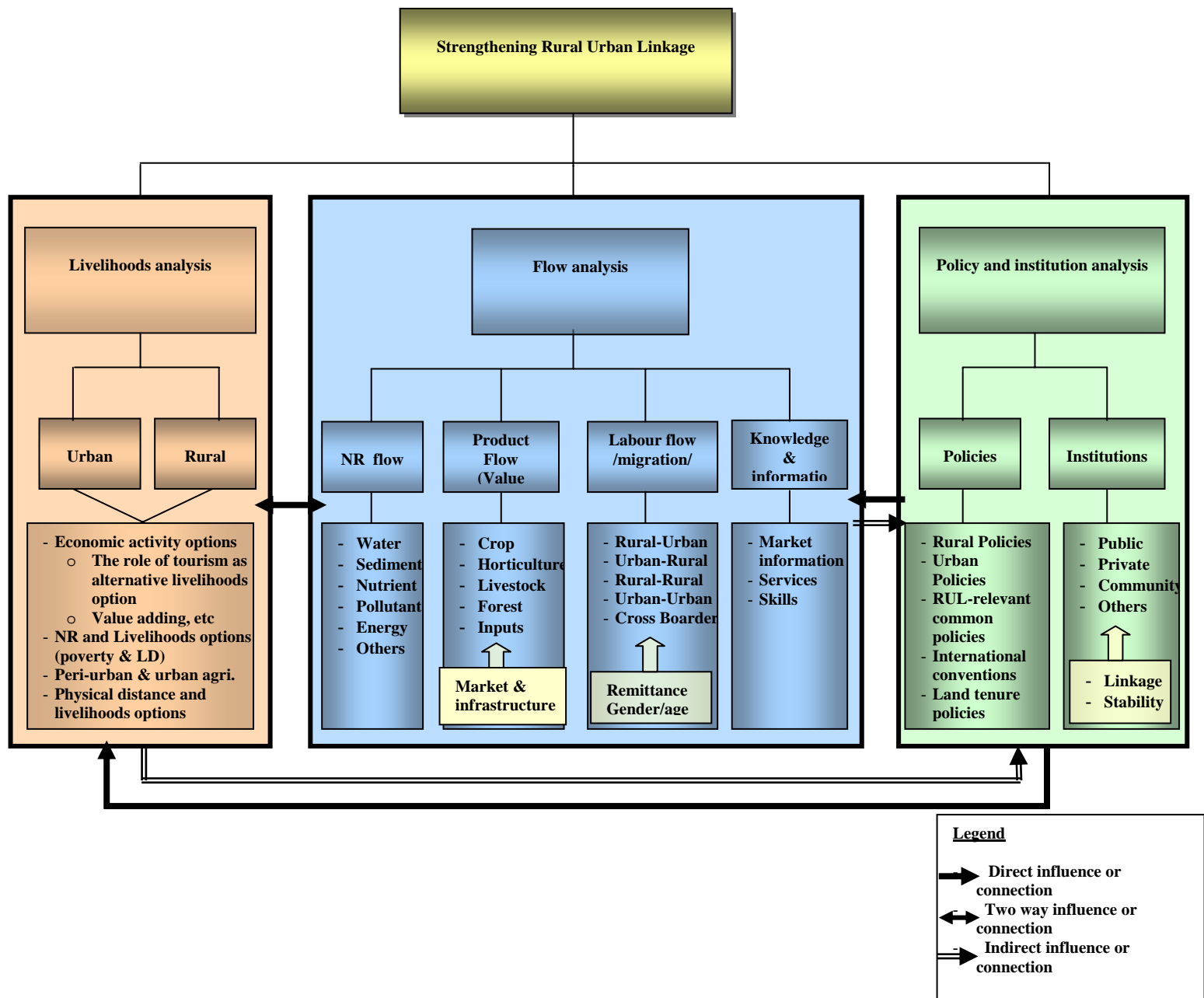


Figure 2: Revised Conceptual Framework of RUL Thematic Research Area of GMP

3. Conceptual Framework and Methods

The GMP intends to investigate, together with key stakeholders, the baseline situation related to RUL in the benchmark site and its regions of influence by selecting key satellite cities⁴ and associated smaller towns and rural communities representing different situations (Figure 3 and Figure 4). During the baseline survey, issues related to product flow, natural resources management and flow, livelihood options, institutional and policy situations and capacity gaps and requirements will be investigated within the RUL context as conceptualized in Figure 2 and Figure 3. Once the existing situation and pattern of change are understood, appropriate tools and options required for the improvement of the situation will be investigated, possibly from available pools such as those of the CGIAR system and the national system. Collaborators from the CGIAR system and from Ethiopian National partners will be approached for their expertise to elucidate and present linked options that improve livelihoods and environmental management. The tools and options will be developed and tested in a participatory manner by involving communities and by taking into consideration indigenous knowledge and experiences. The detailed methodology for the baseline survey and sub-thematic areas will be developed during the initial phase of the project.

Linking development and supportive research to strengthen RUL is a complex task and requires collaborative action of many organizations. Little has been done so far in a coordinated and integrated manner. To improve this situation and to successfully achieve the above objectives, four distinctive but interrelated actions are envisaged:

a) The GMP, although primarily a research program, will undertake concerted actions to facilitate and bring key actors together and to undertake research by itself to provide baseline information, to identify gaps, opportunities and priority action areas for specialized research and immediate development intervention.

⁴ Tentatively, Shashemene-Awassa, Jimma, Bahir Dar, Mekele, Harar, Assosa, Dessie, Debre markos-Chokie and Goba-Robe are selected as satellite sites for the baseline survey. However, initial survey will focus on the benchmark site and two other satellite sites. As methodology is refined and experience gained, the study will cover other selected satellite sites and their regions of influence.

b) Develop a system that allows the wide range of specialized research to be undertaken by other CGIAR centers, national research organizations and other local and international institutions where expertise is needed.

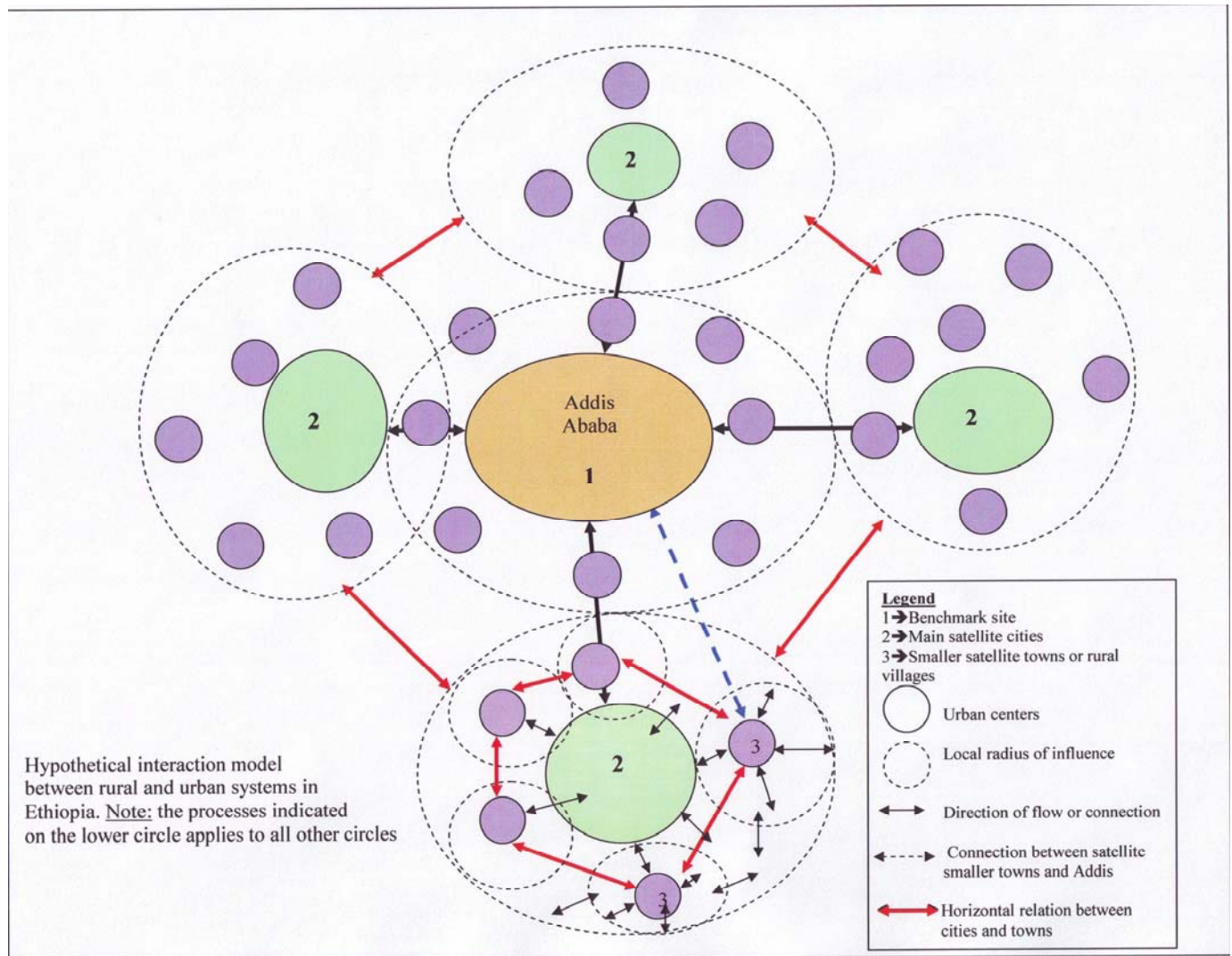


Figure 3: Hypothetical interaction model between rural and urban systems in Ethiopia. Note: the processes indicated on the lower circle applies to all other circles

c) Similarly, develop a system where the findings of the baseline survey and specialized research can be translated into development intervention by the Ethiopian government institutions, NGOs, and private sectors actors coordinated through a platform.

d) Whenever there appears a gap, as a System Wide Program, the GMP will undertake specialized research and provide development support to strengthen RUL in the country.

In general, using the rural-urban linkage thematic research area, it will be attempted to link research to development through facilitation of the development of a stakeholder platform which brings together all important stakeholders in a benchmark site and links their needs to CGIAR as well as other institutions and research organizations. Each center with relevant expertise can link its expertise into the information and technology design process in a coordinated manner. The expected end result is a value added product of public good with a far-reaching socio-economic and ecological impact.

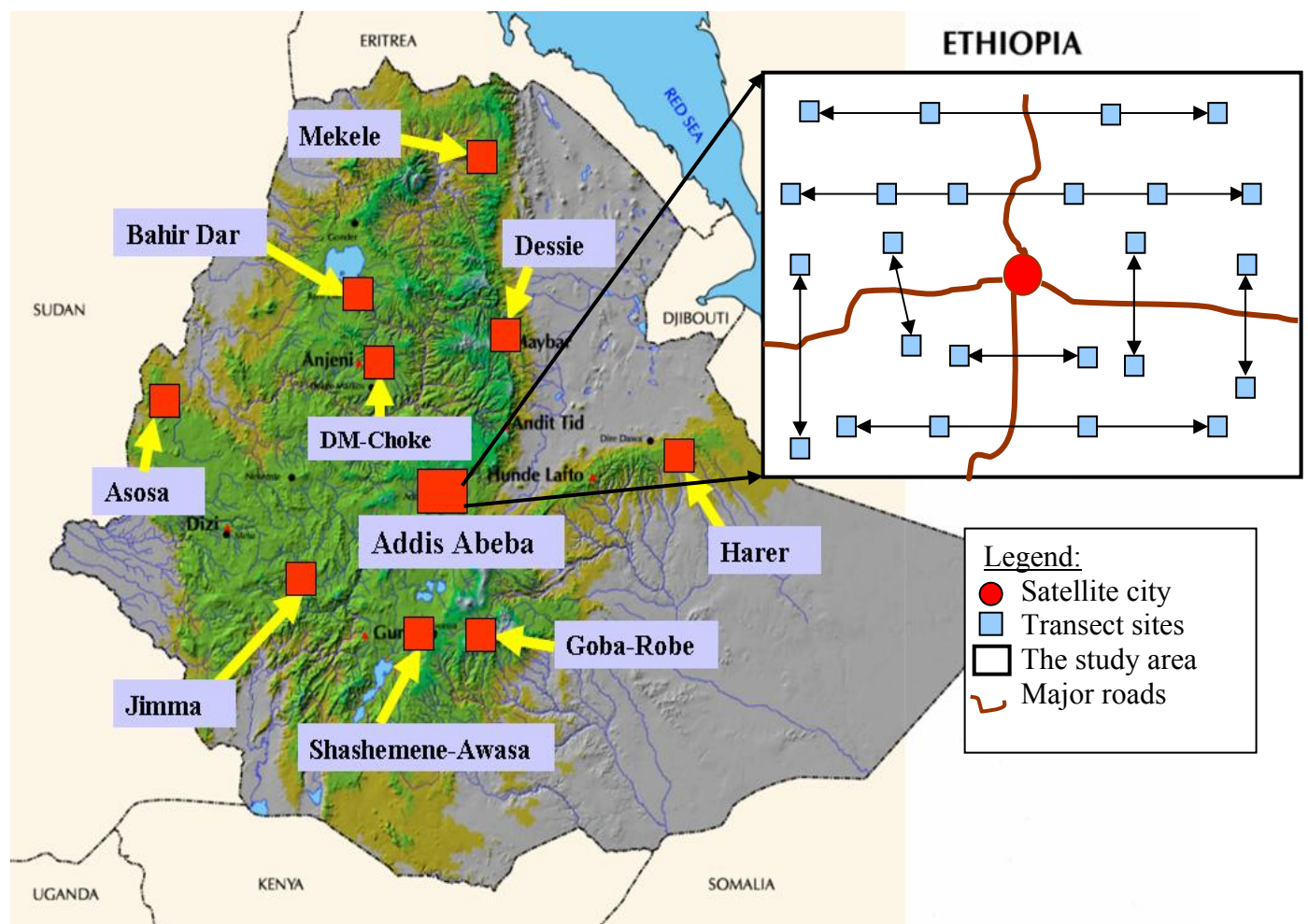


Figure 4: Location map of study sites. Note: Goba-Robe and DM-Choke are added to capture remote mountainous areas of different nature and management in the country

4. Project Implementation and Expected Outputs

The project is expected to be implemented in three phases, with each phase coming out defined outputs. In *Phase I*, focus will be given to the development of detailed methodology (including testing and modifying) for the baseline assessment and creation of RUL platform. *Phase II* will focus on collection and detailed analysis of baseline data on RUL at the benchmark site and in the selected satellite cities and communities and identification of key immediate intervention areas. In *Phase III*, focus will be given to detailed assessment of tools and options for intervention towards improving baseline situation, develop an improved model for RUL and undertake further research on selected topics as per the findings of Phase II above. Key outputs under each phase are mentioned as follows:

Phase I: Preparatory Phase

Output 1: Detailed methodology developed, tested, and revised for the assessment of baseline situation and analysis of identified sub-thematic areas and review of existing works on RUL (RD) done and revised project proposal produced.

Output 2: RUL platform of key stakeholders involved in RUL activities is set up and priority focus areas and operational *modus operandi* are defined and made functional on benchmark site and selected satellite cities where the project is operational.

Phase II: Research and Development Phase - Qualitative and quantitative assessment of the baseline situation and identify key development interventions

Output 3: Baseline information on the benchmark site and selected satellite cities are systematically assessed and made available for further analysis and synthesis on the following key issues:

- Flows of natural resources (water, fuel wood, nutrient, soil (sediment), pollutant (organic and inorganic), etc), products and goods, labour (migration), money, knowledge and information, etc, in and out of Addis Ababa and the selected satellite cities and their regions of influence (supported with GIS maps);

- The results of analysis on current policies and institutions that are related to and affect key rural-urban linkages, including decision making maps of institutions in rural and urban areas and their inter-linkages, obtained;
- Livelihood strategies in the selected rural (nearby and far-off rural communities) and urban areas characterized and options and opportunities identified;
- Knowledge and information availability, gaps, flow and management investigated and made available;

Output 4: Synthesis of baseline information done and future areas of intervention in both research and development aspects suggested to improve baseline situation:

- Map of natural resource and product flow/value chains done and areas of improvement suggested;
- Map of point and non-point pollutant sources, impacts on urban-agriculture and levels of heavy metal and pathogen contamination in the food chain through urban agriculture (UA) analyzed and possible areas of improvement suggested;
- Map of migration done, impacts investigated and areas of improvement suggested;
- Map of institutional set-up within rural and urban systems and how they are linked will be done and made available;
- Map of livelihood strategies and options in urban and rural areas done, alternative directions set and made available;

Output 5: Capacity gaps and requirements in relation to RUL identified and capacity building strategies and modules suggested.

Phase III: Research and Development Phase - Crafting Solution Spaces

Output 6: Review of available tools and options that help improving baseline situation in consultation with key stakeholders are made available.

Output 7: Selected decision-making support tools and options made available.

Different biophysical and socio-economic models that have capacity to capture resource/product flow validated and adapted or developed to be used as decision making, planning and research tools to enhance better RULs.

Output 8: Improved models of RUL suggested and tested on selected sites, including payment for and valuation of natural resources and environmental services, capacity-

building modules, methods and tools, to improve the wellbeing of rural and urban communities.

5. Activities

The detail activities for each phase that will contribute towards the delivery of expected outputs and realization of the project objectives are listed below under each output:

5.1. Phase I: Preparatory phase

Output 1: *Detailed methodology developed, tested, and revised for the assessment of baseline situation and analysis of identified sub-thematic areas and review of existing works on RUL (RD) done and revised project proposal produced.*

Activity 1.1: Review of methodologies for the various components of the baseline survey as per the conceptual framework;

Activity 1.2: Develop detailed methodology, test and refine it for each component and develop final detailed project proposal with revised budget and detailed activities;

Activity 1.3: Develop objective criteria and finalize selection of satellite cities, adjoining smaller towns and rural communities and delineation of study watersheds;

Activity 1.4: Develop preliminary GIS based resource database and biophysical information for all study sites.

Activity 1.5: Map out who is doing what in relation to RUL (review of documents, medium term plans (MTPs)) and, through direct discussion, identify major stakeholders who did and are doing research and development on RUL.

Output 2: *RUL platform of key stakeholders involved in RUL activities is set up and priority areas and operational modus operandi are defined and made functional on benchmark site and selected satellite cities where the project is operational⁵ and finalize office set-up for the major operation.*

⁵ Establishment of RUL platform of stakeholders was one of the recommendations of the planning workshop on August, 2006.

Activity 2.1: Facilitate the establishment of RUL platform constituted from key stakeholders including representatives from CGIAR centers, NARS, and other development actors (state and non-state actors), community representatives and develop operational *modus operandi*;

Activity 2.2. Set-up of required facilities and materials

5.2. Phase II: Research and Development Phase - Qualitative and quantitative assessment of the baseline situation and identify key development interventions

Output 3: *Baseline information on the benchmark site and selected satellite cities and their region of influence are systematically assessed and made available for further analysis and synthesis:*

Activity 3.1. Finalize GIS based resource database and biophysical information for all study sites.

Activity 3.2: Conduct detailed natural resources flow analysis – from rural to urban areas and from urban to downstream rural areas on benchmark site and selected satellite cities and rural communities⁶:

Activity 3.2.1: Quantify water flow and availability, including its quality, for human and livestock consumption, energy generation, irrigation and other purposes (using watershed approach).

Activity 3.2.2: Quantify sediment flow from upstream areas to downstream areas on selected study sites (related to upland management, i.e., deforestation, steep slope cultivation, overgrazing, etc...) and predict its impacts on water supply, energy generation and cost of cleaning, etc (using watershed approach).

⁶ Initially this will be done around Addis Ababa by dividing Addis Ababa and its surrounding into three sub-watersheds and three sub-watersheds feeding the three major reservoirs, i.e., Gefersa, Legedade and Derie dams. A variety of methodologies will be applied to clearly capture the baseline situation and devise measures to improve the situation. Detailed methodologies will be developed for each component and key stakeholders will be involved.

Activity 3.2.3: Investigate flows of forest products, mainly fuel wood, to urban areas (source and sink assessment) and its possible impacts.

Activity 3.2.4: Quantify and locate flows of organic and inorganic pollutants and nutrients in and out of urban areas, locate and map point and non-point pollutant sources and assess their impact on urban agriculture, health and downstream community wellbeing

Activity 3.3: Identify major products and goods including livestock forage, map their flow directions and systems from rural to urban areas and from urban to rural areas and value changes along the chain (including market and other related infrastructures).

Activity 3.4: Investigate migration situations (rural to urban, seasonal rural-rural migration, cross-boarder migration, etc) and how it affects development and NRM in urban and rural areas and enhance clear understanding of the system.

Activity 3.5: Investigate and map livelihood strategies and options in selected study sites both in rural and urban areas.

Activity 3.6: Investigate policies and institutional issues (gaps and opportunities) that have implications on RUL, livelihoods and flows of NR, goods and services.

Output 4: *Synthesis of baseline information done and future areas of intervention on both research and development suggested improving baseline situation in consultation with communities and other key stakeholders:*

Activity 4.1: Qualitative description and synthesis of how the system functions: this focuses on issues related to opportunities and constraints for development, efficiency of the existing RUL linkage, and available options to make the system function better, type of information required to make decisions and how this information is made available, managed and utilized; and existing knowledge gaps with respect to effective RULs, etc.

Activity 4.2: Undertake detailed analysis of natural resources flow in rural and urban areas and devise mitigation measures: water, soil, fuel wood, forage, and nutrient and

pollutant flow in selected study areas following watershed logic⁷. Identify key areas where competition on natural resources use is serious and problematic and devise efficient system of payment for environmental services.

Activity 4.3: Produce product flow model for selected products (product/value chain analysis)→ map out the key product based interaction between Addis Ababa, selected (poor and rich) satellite cities, adjoining smaller towns and rural communities.

Activity 4.4: Produce clear map of migration issues and its impact on rural and urban development: document and map how migration affects rural and urban transformation and poverty, health, and social norms? Identify key forces for migration (push and pull factors); Identify reasons for reverse migration and define trends of migration, i.e., far, nearby, cross country, etc; investigate flows of remittance, field and proportion of investment.

Activity 4.5: Detailed analysis of livelihood strategies and options: focus will be given to investigating how urban centers can be used as drivers of NRM based rural (mountainous/highland areas) development? What are the alternative livelihood options and strategies that could reduce pressure on the environment and have positive impact on community wellbeing? How livelihood options affected by new infrastructure developments and how rural communities maximize their benefits from new opportunities (comparative and historical analysis)? What are the livelihood strategies and options for nearby and far-off areas, how that affects the environment and how that can be improved? How access to resource, market and remittance affects livelihood options in rural and urban areas and how that can be improved?

Activity 4.6: Detailed analysis of selected policy and institutional issues and their impact on RUL development and possible directions of improvement.

Activity 4.7: Organize stakeholder workshop and present findings and discuss follow-up actions (research and development).

Activity 4.8: Disseminate findings addressing different stakeholders using various means.

⁷ Effective marriage of biophysical and socioeconomic situations for better results.

Activity 4.9: Translate findings into action based development and policy intervention

Output 5: *Capacity gaps and requirements in relation to RUL identified and capacity building strategies and modules suggested.*

Activity 5.1: Identify capacity gaps and requirements (institutional and community).

Activity 5.2: Design capacity-building strategy and develop modules fitting different circumstances as per the findings of capacity gaps and requirements.

Activity 5.3: Organize workshop and discuss findings on capacity building

5.3. Phase III: Research and Development Phase – Crafting Solution Spaces

Based on the findings from Phase II above, key additional issues that need research and development intervention will be identified. Although the activities could vary after the baseline information, the following activities are anticipated:

Output 6: *Review of available tools and options that help improving baseline situation in consultation with key stakeholders are made available.*

Activity 6.1: Consult stakeholders about possible solutions for identified gaps and constraints on RUL during the baseline survey.

Activity 6.2: Review available tools and options that could help improve identified bio-physical and socio-economic constraints and opportunities inline to the recommendations of stakeholders;

Output 7: *Decision making support tools and options made available*

Activity 7.1: Validate and apply different bio-physical and socio-economic models that have capacity to capture resource/product flows between rural and urban areas under different settings and help design possible mitigation measures for improvement.

Activity 7.2: Apply integrated watershed management (IWM) planning tools and link them with sectoral planning systems mainly on watersheds feeding major reservoirs.

Output 8: *Improved models of RUL suggested, including payment for and valuation of natural resources and environmental services, to improve the wellbeing of rural and urban communities.*

Activity 8.1: Assess tools and options that help improve baseline situations and devise effective mechanisms of payment for environmental services to help proper implementation and enhance efficiency of selected tools and options.

Activity 8.2: Investigate possible pathways of development that can be created by improved rural-urban linkages and devise mechanisms for proper management and benefit including scaling-up including marketing.

Activity 8.3: Develop a model for effective RUL that can be adapted to local situation and suggest mechanisms of realization.

Activity 8.4: Organize stakeholders' workshop and present findings for enrichment.

Activity 8.5: Disseminate findings addressing different stakeholders using various means.

Activity 8.6: Translate findings into action based development and policy intervention including focused capacity building

Activity 8.7: Build institutional and community capacity

6. Implementation Strategies

The above outputs can be accomplished and objectives met on the benchmark site and selected satellite cities and their regions of influence only through clearly defined and stepwise approach. Implementing the project should start with careful selection of issues that need to be addressed within the context of RUL and with selection of representative satellite cities that will help to capture the basic processes and functions of RUL in Ethiopia. Moreover, creation of stakeholder platforms, developing strong partnership with key stakeholders, assessment of baseline situation and clearly presenting existing situations (constraints, opportunities, and changing patterns) related to RUL and assessment of tools and options that help improve baseline situations are some of the issues to be addressed by making use of systematic approaches. Some important considerations as a general strategy are:

- Application of pool funding system, developing objective criteria to select and grant project proposals presented on identified sub-thematic areas;
- Preparation of joint proposals that support the identified thematic research areas to strengthen RUL with working group members to support research activities and development interventions as per the findings of the baseline survey and other specialized research activities.
- Creation of platform composed of representatives of CGIAR centers and national partners (EIAR, MoARD, MoUDW, EPA, AAU, NGOs, HLI, etc) which will have national mandate and establish strong linkage with local partners.
- Establishing a CGIAR wide working group that meets regularly and is used to integrate and coordinate joint or coordinated activities to ensure synergies.
- Developing objective criteria and select strategically important satellite cities in relation to natural resources, product, labour or migration flows; and balance between rich and poor areas; close by and far-off areas; among products (natural resources, crop and livestock);
- Starting with documentation of baseline situations on RUL of the benchmark site and selected satellite cities and rural communities.
- Use watershed approach to closely investigate linkages and apply models such as SWAT (Neitsch *et al.*, 2001a and b) and GIS technologies to capture required information and determine bio-physical and socio-economic processes as well

as to investigate appropriate land management options to help improve rural and urban wellbeing.

- Application of different participatory assessment tools to investigate socio-economic situations of selected study sites.
- Reviewing available works in the region and the country and build on them.
- Launching detailed assessment of RUL issues and suggest possible areas of improvement both in research and development based on baseline situation.
- Focusing on addressing both opportunities and constraints and suggest solutions and tools.
- Using series of MSc and possibly Ph.D research results on selected topics as part of the capacity building and do effective research.
- Communicating results to different stakeholders (scientific community, planners, decision makers, farmers and business people, etc) through workshops, seminars, scientific publications, research reports, web pages, and possibly policy briefs, etc.

7. Beneficiaries and Expected Impacts

Smallholder farmers around peri-urban areas and hinterlands of selected cities and the urban poor involved in many activities, such as urban agriculture, who are now suffering from lack of viable livelihood options, technological innovations, and appropriate rural-urban linkage environments and heavily suffering from the serious environmental degradation-poverty-food insecurity nexus, will be the primary beneficiaries of the project. The project will assess baseline situation and will bring in technological and other innovative options to improve the baseline situation by harnessing rural-urban linkages through various means. Moreover, the project is expected to produce clear pictures of the current RUL issues, its impacts and possible areas of improvement and an enhanced understanding of policy relevant issues that facilitate proper RUL and improvement of community wellbeing and environment recovery. The project will reveal and shade light on many gray areas that hinder development of the country and that aggravate environmental degradation and poverty. The project will provide relevant information to policy makers, planners, development practitioners and donor groups regarding RUL issues and economically viable and environmentally sound development interventions that address different eco-environments and socio-economic setups. It will

try to untie key development puzzles and make available different options, models and tools to contribute towards better community wellbeing and environment stewardship in the highland parts of the country. The project will also strengthen community and institutional capacity in harnessing RUL and thereby economic development. Different analytical tools and models will be developed and made available to facilitate the tasks of policy makers, planners and development practitioners at different levels. More specifically the following impacts are anticipated:

- Information on baseline situation, options and tools to improve baseline situation made available.
- Greater awareness about RUL and their inherent impact on community wellbeing and environment created.
- RUL platform strengthened and made functional at different levels.
- New RUL models developed and tested.
- Policy and strategy adjusted.
- Effective ways of PES designed, tested and adapted.
- Alternative options and tools made available.
- Environment and community wellbeing improved and poverty reduced.

8. Proposed timeframe

Phases	Proposed time of implementation															
	2007				2008				2009				2010			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Phase I																
Phase II																
Phase III																

Note: Detailed timeframe for each activity will be developed

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10. Annex 1: Importance of the Rural-Urban-Linkage (RUL) Initiative by Global Mountain Programme (GMP) to Help Implement PASDEP: a Condensed Summary

1. Introduction

As mentioned time and again poverty-environmental degradation-food insecurity nexus is a serious challenge in Ethiopia. The government of Ethiopia, as indicated in its five year plan, i.e., PASDEP, is attempting to address this challenge through concerted efforts and is planning to achieve accelerated and sustainable development. Some of the proposed strategic actions to achieve the above broader goal are: i) ensuring sustained agricultural growth and transformation, ii) improving labour productivity, iii) improve urban growth, iv) invest on infrastructure development including marketing, v) build adequate institutional capacity at all levels and, vi) human resources development.

All the above strategic actions, directly or indirectly, requires improvements between rural and urban linkages. This has been stressed in PASDEP under the *strategic* section as one of key strategic elements and in many of sectoral policies and strategies.

However, there is very limited knowledge both on how the system functions and about what is required to strengthen the linkage between rural and urban systems. In this regard, the RUL initiative by GMP is timely and can play decisive role in filling this gap and improving the RUL situation in the country. Accordingly, the program has already started facilitating the development of a RUL platform that brings together development and research elements at different levels and this is positively accepted by stakeholders. The program, as indicated in its RUL framework, also intends to support the planning and policy processes through introduction of information and decision support tools. Furthermore, support to improve livelihoods can be rendered through development of targeted options for urban and rural populations using action-based research and identifying key intervention areas through the support of an alliance with the National System and its network of the CGIAR centers.

2. Project Drives

Rural-urban interactions are important elements of the livelihood strategies of both rural and urban communities, either in the form of flows of people (migration), natural resources, products, goods and services, information and money, or in the form of

income diversification. However, lack of proper and strong linkages between rural and urban systems at different levels, mainly emanated from uncoordinated development strategies of the two systems, often creates unbalanced situation and lead to extreme poverty and degradation of renewable natural resources, as it is seen in the highlands of the country. Hence, for a meaningful change in economic development and environmental sustainability, the interaction between rural and urban systems must be strengthened. This is the major thrust of the RUL project.

3. *Project intervention and possible contributions for the implementation of key PASDEP strategic plans*

Although the project will have many important outcomes as presented in its conceptual framework (see attached project proposal), some of the foreseen contributions of this project towards successful implementation of key strategic actions of PASDEP that are proposed to achieve accelerated and sustainable development are:

- i) *Enhancing agriculture development & transformation* – through assessing value chains for selected commodities and resources, investigating better market information systems and flows, assessing organizational and policy requirements, identifying other unutilized opportunities, making available technologies that can improve baseline situation, identifying niches, etc., and translate findings into action-based development intervention;
- ii) *Enhancing sustainable management of environmental resources* – through investigation of flows of Natural Resources (water, energy, nutrient) and pollutant in and out of rural/urban systems of selected case study areas and designing solutions and introduction of an integrated physical and sectoral planning systems including scaling-up of successful SLM practices – following watershed logic and principle;
- iii) *Pursuing well planned and responsive urban development* - through assessing what goods and services the urban system (including at the smallest urban level high up to the mega towns) should provide to support rural development, mechanisms of responding to rural migration (seasonal, permanent, cyclical, etc), identification of innovative actions that makes the urban systems to be triggers of environmental management and rural development, etc.;

- iv) *Enhancing sustainable infrastructure development* – through focused investigation and provision of a framework for sustainable utilizations of key infrastructures – including systematic payment for environmental services, and designing responsive infrastructural development systems that contributes towards development of secondary and tertiary sectors in rural and urban areas;
- v) *Creating employment opportunities* – through the identification of alternative livelihood strategies such as eco-tourism, production of high value horticultural products and identifying and showing possible use of other unutilized opportunities, etc, and managing migration and designing systems for better impact including flows of remittance, etc.;
- vi) *Enhancing focused capacity building* – since this is considered as one of the key crosscutting issues on the approved RUL framework, the project will contribute through investigating capacity gaps and designing capacity building strategies (institutional, community and individual in both urban and rural areas) that will be instrumental to achieve the intended development.

In addition, the project will work on policy and institutional requirements and their proper implementation to harness linkages between rural and urban systems and thereby enhance proper implementation of PASDEP.

In all cases, it will be attempted to provide tools (planning and decision making) and options both technical and technological and help develop measurable impact indicators. Moreover, project activities and outputs will be geo-referenced with appropriate database in place to help systematic monitoring of impact and transferability of results to similar areas.

4. Strategy

The project will facilitate the development of an operational framework where key stakeholders in rural and urban development meet and set priority actions. Accordingly, the knowledge generated will be translated to development and policy interventions through RUL platform that will be created at all levels where the project is operational. At federal level the platform will be co-chaired by MoARD and MoWUD. The organizational structure will be flexible at regional and other towns depending on site specific situation. More specifically the key strategies are:

- Form Alliances - National groups (research and development), System-wide Initiatives, and bring in CGIAR and where needed other international support;
- Identify satellite cities representing different scenarios to clearly capture different situation in the country (see Figure 4)⁸;
- Facilitate development of a framework that enables research to connect effectively with development efforts through:
 - National and local RUL platforms: dialogue and action;
 - RUL research support groups through an alliance of GMP-CGIAR with national and international institutions.

5. Other Synergies

There is a physical overlap between RUL project sites and four of the six growth corridors proposed in PASDEP (Addis Ababa, Harar, Tana-Beles (Bahir Dar), Rift Valley (Awasa-Shashemene)). We hope this is an added advantage and the project can contribute for successful implementation of the growth center approach. Similarly, the inclusion of one satellite site in emerging regions, i.e. Assosa, as per the recommendations of stakeholders during and after the planning workshop is another important aspect of this initiative and can be instrumental for emerging regions to properly guide interventions both in rural and urban areas. The same goes for Goba-Robe and DM-Choke which are included to capture typical mountain issues under different set-up and Dessie to capture highly food insecurity areas.

6. Actions thus far

- 2005-6: Individual consultations with MoARD, EPA, MoUDW, AIER, Municipal offices, NGOs, Mayor, Other ministries, Regions, donors and CGIAR centers conducted on RUL concept
- August 2006: Stakeholder workshop and consultation conducted – positive support and input from all: on the formation of stakeholder platform and conceptual framework
- January 2007: RUL concept and project proposal presented to the RED/FS group of DAG – project concept positively accepted, bilateral discussions with donor group

⁸ 1. Note that Addis Ababa is Global Benchmark City for the RUL initiative by GMP

2. All other sites are selected and assumed to represent different scenarios in terms of food security, development, and types of products, environmental degradation and other socioeconomic and ecological variables.

members was recommended for specific support and participation of the RUL coordinator on selected TWG recommended

- February 2007: Bilateral discussion with donors continued site visits and stakeholder consultation on some satellite sites conducted and some activities started using the seed money from GMP.