

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



**A Thematic Research Area of the Global Mountain
Programme (GMP)**

PROCEEDINGS



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

**Proceedings of a planning workshop on
Thematic Research Area of the Global Mountain Program
(GMP) held in Addis Ababa, Ethiopia, August 29-30, 2006**

Edited by:

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The Global Mountain Program (GMP) is a system wide programme of the Consultative Group for International Agricultural Research (CGIAR) system aimed at achieving sustainable mountain/highland ecosystem development and MDGs.

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Preface

One of the tasks of the GMP as a system-wide program is to bring together the research resources of the CGIAR in an alliance with others in development to support the MDGs in mountains. However, to do so one needs a conceptual framework that will focus and add value to the activities. The existing problem is that activities add to a mosaic of activities which often are not integrated into a broader vision to bring all the parts together. The Rural Urban Linkage (RUL) thematic area we believe provides this conceptual framework through which connections can be made and value can be added. For this reason we have placed emphasis on RUL as a vehicle to bring both research and development actors to work together towards agricultural transformation and better environmental stewardship in the highlands/mountain regions of the world. From the reaction we have had across the board, from government, donors, research and civil society and NGOs, the concept is timely.

There are numerous key knowledge gaps in understanding and improving the effectiveness of planning & policies that affect urban & rural livelihood and agro-environmental issues and there is a need for targeted livelihood options for groups with different access to markets that need concerted investigation for which the CGIAR as a whole has capacity. The issues need a focused, integrated research approach and a territorial rather than sector based planning, policies and support strategies for sustainable mountain development. Thus, the Rural Urban Linkage conceptual framework is a tool to bring together the research and development resources for impact in a complex development objective (sustained rural and urban development) where in the past we have failed.

The Rural Urban linkage approach would provide the basis for actions using cities as engines for rural development through better incentives for environmental stewardship, such as Payment for Environmental Services (PES). In addition, the approach contains non-research components of development of a platform for stakeholders in each of the benchmark sites. The activities of the platform would be supported by research with information and tools about priority action areas and options. This model provides for a clear supportive role of research for development in defined benchmark sites where MDG impact can be measured.

The GMP is being developing an operational framework for its different themes where research connects to development priorities and key groups. This workshop is part of the methodology development process for the RUL theme using Ethiopia as a benchmark case. It aimed to revise and enrich the existing draft conceptual framework and define research intervention areas with strong initial focus on collecting baseline data on actual livelihood and land-use issues and options of rural and urban mountain populations. More precise

baseline information is needed on the inflows and outflows of goods from and to rural & urban areas and on the strengths and weaknesses of existing policies to optimize the benefits of RULs to attain national goals. Research would contribute to quantification of identified problems such as water availability and quality, forest degradation for fuel, migration and health and contribute to better targeting of support to mountain people and feed into national planning and policy development through the RUL platform from which new lines of research and development actions would emerge.

We are launching this initiative in Ethiopia in collaboration with other Ethiopian and international institutions, including the CGIAR System wide Urban Harvest Program (SWIUPA) and the Eco-regional Program the African Highlands Initiative (AHI) to add strength to the initiative as a whole. A CGIAR group for the initiative has already been formed to support and undertake coordinated action.

Above all, I hope this will contribute towards harnessing RUL for better livelihoods and environmental stewardship here in the Ethiopian highlands and set an example that can be extrapolated to the rest of Africa and other continents.

Peter Trutmann, Programme Leader, GMP.

Acknowledgement

This planning workshop would have not been possible without the financial support from CIDA, GTZ and WFP. We would like to thank all the three organizations for their support and CDIA particularly for the basic support to GMP which helped us to push the agenda thus far. Our sincere thank H.E. Dr. Abera Deressa, State Minister, MoARD, for his continuous support and encouragement for RUL theme initiative in Ethiopia. Thanks also goes to DG of EIAR, Dr. Tsedeke Abate, General Manager of EPA, Dr. Tewolde Berhan G/Egziabeher, other government officers, Addis Ababa Municipality, Office of Urban Agriculture, AAU, regional representatives, NGOs, Donors, CGIAR group representatives and others for their support and participation in the planning workshop at different capacity.

Special thanks go to those who, despite their tight schedule, managed to present lead papers to enhance discussion and help revision of the RUL conceptual framework. The same goes to the facilitator (Dr. Solomon Abate) and the rapporteur (Dr. Dawit Alemu) of the workshop. Our collaborators on this initiative i.e., the African Highland Initiative (AHI) and the System-Wide Urban Harvest Programme deserve special thanks for their support and facilitation of the establishment of the office here in Addis Ababa. Our special thanks go to ILRI for hosting the RUL Africa coordination office here at Addis Campus and availing all facilities for the conference.

Finally, many thanks to all those who have put so much effort and time on the preparation of the conceptual framework, preparing the workshop, editing and finalizing the proceeding which we are happy about it.

Acronyms

AAU	Addis Ababa University
ADLI	Agricultural Development Led Industrialization
CGIAR	Consultative Group for International Agricultural Research
CPP-SLM	Country Partnership Programme on Sustainable Land Management
CSA	Central Statistical Authority
DAG	Development Assistant Group
EIAR	Ethiopian Institute of Agricultural Research
EPA	Environmental Protection Authority
ERTTP	Ethiopian rural travel and transport programme
GIS	Geographic Information System
GMP	Global Mountain Program
HLI	Higher Learning Institutes
IWM	Integrated Watershed Management
MERET	Managing Environmental Resources to Enable Transitions
MoARD	Ministry of Agriculture and Rural Development
MoUDW	Ministry of Urban Development and Works
MoWR	Ministry of Water Resources
MTP	Mid Term Plan
NARS	National Agricultural Research System
NGO	Non Governmental Organization

NRM	Natural Resource Management
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
PSNP	Productive Safety-Net Program
RDPS	Rural Development Policy and Strategy
RUL	Rural Urban Linkage
SDPRP	Sustainable Development and Poverty Reduction Program
SLM	Sustainable land management
SWAT	Soil and Water Assessment Tool
UA	Urban Agriculture
UDP	Urban Development Policy
UNDP	United Nations Development Programme

Executive Summary

A two-day planning workshop on RUL was conducted from August 29-30, in Addis Ababa. The primary objective of the planning workshop was to enrich the draft conceptual framework for the RUL Thematic research area and devise the way forward for action research/development intervention to strengthen RUL and thereby support the development efforts of the country. The workshop was attended by 80 participants drawn from federal and regional government offices, higher learning institutions, civil society organizations, private sector and International Agricultural Research Centers. The workshop was officially opened with welcoming and opening remarks by high level officials from EIAR, GMP, EPA and MoARD.

The workshop was organized into paper presentation sessions and group work sessions followed by a panel discussion. The first day of the workshop was dedicated for paper presentations and second day for group work and panel discussions.

Key outcomes of the workshop:

- Cognizing that RUL was a missing element in Ethiopia's development endeavor and the consideration of RUL in PASDEP, a general agreement was reached that the initiative will be instrumental in providing vital information in addressing the current gap.
- While endorsing the proposed sub-thematic areas, it was recommended to depict clearly the interconnections between the sub themes in the design of the conceptual framework (see Figure 2 of the paper presented by Gete Zeleke (Page 30) which shows the revised conceptual framework as per the recommendation).
- Priority action areas were identified under each sub-theme to be incorporated in the improved version of the concept note. The identified priority action areas are:
 - o Flow analysis (goods and services)
 - Natural resources – flows of water¹, energy, sediment, nutrients², pollutants within rural-urban continuum;

¹ Some of the proposed activities on the analysis of flows of water & pollutant within RUL setting includes (as example):

- o High gradient watershed and hillside hydrology and mechanisms to improve flow and quality
- o Storm water management (What are the innovations to manage urban storm for productive use in urban and peri urban areas?)
- o Pollutant transport (Which technical and policy options are feasible to reduce the risk of chemical and food contamination in industrialized areas?)
- o Making assets out of waste water
- o Irrigation water quality (What are the extents of waste water and clean water usage in irrigation in urban and peri-urban areas?)

² Some of the proposed activities on the analysis of flows of nutrients are (as example):

- o Analysis of the challenges and opportunities of the safe re-use of urban nutrients for agriculture
- o How to move into non-conventional nutrient management frontiers
- o Maintaining & forming partnership for nutrient recycling and scale-up nutrient recycling experiences

- Products flow (Value chain analysis) – flows of forest, crop (including high value horticultural products) and livestock products and by products; agricultural inputs; market and market infrastructure;
- Labor flow (migration) – migration (RU, RR, UR, cross boarder) including flows of remittance/capital and gender and age relations;
- Knowledge and information flow – analysis of flows of market and other information, skills, services, etc;
- Policy and institutional analysis
 - Policy – rural policies, urban policies, RUL-relevant common policies and International conventions and agreements including land tenure policies;
 - Institution – public, private and communal institutions both in rural and urban settings, issues related to institutional linkages and stability;
- Livelihoods analysis
 - Economic activity options including new frontiers such as
 - The role of tourism as alternative livelihood options within RUL setting
 - Value adding, etc...
 - Natural resources (NR) and livelihood options (analysis of the interdependence of poverty and land degradation)
 - Analyzing peri-urban and urban agriculture – going for business unusual intervention to improve livelihoods
 - Impacts of cultural values and norms towards improved livelihood options and solutions
 - Physical distance and livelihood options
 - Migration as livelihoods option within the RUL context – challenges, opportunities and actions
 - Factors affecting choice of livelihood options in rural and urban settings
 - Policy and institutional requirements to improve livelihoods within RUL context
- Cross cutting issues
 - Capacity building requirements (on system development and spatial planning and the inter-linkage with sectoral planning approaches)
 - Gender and HIV/AIDS

- Baseline research to identify key gaps, opportunities and intervention areas related to the three sub-thematic areas is recommended as a first activity.
- The workshop recommends that the RUL initiative need to be strongly linked with the national R&D system.
- The proposal to establish a RUL platform was endorsed as a freestanding organ. List of members of the platform, TOR (including roles and responsibilities) to be developed later.
- Strong collaboration by different stakeholders was emphasized and recommended that the platform shall be one avenue to ensure close collaboration.
- In addition to the benchmark site and satellite cities³ proposed, it was recommended to include emerging urban areas such as Assosa.

³ Addis Ababa is Global Benchmark Site, but the following additional satellite cities representing different scenarios in the country are proposed: i) Awassa-Shahemene, ii) Jimma, iii) Bahir Dar, iv) Mekele, v) Harer., vi) Dessie, vii) DM-Choke, and viii) Goba-Robe

Part I

Workshop Opening and Keynote Address

Introduction and Welcome by Dr. Gete Zeleke, Coordinator RUL Thematic Research Area of GMP for Africa

Your Excellency Dr. Abera Deresa (State Minister, Ministry of Agriculture and Rural development),

Heads of government agencies, academia, international donors, non governmental organizations, CGIAR center representatives, invited guests and conference participants,

On behalf of GMP, the partner organizations and myself, I feel honored to welcome you all in this planning workshop titled “Fostering New Development Pathways in Ethiopia: Harnessing Rural-urban Linkages (RUL) to Reduce Poverty and Improve Environment in the Highlands of Ethiopia”

For millennia, mankind has tried and was able to change the world to suit its needs. He was able to drain swamps. He was able to clear mighty forests for different uses. Mankind was able to create mega cities with huge resource demands from the surrounding and far-off rural areas. Although mankind was able to achieve incalculable and commendable good things over its short history, often it is at the expense of our environment.

When the destruction of ecosystem creates unbalanced situation, nature reacts in extreme ways mainly recurrent drought/famine or flooding. We Ethiopians have witnessed and affected by severe recurrent droughts. We lost millions of lives, we lost immeasurable genetic diversity, we lost our beautiful lakes, streams, and we lost our precious soils and saw the rise of intensified poverty. Most importantly, we are recognized as symbols of recurrent drought and famine amid a wealth of natural resource base.

Recently, we witnessed unexpected flood hazards covering many parts of the country from the north to the south and from the east to west. All this is nothing but the result of over exploitation of the natural resources in mountain/highland areas. This has strong linkage with our development policies and strategies, level of poverty and most importantly, the interaction between rural and urban systems, which has not been in favor of protecting the mountain/highland ecosystem.

Often rural planning and support are disconnected from the urban and the urban planning disconnected from rural development. Programmes are spread over the rural and urban landscape in a piecemeal fashion but often do not interconnect. As a result there has been unbalanced flow of resources to urban centers at the expense of rural environment. At other

times, neglecting urban systems further weakens the linkage and aggravate over exploitation of the natural resources.

Hence, improving rural-urban-linkage is considered as a means to restore our fragile environment and enhance accelerated economic growth.

As it is indicated on the draft summary concept note, this workshop is set to achieve two major objectives:

- i. to bring experiences together, distil lessons and enrich the draft conceptual framework for the RUL thematic research area and devise the way forward (define priority action areas) for action based research/development intervention to strengthen RUL and thereby support new/existing development efforts in the country;
- ii. to set up the RUL platform whereby key partners from development group in Ethiopia, NARS and CGIAR Centers will play joint active role by integrating their efforts to strengthen RUL for the improvement of the wellbeing of communities and their environment in the mountain/highland areas.

To help meet these goals the workshop is structured in two sequential steps:

1. First day will be dedicated to learn about the initiative and deepen our level of understanding of the RUL in general. Hence, different papers by key resource persons will be presented and discussed.
2. Second day will be dedicated for group work and intensive interactions, then after enriching the proposed Conceptual framework and setting priority action areas. Creation of national RUL platform is the other task during the day.

Throughout these two days we will be guided and led through by a facilitator and rapporteur.

Looking from the encouraging response and support we get from different stakeholders during our initial communications and follow-up discussions, I believe that these objectives will be achieved. Your active participations, however, are vital throughout the workshop.

Probably, this workshop is the first in its kind to bring and discuss the RUL agenda at this level. Realizing this, we tried our level best, although not exhaustive, to bring together key stakeholders working on both rural and urban development. The participants are from Federal and Regional government sectors, national research systems and international research institutes, HILs, NGOs, Donors, Civic societies, from Addis Ababa Municipality, Private sectors and renown scientists on the field, locally and from abroad.

I hope, this workshop will lay solid foundation for challenging and interesting tasks ahead of us in strengthening RUL and thereby improve the extreme rural and urban poverty and improve the environment of our mountain ecosystems **so that we recreate safer environment to live for our children.**

Welcome Remarks by Dr. Peter Trutmann, Programme Leader, GMP

Your Excellency Dr. Abera Deresa (State Minister, Ministry of Agriculture and Rural development),

Distinguished guests, participants from ministries, municipalities, NGOs, the universities, the national research community, the donor community, international organizations, and from the CGIAR centers,

In the Name of the Global Mountain Program and our CGIAR partners who support us in this thematic area: the African Highlands Program and the Urban Harvest Program, I would like to welcome you to the first workshop on: Strengthening Rural Urban Linkages to improve the well-being of Rural and Urban communities and Enhance Sustainable NRM in Mountains and highland Areas.

It gives me a great pleasure to see so many of you here at the first workshop to strengthen rural urban linkages in Ethiopia.

The presence of so many key groups from both urban and rural regions and the donor community to me indicates that we have come to a point in time where it is clear for many of us that our efforts to support activities to improve livelihoods of people and manage the fragile natural resources needs to be better linked to demographic realities and multiple livelihood strategies in Ethiopia today. In other words:

It is our hope that together we are at a point where we believe that Planning and implementing development actions without systematically linking the rural with urban components and vice versa and seeing the process as a whole will not efficiently lead us to our goal of having impact on the MDGs in Mountains. We need better mechanisms and engines for these processes.

Ethiopia is an extremely important country from the perspective of mountain management. It is the largest mountainous region in Africa. And has one of the longest recorded histories and knowledge of managing mountainous regions in Africa. Yet, the floods and famine in the rural areas and uncontrolled, rapid growth of urban areas with their slums are indicators strategies have not enabled efficient management of either rural or urban development. In this Ethiopia is not alone, but the effects have been severe. I think Dr. Tewolde will be touching in his presentation. Out of the box thinking and new strategies need to be considered. RUL in mountains is one such option.

The support from all sectors that we worked with in the last year have been overwhelming. From the beginning when we discussed the ideas with Dr. Tsedeke of EARI, then later with the EPA, Municipal offices, NGOs, donor agencies, and finally with the State Minister Dr. Abera the response has been very, very encouraging.

In this light, the GMP sees its role to support a national agenda as part of an alliance with information, tools and options. As first step in the process this workshop aims to bring together key groups to discuss the key issues and to begin to develop a framework that will enable research to link and support effectively development activities with information, tools and options that directly affect the MDGs.

Ladies and gentlemen, I hope together we will take the first important steps in this workshop.

Thank you.

Welcome Remarks by Dr. Tsedeke Abate, Director General, Ethiopian Institute of Agricultural Research

Your Excellency Dr. Abera Deressa, State Minister, Ministry of Agriculture and Rural Development,
Distinguished Guests, Participants, Ladies and Gentlemen,

It is a great pleasure for me to welcome you all to this important workshop.

It is my belief that this initiative is consistent with and will contribute to the Government's development plan: Plan for Accelerated and Sustained Development to End Poverty (PASDEP), which emphasizes interventions meant to achieve the Millennium Development Goals. As part of this effort, the initiative needs to design targets where specific contributions of the different participating institutions can be known so that each institution can determine efficient ways of producing the desired results.

Taking into consideration the complexities of Rural-Urban linkages, the creation of strategic alliance for better coordination of efforts and creation of synergies should be seriously looked into.

What is important to mention here is the significance of coordination of initiatives. There are very many initiatives in this country. How we devise mechanisms to complement each other, as opposed to compete with each other, is crucial for the success of all initiatives.

Furthermore, there is such urgency for moving to implementation of the proposed activities; we should not wait until we have all the information. In this regard, I would like to quote General Collin Powell's Primer in Leadership:

Part I: "Use the formula $P=40$ to 70 , in which P stands for the probability of success and the numbers indicate the percentage of information acquired."

Part II: "Once the information is in the 40 to 70 range, go with your gut."

Finally, I would like to take this opportunity to thank the Workshop Organizers for giving me this opportunity to welcome the workshop participants. I once more extend my warmest welcome to you all and wish you fruitful deliberations.

Opening Speech by His Excellency Dr. Abera Deressa, State Minister, Ministry of Agriculture and Rural Development (MoARD)

Distinguished Guests, Participants, Ladies and Gentlemen:

It is a great pleasure for me to address this gathering, which is set to deal on one of the most important issues but seemingly least considered issue, in the past, within the development agendas of the country. Strengthening of the ties between the rural and urban systems is vital for the transformation of the dominantly agrarian society towards technology based and diversified and sustainable development like that of our country.

It could be unjust of me not to mention the current serious flooding that took lives of thousands of our citizens. This by enlarge is a result of our poor management of the highland/mountain ecosystem for generations. When I learnt that one of the objectives of this initiative is pursuing action based research and development interventions to strengthen rural-urban linkages and thereby improve community wellbeing and sustainable management of the environment in mountainous/highland areas of the country, I recognize that it indeed touches one of the key problems in the country on the right time for many reasons.

The combined forces of extreme poverty and serious land degradation are our major challenges. These are often aggravated by lack of proper rural-urban-linkages. As you all know urban centers are major sinks for products including natural resources from rural areas, energy, water, plant and animal products. They are destination of migrants from nearby and far-off rural areas. They are sources of different forms of livelihoods including urban agriculture.

On the other hand, the rural systems are also sources of various products and labor used by the urban system. They are also source of market and livelihoods for the urban system. However, despite these and other functions and interdependence to each other, the linkage between these systems has not been properly coordinated and planned. Until it is clearly indicated on the recently designed five year strategy of the country, history tells us that the development strategy of the country has been either urban or rural biased. However, either or kind of development strategy will not lead towards success. I believe that the two systems need to be properly linked today than before.

Today, the 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 their capacity to deliver adequate services. This creates huge pressure on already fragile infrastructure and consequently raises the urban un-employment force, the spread of our new problem

HIV/AIDS, increment of 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 this challenge, predictions show that urbanization in this country is anticipated to grow at faster rate than before. This has also been observed in many Sub-Saharan African countries in the last few decades. 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 ecosystem as it used to be the case in the past. Hence, this initiative focusing towards strengthening rural-urban-linkages in this dynamic and fragile eco-environment is indeed timely.

Cognizing the above mentioned challenges, the Government of Ethiopia recently approved a five year plan under the title ‘Plan for Accelerated and Sustained Development to End Poverty (PASDEP)’. The strategy focuses on growth – with a particular emphasis on greater commercialization of agriculture and the private sector - and a scaling-up of efforts to achieve the Millennium Development Goals. I am pleased to tell you that the rural-urban-linkage is one of the key elements of the eight strategies of PSADEP. On this issue, the strategy specifically states the following:

...I quote “...rural-urban linkages need to be strengthened, to maximize the poverty impacts, and to take full advantage of the synergies. This involves integrating markets, opening up the flows of labor, and access to income-earning opportunities between towns and surrounding rural areas. The specific instruments to achieve this include improved rural access roads, building up of small rural towns, improved telecommunication access, the continued spread of general education and technical-vocational training in peri-urban areas; development of small-scale credit markets; and the major program of rural electrification...”.
... end of quotation....

So, strengthening of rural-urban-linkage is one of the agendas of the government. Therefore, the rural-urban-linkage initiative by the Global Mountain Programme was timely, helped us to straighten our thoughts and it is well linked to the strategy of the Government.

Moreover, the rural-urban-linkage thematic research area will also be instrumental for the success of other major initiatives of the government such as the Productive Safety Net Programme, and the newly initiated Country Partnership Framework on Sustainable Land Management.

I was also personally encouraged by the fact that the rural-urban-linkage initiative is taken as a common media to bring all actors dealing with rural and urban development together. This is, because, one of our many challenges in our effort towards improving the existing serious poverty and environmental problems in the country. The idea of bringing key stakeholders

both from the research and development group including civic societies, private sector, government and non government organizations working on both rural and urban development issues is a commendable effort. We need to read each other more than we did before. It is also proposed to establish rural-urban-linkage platform at the end of the workshop to help achieve the above-mentioned integration among ourselves. Therefore, I encourage all participants and key actors to make sure that this platform should be different from business as usual committees and platforms. We should use the platform as a vehicle to lead us to achieve the goals of this initiative.

Last but not least, I am also pleased to learn that Addis Ababa is selected as the first Global Benchmark City for this initiative in the time of serious environmental crises in the country. The government indeed will give its utmost support to make this initiative a success.

Finally, I would like to give thanks to GMP and the CGIAR centers for bringing this important initiative here in Ethiopia in the time where we are trying our level best towards eradication of poverty. My appreciation also goes to the donor groups specifically CIDA, GTZ and WFP for co-financing this workshop and their effort to link this initiative with existing and planned broader development efforts in the country. I would also like to thank the resource persons and all the participants that have taken their precious time to join us on this important planning workshop.

With this, I hereby open this planning workshop on the rural-urban-linkage thematic research area of the Global Mountain Programme and I wish you all successful deliberations for the coming two days.

I thank you for your attention!

Keynote Address by Dr. Tewolde Berhan G/Egziabeher, Director General, Ethiopian Environmental Protection Authority (EPA)

Your Excellency Dr. Abera Deressa, State Minister, Ministry of Agriculture and Rural Development

Mr. Chairman, Ladies and Gentlemen,

I feel greatly honored to be invited to give a keynote address at the opening of this important workshop. It is important because it will hopefully clearly prioritize research areas to help mountain and highland development in Ethiopia. You will recall that about 90% of Ethiopians live in mountains and highlands. And thus, I can tell you that mountains and highlands are the most important parts of the Earth, at least for me, and I expect for 90% of Ethiopians. When I was a child, I used to feel most comfortable in a valley protected by tall mountains, and the open country beyond was full of predatory unpredictability.

Now that I am old man, I find this view to be still justified. That is why the predatory globalizing world, which originated in flat Western Europe, sees my protective mountainous world as marginal.

Indeed, the mountains of Europe are marginal to human life. They are frozen most of the year; many of them are frozen even the whole year round. But humans, even Europeans, who evolved in our Rift Valley near here under the shadow of the protective tall escarpments, find these frozen mountains difficult, or even impossible, to live in. This hostility to mountain and highlands, physiologically appropriate in Europe owing to its north distance from the African Rift Valley, is globalizing to have our bountiful, hospitable and protective mountains and highlands also viewed by the world as marginal. Marginal to what?

To answer this question, take yourselves to the time before little flat Western Europe started engulfing the world about 500 years ago, and setting in motion what most of you here and now believe in: part of which is that our tropical highlands and mountains are as marginal to humans as those of Europe are. Look at South America. Where did the native civilizations start thousands of years ago? In the Andean Mountains, of course, look at Asia. There are no tropical highlands. The older civilizations in the tropical lowlands had to come south to them from subtropical areas further north. Look in Africa, the continent bisected by the equator. All the mountainous and highland areas had their own strong pre-European states that withstood colonialism, e.g. Lesotho, Swaziland, and Ethiopia. Mount Kilimanjaro, too, had a

sophisticated civilization. But, though constituting the biggest African mountain, it was isolated and too small to resist colonizing Western Europe.

Is it then surprising that, in the present world, which is globalizing in the image of Western Europe these mountains and highlands are identified as poor? Yet they still support more people than there surrounding lowlands of the same size do.

Ladies and Gentlemen, I Suggest that you throw away towards Europe the idea that African highlands and mountains are poor because they are highlands and mountains *per se*. They are poor because they have been the most defiant and thus the last parts of Africa to try to come to terms wise this globalizing Western Europe world. I want to emphasize to you that there is nothing inherently poor and marginalizing about mountainous and highland areas in the tropics.

Therefore, I maintain also that there are no relationships that work in the flat lowlands of Africa and the rest of the world work also in the mountains and high lands of tropical Africa.

Of course, I am not saying that the soil on mountains and highland does not erode faster than that on flatter lands. It erodes faster because water that is flowing downhill moves with greater force. I am saying that people in mountains and highlands can control erosion as they have done for millennia before they started feeling the demeaning perturbations from flat Western Europe .I am also saying that mountains and highlands have much more water than the lower lying flat areas. Most African mountains and highlands are volcanic in origin and thus have inherently fertile soil. With appropriate land management, they can use their wealth of water and inherently fertile soil fertility for maximizing agricultural productivity sustainably. This would not be new to them. They have been doing it for millennia. That is why they are still the major centers of crop domestication and genetic diversity. It is only their defensive interaction with the outside world from a position of disadvantage that has reduced them to poverty. I am not saying that their slopes do not make transportation more difficult and expensive than in flat lowlands. I am saying that these very slopes, coupled with the higher rainfall that they enjoy, make for electricity generation from hydropower. I am saying that their high isolation makes for electricity generation from solar power. I am saying that, especially in these times of hiking petroleum prices, the wealth of energy that tropical mountains and highlands have more than makes up for handicap that their slopes pose to building transportation infrastructure. I am reiterating that, on the whole, there is no free lunch in life; but if you pay well through hard work, tropical mountains and highlands provide you with sumptuous lunch, and enough to spare for a sumptuous dinner afterwards.

The need for harder work for assured bigger rewards, I agree, is a sufficient feature to distinguish mountains and highlands as requiring a special and focused attention. That is why

I fought hard for a separate chapter on mountains and highlands when we negotiated agenda 21. I am gratified to see this workshop emanating from that chapter even if I am disappointed that Agenda 21 has not become the global guiding force that we had envisaged it to be in 1992. Therefore, I want to focus on some of the issues on the Ethiopian mountains and highlands that must be heeded in the hard work to benefit from the abundant natural resources while rehabilitating and sustaining the natural resources base.

1. There is a strong local community life in rural and poor urban Ethiopia. The materially richer and globalizing Ethiopia, which includes you and me, ladies and gentlemen, is likely to see local community life as esoteric. Shunning poverty and distancing ourselves from it is an understandable reaction. But, I assure you that local community life in Ethiopia is not esoteric. It is a major asset suited for using and caring for the natural resources which have to generate the wealth that we aspire for using and caring for the natural resources which have to generate the wealth that we aspire for. Therefore, put your hard work to support, not to supplant, local community norms, however materially poor those local communities might be.
2. You will naturally approach from your respective specifics of specialization. Even thus, please resist your impulses to define your respective research topics in the privacy of your laboratories. Work with the respective local communities to identify what research needs to be done to maximize the benefits from, and the care for, natural resources. You can then be sure that your research results will be applicable and not merely fill up library shelves.
3. Let local communities do what they believe in, and enjoy the role of merely supporting them. If they do not believe what you are telling them, your ideas are either incomprehensible to them because you express yourselves in undue abstractions, or worse, because your ideas are down right irrelevant to the current imperatives of maximizing both the benefits from, and the care for, the natural resources base.
4. Assuming that you agree with what I have said so far, I would like to ask you to remember that offending outsiders is taboo to rural people. And you and I have chosen to become outsiders to them. They often say “yes” to dismiss us kindly, knowing that they will not even try to do what we tell them is right for them to do. Do not blame them. The desire not to offend is a quality albeit a problem in communication with strangers. More importantly, we, as the estranged, have let them down so often that they have first to try us out and find us genuine friends before they can trust us. I could tell you many stories of how we have failed them. In my view, they are right to want to first ensure that we mean what we say to them before believing us. The best way to show them that we mean what we say is by doing together with them, what we tell them is good to do for all of us.

5. Nevertheless, I am sure that we all agree that development can take place only if new ideas are welcomed and tried out by them. And, as globally connected and thus better informed, you and I can generate many ideas that are new and of value to local communities, both urban and rural. But our global connection can also fill us up with ideas that are irrelevant for the needs of the local communities. That is why we have to be sensitive to their needs, not only to our fancies of what seems to us right for their good.
6. Therefore, our new ideas should not focus only on our respective personal wishes, nor even only on the globalizing part of our urban environment. They should focus also on positive change in the life of the rural local communities and in the life of the poor urban local communities.
7. I do not feel that I need to remind you that it is the natural resources that flow from the rural areas to our globalizing urban settings and the labour of both the rural and poor urban local communities that uplift us into the comfort of aspiration. This accruing aspiration must not be retained by us alone in its entirety. It must flow back in the form of infrastructure, finished goods, services and inspiring ideas also to the rural local communities and to the poor urban local communities.

I could say more. But I have said enough, I hope, to show you that development can come only through an initiative interaction among the people and institutions of cities, towns, villages and the countryside, when they are all aiming at maximizing both human and environmental well-being. You, as researchers, are the ones that can prime this iterative interaction.

Here you are a body of researchers, posed to decide what research needs to be done to achieve this iterative interaction, and to prioritize your decisions. I will not take more of your time. Good luck in your important assignment. Thank you all for hearing me out.

Part II

Reviewing Concepts and Background Papers on RUL

The Global Mountain Program and Harnessing Rural-Urban Linkages

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Mountains and highland regions

Mountains have been characterized as one of the world's most vulnerable bio-geographic areas susceptible to land degradation, that has suffered from loss of indigenous culture and traditions that embody thousands of years of lessons learned about sustainable mountain environment management. These regions are characterized by:

- Variable climates;
- Heterogeneous habitats often with the unique fauna and flora;
- Geographically difficult and isolated regions;
- With poor infrastructure;
- Home of some of the most marginalized groups who are isolated from centers of power;
- And highly important function as 'water towers', and sources of energy, minerals, agricultural and forest products.

According to an analysis by the United Nations University & the University of Bern degradation of mountain ecosystems threatens to seriously worsen global environmental problems such as floods, landslides and famine. The International concerns mentioned above gave rise to Agenda 21 Chapter 13 with two priority areas:

1. Generating and strengthening knowledge about the ecology and sustainable development in mountains (Estimated investment need: 50 million/annum)
2. Promoting integrated watershed development and alternative livelihood opportunities. (Estimated investment need: 13 billion/annum)

The recent climate changes affect mountain regions disproportionately and add further importance to the above priority areas.

The Global Mountain Program (GMP) is a System Wide Program of the Consultative Group on International Agricultural Research (CGIAR) system. Its task is to bring and bear the resources of the CGIAR Centers to support Agenda 21, especially chapter 13 on mountains and chapter 14 on agriculture to contribute in achieving the Millennium Development Goals in mountains. Within the context of chapter 13 and 14 the GMP aims to

- Bring together the research capacity of CGIAR system together with other partners to support sustainable mountain development;
- Closely link research with development efforts;
- Establish mechanisms that enable knowledge exchange within and between continents;
- Promote research that support development efforts on overriding global issues that affect mountain regions (thematic action areas);
- Engage in the International Dialogue and advocacy of mountain issues: e.g. in international mountain platforms.

The program has thus far developed four thematic action areas:

- Information, options-support for mountain communities;
- Strengthening Rural Urban Linkages for sustainable mountain development;
- Reducing vulnerability from global change (climate and economic) in mountains;
- Analysis and support of better Mountain Policies.

The action areas are interconnected. However, only the Rural Urban Linkage action area will be elaborated on in this paper since it is the topic of the workshop.

The Rural Urban Linkage Disconnect

Urban Centers are growing rapidly. Today, over half the world's population resides in cities. This phenomenon has fundamental implications on the way we tackle efforts to improve livelihoods, secure food and maintain the environment, particularly in mountains whose fragile biophysical functions serve over 50% of mankind.

Urban Centers are increasingly extracting resources from the countryside. Out migration to cities is causing rapid urban growth often beyond the absorbance capacity of many cities. Around 50% of the world's population lives in cities. Most rapid growth expected in Africa. It provides opportunities, but also conflicts for natural resources. The demands for clean water, agricultural products, people, minerals and fuel and wood products provide both a

huge potential for improving livelihood if rural and urban development is considered in the same framework.

Many key urban and rural problems today find their causes in a disconnect in the conceptual framework of the way we do business. Rural planning is often disconnected from the urban, and urban planning disconnected from rural development. Often, agricultural options although now more frequently linked to markets do not connect with other essential components such as infrastructure and urban needs and generally are in a piecemeal fashion. The substantial change from single to multiple livelihood strategies of rural and urban families is only slowly being recognized.

The literature in the theme is not extensive. It was reviewed by Tacoli (2002). She states, ‘population growth, urbanization and declining returns from agriculture for small farmers mean that rural-urban interactions and linkages play an increasingly important role in local economics and in the livelihoods of large numbers of people. Flows of people, goods, money, and information and patterns of occupational diversity reflect the dynamic process of economic, social and cultural transformation which needs to be better understood’ and acted on institutionally and politically. Literature on the subject has helped understanding some of the process issues, but has not yet led to practical options and solutions.

Cities can serve as engines for rural development just as agriculture and related sectors can serve as a driver for urban development. Part of the problem is that poverty and environment are dealt with through specialized administrative units that categorize policies and programs either as rural or urban. The segregation does not seem to allow for the vital interactions and interdependencies that exist. Even the World Bank until recently split Rural and Urban development under different vice-presidencies. There needs to be reconnection and better understanding of the natural linkages and ways of strengthening them to better support livelihoods and environmental concerns. This is the core concept of the Rural Urban Linkage Action area.

Once the concept is established as a *modus operandi*, many of the activities such as market linkage projects, PES, road and electricity, infrastructure projects some of the policy work etc, have a place in the framework. The mosaic of rural and urban projects and actions begin to the RUL approach, provides framework that enables us to move from a piece meal approach where components do not link, to where we can be systematic in tackling broad territorial issues.

Effective development strategies require the Rural & Urban to be linked, and to be better understood and tackled together. Key areas that need to be linked include:

- Planning & policy development;
- Agricultural options for groups with different livelihood options RULs;
- NRM strategies and options like Payments for environmental services;
- Decentralized decision making and dialogue;
- Infrastructure development etc.

In close collaboration with development institutions there needs to be development of key information, tools, and options to Government and non government institutions to enable the RUL context.

Broad RUL Objectives

- To use Strengthened Linkages between Urban and Rural areas as a mechanism
- To better contribute to the MDGs in Mountains.

The GMP RUL Strategy

The GMP strategy to strengthen RUL is to first develop an alliances and a framework by which rural and urban research and development institutions can link in a coordinated manner to development processes in real sites that enable measurement of impact on MDGs. The proposed components of the RUL effort include selecting ‘Benchmark’ sites in key countries in mountains around the world: developing cross-learning mechanisms using the Mountain Forum. The main instrument proposed are national and local RUL platforms for dialogue and action if possible using existing platforms. The platforms would bring together civil society, institutions involved in either rural or urban activities and research groups. Through the platform an alliance of national and international partners will work on the initiative. Activities would be connected and research support would be provided on specific problems to the platform in the form of information, tools and targeted livelihood and environmental management options.

The principal CGIAR partners for the effort in Africa are the African Highlands Initiative and the Urban Harvest Programs.

Selection of Benchmark sites

Benchmark sites are a means of connecting research to on the ground development process and enable assessable impact on MDGs. They should encompass key urban centers and their spheres of influence in high vulnerability areas and have importance on potential impact on MDGs in mountains. These centers contain planning and decision making authorities and markets that affect both urban and rural development. The program intends to commit to longer-term collaboration in these benchmark sites.

Once benchmark sites are set up and functioning, the program sees its role increasingly in linking knowledge, innovation and groups between benchmark sites. The international public goods that are part of the obligations of the program would be created through the synthesis work and inter-benchmark analyses.

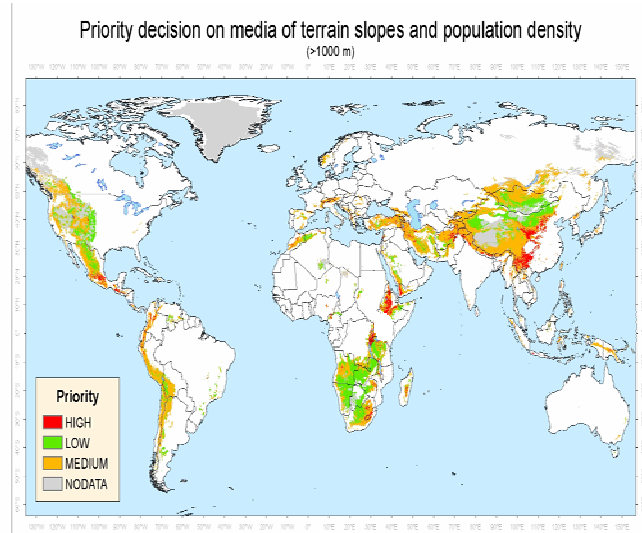


Figure 1: Priority terrain slope >1000m

In the analysis in Figure 1 on priority terrain slope above 1000m, population and income <1 or 2 US dollars per day as criteria it is clear that SW China, the Ethiopian Massive, and some lesser areas in Africa, Latin America and Asia stand out. These form priority targets for activities of the GLP for selection of benchmark sites. Using the less than USD 1.00 per day criterion, Africa comes out as the number one priority site.

The Ethiopian Benchmark site

A further analysis was made analyzing more carefully rural and urban poverty in Africa.

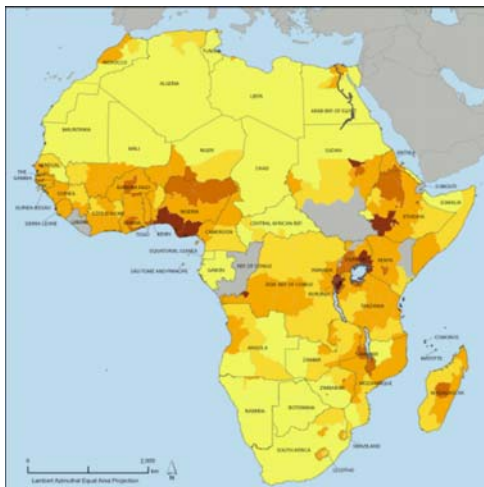


Figure 2. Hunger: number per sq km

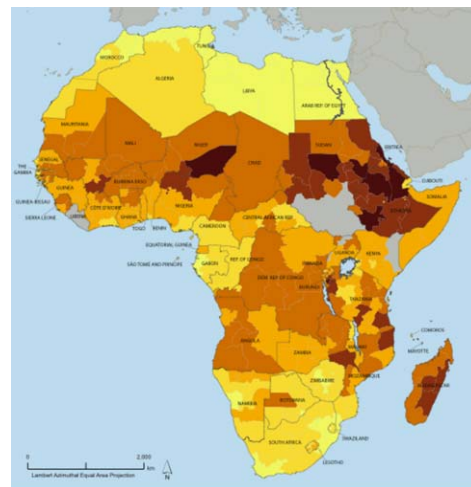


Figure 3. Hunger: % children underweight

From the perspective of poverty as expressed by number of people undernourished and children underweight the Ethiopian massive stands out within overall African context

(Figures 2 and 3). The other mountainous regions that also stand out are the Great Lakes Region and to a lesser extent Madagascar.

Given available data, Ethiopia is amongst the highest levels in Africa, of people living in urban slums (Figure 4.). According to the 2001 UN Habitat figures 98% of urban dwellers

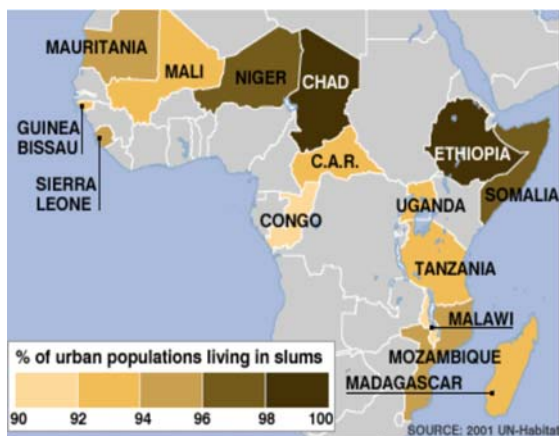


Figure 4: Urban slums in Africa

live in what is classified as slums. This is high even compared to the best African scenarios of 90% in countries like Tanzania and Uganda. It suggests that when mountain people do migrate to cities the conditions in Ethiopia are probably among the worst in Africa. Bringing both rural and urban analyses together the mountain people in Ethiopia appear to be amongst the poorest in terms of rural and urban poverty in Africa, and therefore in the world. Using these data Ethiopia was chosen as the highest priority country for the program.

The selection of Addis Ababa and its spheres of influence as the key rural urban linkage benchmark site followed discussions since early 2005 with the Director of the Ethiopian Institute of Agricultural Research (EIAR), the municipal offices of planning, Agriculture, the mayor, with the NGO's and other groups. It was pursued more vigorously in 2006 with placement of GMP RUL coordinator in Addis. Discussions brought in the Minister of Agriculture, EPA, and other ministries, to development of a draft concept note, bringing together a RUL research support group and culminated with the RUL planning workshop.

Future

We intend to use the recommendations of the RUL planning workshop to finalize the concept note and build a proposal to the donors as an alliance for support to develop follow-up activities in key areas.

Draft conceptual framework of RUL thematic research area of GMP

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Introduction

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 developments 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.

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 (Tacoli, 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 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,

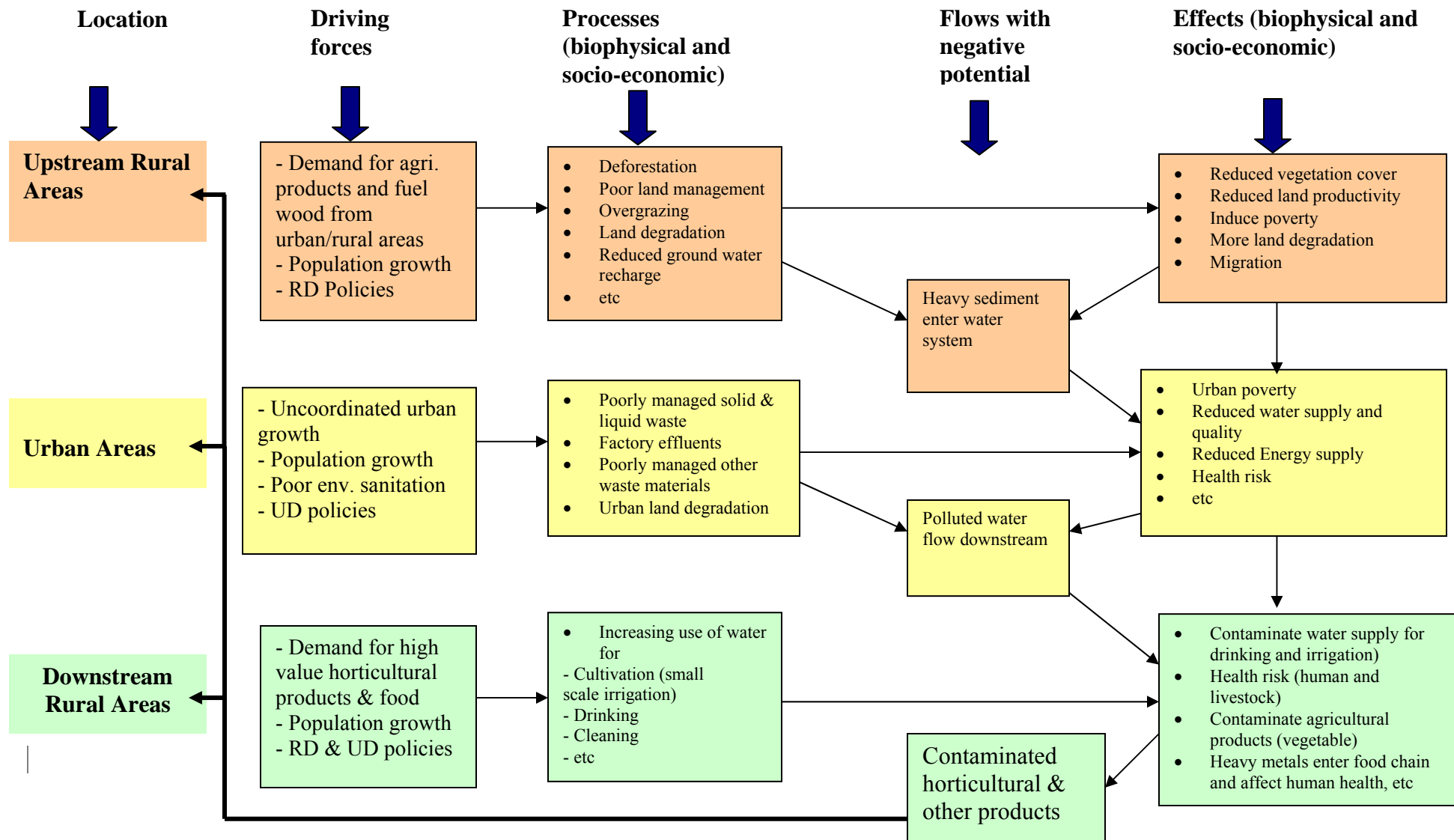


Figure 1: Sample illustration of chains of NR flow, causes and effects to show the connectivity between rural and urban areas and the importance of having strong RUL for the wellbeing of rural and urban communities (draft)

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.

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.

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)¹) and others such as the Productive Safety Net Program (PSNP), the newly initiated Country 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?

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.

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

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.

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.

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 1. Specifically:
 - a. Map out clear picture of natural resource flow, including its temporal and spatial dynamics in the benchmark site and its regions of influence²;

² For instance:

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.

Investigate and propose cost-effective and environmentally friendly waste management and recycling systems.

- a. 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.

- 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.

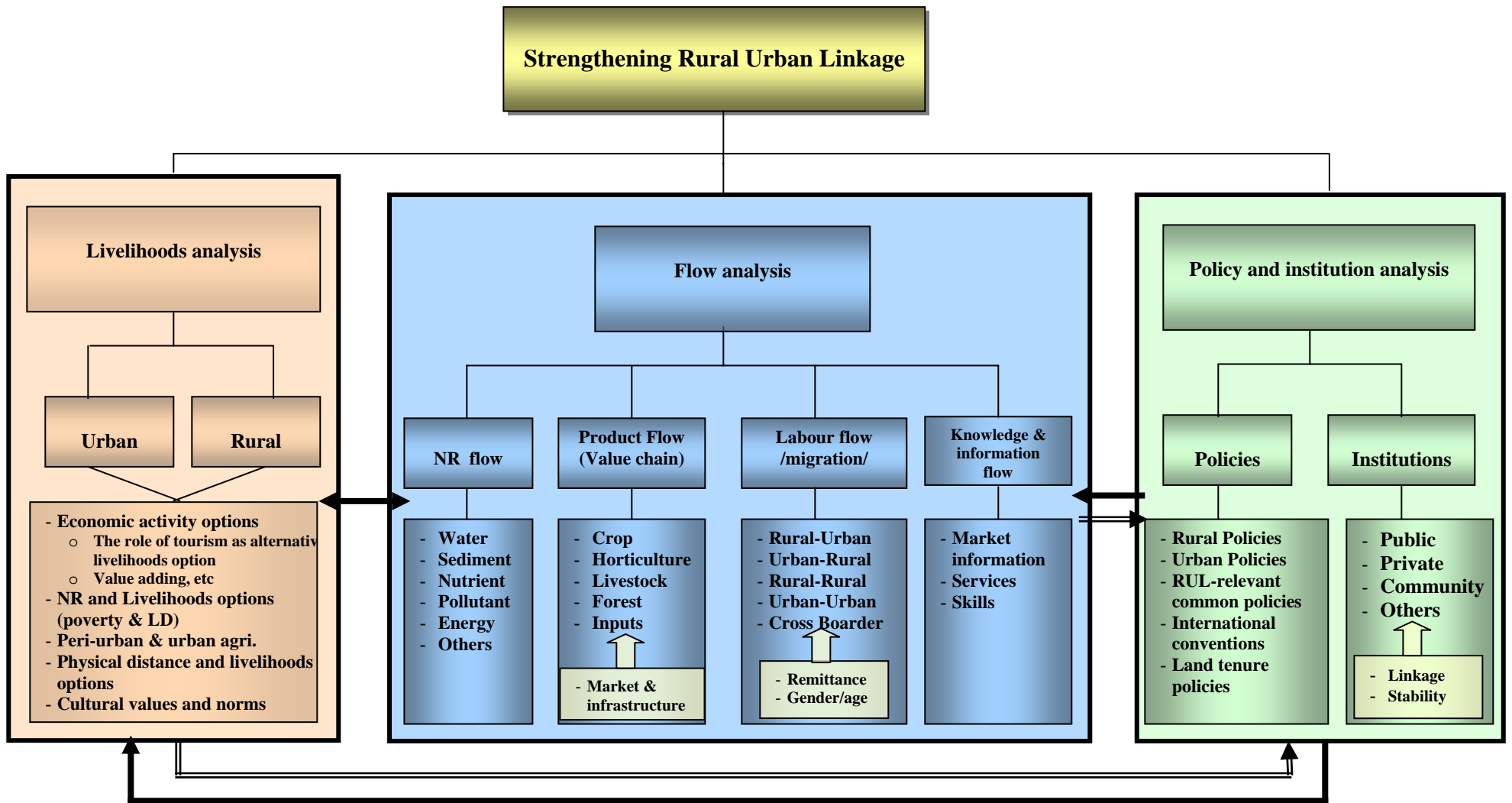
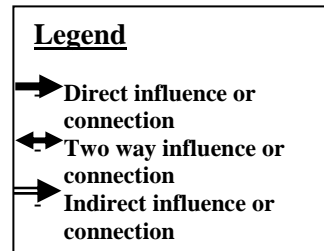


Figure 2: Revised Conceptual Framework of RUL Thematic Research Area of GMP



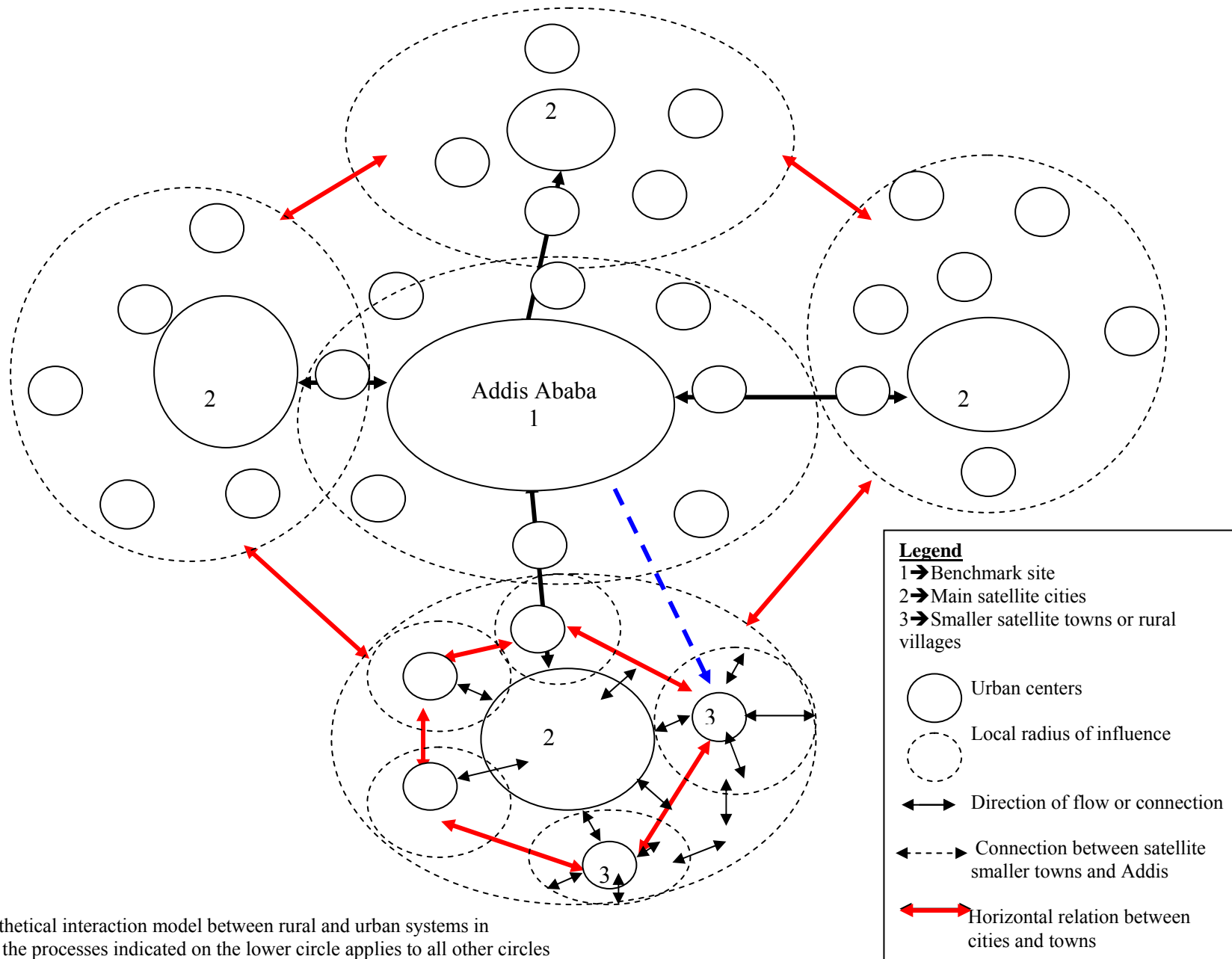


Figure 3: Hypothetical interaction model between rural and urban systems in Ethiopia. Note: the processes indicated on the lower circle applies to all other circles

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 cities¹ and associated smaller towns and rural communities representing different situations. 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.
- 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.
- 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.

¹ Tentatively, Shashemene-Awassa, Jimma, Bahir Dar, and Mekele/Harar are selected as satellite cities for the baseline survey. However, initial survey will focus on the benchmark site and two other satellite cities. As methodology is refined and experience gained, the study will cover other selected satellite cities and their regions of influence.

- 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.

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.

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.

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.

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Rural-urban linkages research and initiatives: lessons and key issues from international experiences

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Introduction

There is currently a renewed interest in the contribution of rural-urban linkages to poverty reduction and economic growth. The relations between countryside and urban centres and between the agricultural sector and manufacturing and services have however long been of interest to development economists and regional planners. There have also been many programmes and initiatives that, explicitly or implicitly, address rural-urban linkages. This paper summarises lessons from international experiences in researching rural-urban linkages, and in developing initiatives to support their potential contribution to poverty reduction and local economic growth. Rather than providing extensive descriptions, it points to some of the key issues identified in a wide range of contexts. Some of them may not be directly relevant to the Ethiopia study and, indeed, the first key issue underlines the importance of recognising diversity. Nevertheless, there are also many similarities that will hopefully provide food for thought for the workshop discussions.

Recognizing diversity

In the 1970s and 1980s, so-called ‘growth poles’ policies aimed to build on rural-urban linkages to stimulate local economic development. There is consensus in the review literature that the by and large failure of such policies was due on the one hand to an almost exclusive focus on urban centers (which were assumed to act as ‘growth poles’ for the development of the surrounding region), and on the other hand to the sweeping generalizations on the nature of rural-urban linkages that underpinned them.

The differences between rural and urban contexts, and between and within rural and urban ones

It is now recognized that it is essential to understand and take into account the diversity of the contexts in which people live and which affect poverty and vulnerability, as well as social and economic opportunity. In broad terms, diversity depends on a number of factors, including socio-economic and cultural characteristics, ecological and geographical features,

and political systems. Many critics of the traditional division between ‘rural’ and ‘urban’ in planning argue the concept of a ‘continuum’ more accurately describes reality. While this is certainly and increasingly true, it is important however to keep in mind that a sound understanding of the characteristics of specific local contexts is essential for research and policy formulation and implementation. Hence, it is important to understand the crucial differences between specific urban and rural contexts; but it is equally significant to understand the diversity between and within rural contexts and urban contexts.

Inter-household, intra-household and gender-based diversity

It is also important to understand differences between groups or households within a specific context. Better-off households may be able to build on rural-urban linkages to increase their wealth, whereas other groups or households may not be able to use those opportunities, or only use them as part of a survival strategy (Baker, 1995). There are also gender-based and intra-household differences that need to be understood. Many urban centres have a much higher proportion of woman-headed households than rural settlements, often due to their limited access to and control over land and labour. For the same reasons, even women in male-headed households are often more likely to engage in non-farm activities than their male counterparts. Younger generations are also more likely to prefer non-farm occupations than farming and to be more mobile (including a growing proportion of young women migrating independently) (Bah et al., 2003). Understanding diversity, and the factors underpinning it, is essential to address poverty and vulnerability (such as inequalities in access to resources), the nature and social status of different occupations and the ways in which some groups may be differently affected by development programmes and policies.

Focusing on poverty reduction

Any initiative that aims to address local economic development by supporting positive rural-urban linkages needs to focus on poverty reduction as its starting point. This is because the urban manufacturing and services sector, especially in small towns, relies heavily on demand from a relatively prosperous rural population and, at the same time, farmers rely on demand from urban markets and urban consumers. Rural-urban synergies are harder to achieve where poverty is widespread.

The importance of education, access to land and the environment

The diversification of income sources is increasingly essential in reducing the vulnerability of rural households and, in many cases, that of urban households too. Three factors are important in facilitating income diversification. First, education is crucial to enter non-farm labour markets – even basic literacy levels are necessary to achieve some success. Second, in many cases income diversification involves some mobility, most often circular migration.

Some security of access to land in home areas is essential to ensure that people do not lose the farming component of their livelihoods if they move away temporarily. Third, non-farm enterprises in small towns and in the peri-urban areas of larger urban centres often use natural resources (land and water) that were previously used for farming. The losers in these cases are more likely to be poor farmers who may not get adequate compensation and lose a key component of their livelihoods, thus increasing their vulnerability. In many cases non-farm employment for poor people takes place in micro-enterprises, often home-based, with environmental problems for the workers and the surrounding residential areas (Hoang et al., 2005, Okali et al., 2001). Access to natural resources by the poor and the potential environmental implications of supporting rural-urban linkages (for example through the development of manufacturing) are important issues to keep in mind in the design of initiatives, as they may increase poverty and vulnerability for some groups.

Structural linkages

The ‘virtuous circle’ model of rural-urban development perhaps best reflects the thinking on rural-urban linkages and regional development in the 1980s and 1990s. It can be summarized as follows: rising agricultural incomes spur demand for consumer goods, which leads to the creation of non-farm jobs and the diversification of urban activities, especially in small towns close to areas of agricultural production. This in turn absorbs surplus rural labour, raises demand for agricultural produce and once again boosts agricultural productivity and incomes (Evans, 1992). Though, much evidence shows that this is not always the case. A key issue is that the nature of agricultural production systems is important: large commercial farms are usually assumed to be more efficient and have higher productivity than smallholder production. However, their contribution to rural-urban linkages can be minimal, as revenue is usually channeled to large urban centers (sometimes abroad), value-adding activities are often conducted outside the area and workers’ wages tend to be low (Romein, 1997, Kamete 1998).

Urbanization and agricultural productivity

New research suggests that it is not necessarily the increase in agricultural incomes that spurs local economic development, but a much more complex synergy between urban and rural areas and people. A longitudinal study of farming in Africa’s dry lands suggests that increases in agricultural productivity, including switching to higher-value produce (hence increasing incomes from farming) is largely a consequence of urbanization in two main ways: first, through the increase in demand for high-value foodstuff from urban consumers; and second, through the availability of non-farm employment, that has allowed investment in agriculture while reducing the risks of innovation (Tiffen, 2003). There is an additional important point that needs to be made here: despite the emphasis on export crop production

by large commercial farms, especially in Africa as a way out of poverty, there is evidence to the contrary: in many cases, the real driver of agricultural productivity are local, national and regional urban markets, and smallholders with access to non-farm incomes are the most efficient in responding to rapidly changing demand (Club du Sahel, 2000).

Access to markets

While physical access to marketplaces (i.e. road and transport networks) is obviously crucial, market information can dramatically transform small farmers' practices and help them adapting to demand, at the same time maximizing their use of resources. In South India, government-supported farmers' markets have shown to have a dramatic impact on those farmers with sufficient assets enabling them to respond to urban consumer demand (Rengasamy et al., 2002). In many rural areas, small traders play an important role in connecting producers to markets, especially where small and diversified production flows are not sufficiently profitable to attract large-scale trading organizations. They also often play an important role in providing credit to both producers and small-scale urban retailers, but their limited financial liquidity makes them vulnerable to market losses, a problem compounded by poor physical infrastructure and lack of storage and processing facilities (GRAD, 2001). Much research focuses on larger traders, but a focus on poverty indicates that small traders are often far more important for smallholders. Moreover, petty trade is one of the most frequent non-farm activities in which rural people engage, and as such deserves more attention.

Rural non-farm employment, globalization and clustering

The 'rural' in rural non-farm employment in most cases does not relate to location of activities (most rural non-farm employment takes place in small towns or large 'urbanizing' villages), but rather to the fact that it is mostly small-scale and part of income diversification processes. Trade and services are the majority of activities, while manufacturing is usually a small proportion of it. There are of course exceptions: in much of South East Asia and China, rural-based small and micro manufacturing enterprises are significant and often linked to export markets. However, in most African contexts small-scale manufacturing faces uneven competition from cheaper imports, and therefore it makes sense, especially for poor people, to engage instead in trade and services. Keeping in mind the extremely wide differences between and within regions, this section summarizes some of the ongoing debates and initiatives with the aim of providing some food for thought.

One of the key issues in current work on regional development and rural-urban linkages is that, in order to build on the synergies between agriculture and non-agricultural sectors, multiplier effects (value-adding activities) need to be retained locally. In a context of

growing globalisation, this is not easily achieved; however, there is evidence that over-reliance on international markets carries a risk for both households and small-scale enterprises, and a possible response is to increase the level of diversification of the economic base of rural-urban regions. Three key multiplier effects are highlighted in this strategy: first, non-farm employment concentrates in export activities as well as in related processing and input supplier firms; second, processing and manufacturing of basic products is carried out within the region; and third, inputs are purchased locally (Douglass, 1998). However, given the increasing reach of international enterprises, this might be difficult.

A relevant and rapidly growing research interest, if somewhat separate from that on rural-urban linkages, focuses on clustering as a strategy by small enterprises to increase their efficiency, innovate and increase access to domestic and export markets. Clusters are defined as spatial and geographical concentrations of firms, which benefit from a range of localised external economies that lower the cost for clustered producers. These include: a pool of specialised workers; easy access to suppliers of specialised inputs and services; and quick dissemination of new knowledge. Clustering is thought to be particularly relevant in the early stages of industrialisation by helping small enterprises to grow in small steps, as producers can concentrate on stages rather than on the whole production process, and rely on horizontal linkages with other specialised enterprises to complete the process (Schmitz and Nadvi, 1999). Because of this, it is highly relevant to research and initiatives on rural-urban linkages where the development of small-scale enterprises in local towns is essential for income diversification.

Defining a spatial unit for rural-urban linkages initiatives

Traditionally, ‘growth pole’ policies and programmes were based on the development of a region defined as an urban centre and its hinterland, or surrounding rural region. The underlying assumption is that spatial proximity is the key factor making one specific urban centre a ‘central place’. Other initiatives based primarily on markets have defined regions on the basis of flows of goods and, to a lesser extent, of people (Momen, 2006). Defining a ‘rural-urban region’ for the purpose of research and for a development programme is not automatic, however, and should be given careful attention. For example, low-income rural households may choose not to use their closer small town for services and marketing, but a larger one even if it is further away. The additional transport cost is offset by the opportunity to access a wider range of services, even if this is done on a less frequent basis (Morris, 1997). An alternative view is that of defining a region, and developing the initiative, based on a network of urban centres and rural settlements with reciprocal functional linkages (Douglass, 1998). This is more likely to reflect the reality of the landscape in which flows of goods, people, information and money take place between rural and urban areas.

The role of small towns in rural-urban linkages

While large urban centres occupy an increasingly predominant function in many nations, small or local towns play a key role in the development of their surrounding region. However, while some of the regional development literature tends to assume that small towns can be an almost ‘magic bullet’, their role and functions need to be understood within the wider context of national, regional and international urban systems and policies. This is summarised in the figures at the end of this paper (Satterthwaite and Tacoli, 2003).

Institutions

Decentralization and the role of local government

Several levels of government need to be involved in initiatives supporting rural-urban linkages. In many countries, decentralisation processes initiated in the 1980s and 1990s have allocated increasingly important roles to local governments in promoting local economic development. There is no doubt that capable and accountable local governments are in the best position to identify and act on local opportunities and constraints, and adjoining local authorities may well increase their effectiveness by establishing horizontal links. But for this to work, three issues need to be addressed. The first is the ‘vertical’ relationship with national and sometimes regional/provincial governments, including decision-making power. The second is the financial capability of local governments – this is an especially important issue where local revenue is limited but economic growth depends largely on radically improved infrastructure and therefore from support from central levels of government. The third is the technical capacity of local governments to carry out these extended functions in a way that is accountable to all local residents, including the poorest groups who often lack voice.

Coalitions and capacity building

In the 1990s, so-called ‘new generation’ initiatives for local economic development (LED) have been developed mainly in Latin America and in transition and middle-income nations. The LED framework consists of a process involving partnerships between local governments, community-based organizations and the private sector (sometimes also including decentralised international cooperation between municipalities), with the aim of managing resources, creating employment and generally stimulating local economic growth. Dialogue and strategic actions, including developing new institutions such as local development agencies, are a key part of the framework (Helmsing, 2001; ILO et al, 2000). This is a promising approach, based on flexible coalition building between a wide range of stakeholders; it is also a long-term process which often requires substantial initial support from external institutions.

Community mobilization is a foundation and starting point for many successful initiatives. The Rural-Urban Partnership Programme (RUPP) in Nepal is a good example of this approach (Momen, 2006). The core belief is that rural-urban synergies and local economic development need to be based on social and political transformation, which in turn involves extensive activities by field-based staff to promote community-based organizations. These prepare participatory, community-driven neighborhood development plans and small enterprise development plans, which are then co-funded by RUPP. This component of the programme is widely seen as the most successful, and has been incorporated in other programmes.

Policies that affect positive rural-urban linkages

Almost all policies directly or indirectly affect rural-urban linkages. It is important for research and initiatives to keep in mind the significant influence of national policies – this is also a good reason why successful initiatives establish good links between different levels of government and stakeholders so that there can be a dialogue on the impact of national policies on local poverty reduction and economic growth.

The relevance of specific policies is likely to change depending on national and local contexts. The policies that are most often identified as relevant in research and initiatives on rural-urban linkages include:

- Policies on land tenure and access to land: insecurity is often linked to limited mobility and income diversification among poor groups;
- Policies that limit urbanization – and which implicitly also limit the potential role of urban demand in stimulating agricultural productivity;
- Agricultural policies that support export-oriented agribusiness production rather than smallholder production, and which do not aim to retain value adding activities within the locality;
- Policies related to small and micro-enterprises, as these are the backbone of rural non-farm employment;
- Policies related to access to markets, ranging from multiple taxation of agricultural goods that increases its transfer costs, to policies that aim to decrease transaction costs for smallholders by providing some institutional support, e.g. through contract farming, producer cooperatives, etc,...;
- Policies that define rights and entitlements on the basis of residential status, but neglect the fact that in many cases people's assets may be distributed in different locations.

This list is not exhaustive; in fact, going back to the first ‘key issue’ discussed in this paper, inevitably the diversity of local and national contexts will affect the nature of the policies that need to be taken into consideration. It is also important to understand the impact of international agreements – but again, these are likely to have different impacts between, for example, Southeast Asia and Africa, as well as within nations and locations within these regions.

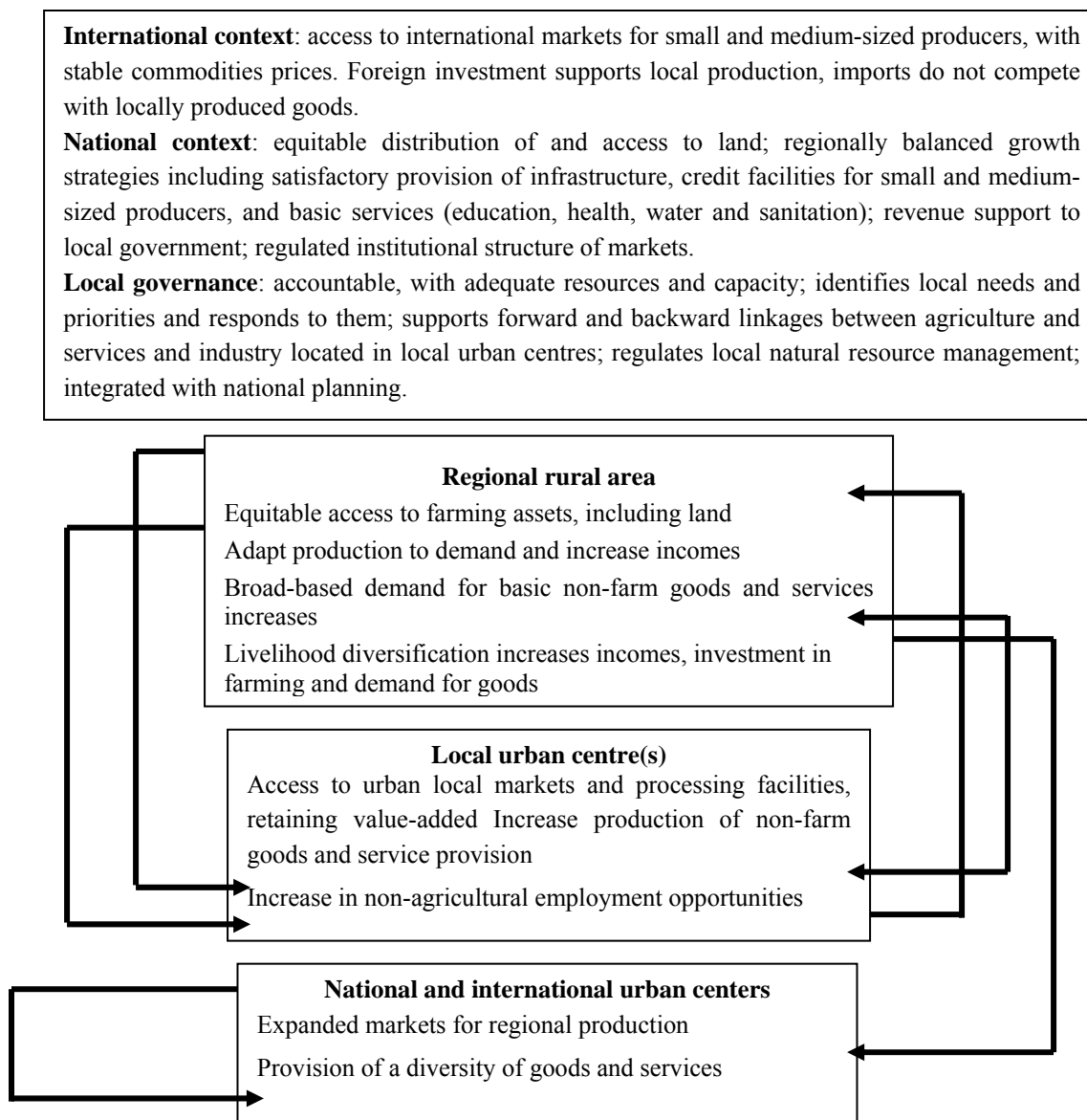


Figure 1: Positive rural–urban interactions and regional development

International context: limited access to international markets for small and medium-sized producers, unstable commodities prices; foreign investment concentrates in large-scale export production, imports compete with locally produced goods.

National context: inequitable distribution of and access to land; regionally imbalanced growth strategies including limited provision of infrastructure, credit facilities for small and medium-sized producers, and basic services (education, health, water and sanitation); lack of support to local government; unregulated institutional structure of markets.

Local governance: unaccountable, with inadequate resources and capacity; not integrated with national planning

International context: limited access to international markets for small and medium-sized producers, unstable commodities prices; foreign investment concentrates in large-scale export production, imports compete with locally produced goods.

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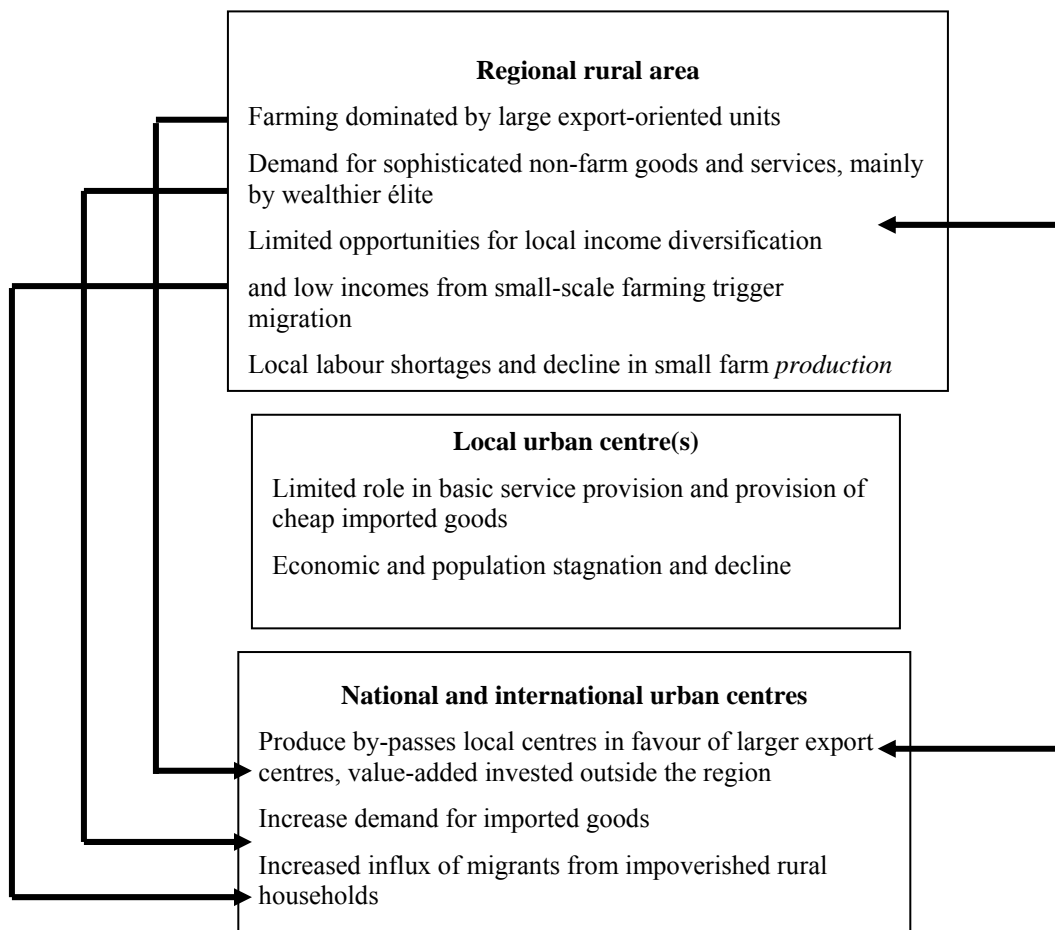


Figure 2: Negative rural urban interactions and regional development

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RUL in Ethiopia: status, challenge and opportunities and future research directions

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Introduction

The field of regional planning has seen a different theoretical orientation to realize development over space and sectors. The principle of growth centers has given emphasis to urban centers as centers of modernization from which development impulses are expected to be transmitted to rural areas. Urban centers were given priority and this falls along the principles of modernization theories, which equated urbanization and industrialization and treated both as desirable goals of development (Todaro cited in Maxwell et al, 2000). The urban bias thesis of Lipton shifted attention to rural development even to the neglect of urban poverty.

Recent thinking in development field in general and regional planning in particular focuses on bringing the rural and urban development potential together in the planning process (Douglas, 1998). The point of departure is the recognition that urban and rural developments are reinforcing. This becomes very explicit when one recognizes the fact that for every role a city has, there is a corresponding role played by the hinterland. For instance, towns serve as regional and extra-regional market centers for agricultural and rural commodities. This, however, requires that there is a significant level of marketable surplus without which market functions do not exist. Agricultural intensification in rural area requires agricultural support services from urban areas such as production of inputs, repair services, information on production methods (innovations) etc. Increased rural income and demand for non-agricultural goods lead to non-agricultural consumer market, processed agricultural products, private services, public services such as health, education, administration etc. Agro based industries in towns presuppose the existence of raw material production and agricultural diversifications (Douglas, 1998).

It is therefore unlikely that there will be a sustainable development where we have a rural-urban divide. Rural-urban linkages should form a critical part of the policies that guide both rural and urban development. Recognition of this fact for example has recently prompted the Ethiopian government to seek new creativity in economic development strategies. In particular, there is a new concentration on the development of urban centers, rural-urban linkages and investment in sectors and geographical areas displaying development

dynamism. In terms of rural-urban linkages, PASDEP explicitly mentioned that there is a need to strengthen rural-urban linkages to take full advantage of synergies. The document briefly outlined the areas of involvement to achieve the synergies and the instruments to be used to achieve the goal. Market integration, labor flows and access to income earning opportunities between towns and surrounding rural areas are envisaged to be strengthened through instruments of improving rural access roads, building up of small rural towns, improving telecommunication access, spreading general education and technical vocational training in peri-urban areas, small scale credit markets, and rural electrification (MoFED, 2005).

While the recent recognition of the role and importance of rural-urban linkage in Ethiopia is welcome, there is no much information regarding the status, opportunities and constraints of rural-urban linkages. This paper addresses these issues, which may be used as inputs in strengthening rural-urban linkages in Ethiopia. The paper is organized as follows. Section two identifies the main features of rural-urban linkages in Ethiopia while section three is a discussion of opportunities and challenges of rural urban linkages. Section four concludes with some points that indicate possible areas of research for rural-urban linkages in Ethiopia.

The status of rural-urban linkages in Ethiopia

The status of rural-urban linkage could be identified by looking at spatial flows and sectoral linkages. In addition, the physical linkages or infrastructural linkages need to be ascertained.

Spatial flows

Flows of food items, industrial goods, labor, capital are some indicators of the linkages that exist between the rural and urban parts of the country. The volume of marketed grain for example could be an indication of the grain flow. A study in 1996 indicated that the marketed grain was about 28.2 million quintals while estimates from the CSA excluding pulses and oil crops found out that the marketable surplus for 2001/02 was 14 million quintals (Wolday and Elleni, 2003). The latter represented 17% of the total production. This is an indication of a much lower flows of grains to markets (urban areas) vis a vis the potential. The bulk of the production remains in rural areas for different purposes: consumption, seed and feed. Grain marketing is of course constrained by a number of factors such as subsistence production, poor infrastructure, lack of information, limited storage capacity of traders etc. (Tegegne, 2005).

A major imported good that flows to rural areas is fertilizer. A few firms, however, dominate fertilizer distribution, since retail and wholesaling operations are increasingly falling in the hands of the same importers and distributors, in spite of deregulation and participation of the private sector. The main factor that repels the private sector from fertilizer distribution is the

credit sale arrangement since over 80 % of the fertilizer sales is financed through credit (Befkadu and Berhanu, 1999/20000). In addition to this, fertilizer marketing in Ethiopia is hampered by inefficient importation and distribution systems¹. The lack of efficient domestic transport, and competitive wholesale and retail operation are also factors that reduced the efficiency of fertilizer marketing. As a result, fertilizer distribution and marketing in Ethiopia is characterized by delays or supply shortages and high prices, which are results of imperfections in the structure and conduct of the fertilizer market (Mulat, 1996).

An in-depth analysis of the 1994 census and the 1999 labor force survey showed that the major flows of people in Ethiopia is between one rural area and another. It was found that nearly 37 % of the migrants were intra-rural. This is quite expected since the majority of the Ethiopian people (nearly 85 %) live in rural areas and the country has a very low level of urbanization. There is, however, a substantial flow of rural-urban migration as well. The proportion of rural-urban migrants in the country is 23%, while there is another 16 % who moved from urban to rural areas. The two flows together account for 39 % (Table 1).

Table 1: Proportion of migrant population by area of origin and destination (%)

Origin	Destination		
	Rural	Urban	Total
Rural	36.8	22.9	59.7
Urban	16.1	24.2	40.3
Total	52.9	47.1	100

Source: Golini et al, 2001

A very important finding on the impact of migration on urbanization in Ethiopia is that many in-migrants to towns are not born in the immediate vicinity. For instance, in the case of Shasemene town, many migrants arrived from far off places. Similarly, in Akaki Beska town it was found out that many migrants came from far off places though from the same province of Shewa (Mullenbach, 1976).

The financial flow between rural and urban areas is an important manifestation of linkage. Financial intermediaries are important agents in streaming the flow of finance particularly from urban and rural. In this regard, the role of formal banks is limited since banks by nature will not be interested to finance rural people because they are believed to have high risks and transaction costs. This is also compounded by supervisory and capital adequacy requirements that penalize banks for lending to enterprises that lack traditional collateral (Wolday , 2002).

Micro-finance institutions (MFIs) were officially established in Ethiopia following the micro-finance law of 1996. The main objectives of the micro-finance institutions are the delivery of

¹ Fertilizer is imported under conditions which do not allow gains from economies of scale and adjustment of time in purchase and shipment. For ex is allotted through administrative procedures.

micro-loans, micro-savings, micro-insurance, money transfer etc., to productive but resource poor people in rural and urban areas including micro and small entrepreneurs in a cost effective and sustainable manner (Wolday 2006). Currently, 26 micro finance institutions are registered under the national bank of Ethiopia (NBE). Since their inception, these institutions have shown a fast increase in terms of outreach and performance. For example, the number of loan client has grown to 1.2 million in 2005 from that of 461,326 in 2001 (Wolday, 2006). In 2005, the active loan portfolio was about 1.5 billion birr (173 million USD) and the savings mobilized amounted to 501 million birr (58 million USD) (Wolday, 2006). It was also noted that the clientele served by the Ethiopian MFIs are mainly rural poor with 38 % of them being females. The average size of the loan, which is 1000 birr indicates that MFIs mainly serve the poor (Wolday, 2006).

Two main loan products namely agricultural loans and micro business loans are offered by MFIs. Agricultural loan dominates the loan products of many MFIs accounting for 50% or more (Table 2). Among the non-agricultural loan or micro-business loan, petty trading has the highest share and this is followed by handicraft/manufacturing and services in that order (Table 2).

Table 2: Loan products of selected MFIs

Description	DESCI	ACSI	Omo micro-finance	Sidama micro-finance
Agriculture	50.9	56.65	63.52	29
Petty trading	39.1	36.53	29.74	50
Handicraft and processing	9.1	6.42	6.58	2.3
Services	0.86	0.25	0.16	20

Since agricultural activities are mainly undertaken in rural areas, the MFIs then represent a strong financial intermediary working towards integrating the rural and urban economy.

Despite the fact that, the services provided by MFI so far is encouraging, there is a significant amount of demand left unmet. Currently, the MFIs are able to meet less than 20 percent of the demand for financial services of the active poor indicating the presence of a significant unmet demand.

Remittance from urban migrants is another form of financial linkage. There is no study, however, to assess the magnitude and importance of remittance in Ethiopia. Some studies, though, have alluded to the importance of remittance for some ethnic group in particular. A study by Worku (2006) on the impacts of urban migration on village life indicates that remitted money is clearly visible in the Guraghe rural villages. Families of migrants are observed to have more investment in purchase of livestock, land and house construction.

Investment in consumption goods such as better clothing and household items are also noted to be higher among families with migrant members (Worku, 2006).

Resource flows between urban and rural areas present a significant form of linkage in Ethiopia. In particular, cities rely on the surrounding rural areas for their resources and waste deposition. This could be illustrated by using the case of Addis Ababa. Box 1 describes the relation between Addis Ababa and the surrounding for water sources and waste disposal. In addition to water and sewer service, Addis Ababa receives most of its construction material and fuel wood from the surrounding peri urban areas. There are numerous quarries from where low-value building materials, stone, clay etc are derived.

Box 1: Water sources and waste disposal in Addis Ababa

The city relies in the surrounding area for its water production and sewerage service. The drinking water to the city comes from dams found in the near by or peri-urban areas. The dams are Gefersa, Legedadi and Dere. Legedadi and Dere cover three-fourth of the water need of the city while Geferfa covers one-fourth of the water need. In addition, there are 25 wells and eight springs in Akaki.

The activities of the rural farmers have also some impact on the sources of drinking water. The catchment areas of these dams are highly eroded resulting in large run off and siltation. The sanitary zone is currently encroached by settlements as the previously compensated individuals return to their land and begin farming and cut trees (personal communication with the AAWSA). As a result, studies have found that water turbidity has increased from time to time. This raised the consumption of chemicals and the cost of cleaning dams to remove silt deposit. It was mentioned that seven to eight different types of chemical are used to purify the water (personal communication with the Head of water supply division in the Addis Ababa Water and Sewerage Authority).

There are two mechanisms of sewerage services in the city. These are the sewer system and the disposal of waste by vehicles. So far about 2200 households have sewer connection. In other words it is only 2 % of the total population in the city which enjoys this benefit. The waste water is disposed in Kaliti treatment plant where there is a stabilization pond. The pond has a capacity of 7500 m³. The waste water undergoes biological process for the period of 30 days of detention. The treated water is discharged to Kalit river which finally empties into Aba Samul lake. The other form of disposal of liquid waste is transporting by vehicles. The proportion of people receiving such service is about 25 % of the population. The sludges removed by vehicles are taken to Kaliti and Kotebe drying beds where they are dried up. The desludging process has some negative impacts on neighborhood. The desludging will bring air pollution, ground water pollution and dispersion of diseases in the surrounding. In addition the 'Koshe' land fill site for the deposition of the solid waste is found at the edge of the city.

Inter-Sectoral Linkage Spatial flows overlap with linkages between sectors. There are different types and levels of inter-sectoral linkages. They operate at household level and at the level of local economies (Tacoli, 2003). They include backward and forward linkages between agriculture and manufacturing and services. Backward linkages involve the

distribution of inputs while forward linkages include the processing of outputs. The other dimension of inter-sectoral linkage relates to rural activities such as urban agriculture taking place in urban areas and urban activities such as manufacturing and services taking place in rural areas.

Production Linkage

Agro-industries are the main types of industries with which agriculture will have significant forward linkages. The industrial structure in Ethiopia shows that food, beverage and textile industries account for 51% of the gross value of production in 1995/96 (Solomon, 2001). These industries together with leather and tobacco industries have strong potential linkages with the agricultural sector. This potential however is not realized in the country. The dependence of the industrial sector on imported raw material is shown in Table 3. The table shows that the ratio of imported inputs to total raw material cost for the years 1992/93-1996/97. In 1996/97, the ratio was 84 %, 37 %, 17 % for tobacco, textiles and food products and beverage industries respectively. One of the reasons for such weak agriculture and industry linkage in terms of processing agricultural raw material is the subsistence nature of agriculture, which is not capable of producing surplus output to be used as industrial raw material.

Table 3: Ratio of imported inputs to total raw material cost

Industrial Group	92/93	93/94	94/95	95/96	96/97
Manufacture of food products and beverage	0.170	0.179	0.121	0.207	0.174
Manufacture of Tobacco Products	0.827	0.663	0.822	0.944	0.844
Manufacture of Textiles	0.573	0.669	0.564	0.383	0.367
Manufacture of Wearing apparel, except fur apparel	0.216	0.330	0.390	0.400	0.309
Thing and dressing of leather; manufacture of footwear, luggage and hand bags	0.229	0.225	0.151	0.201	0.226
Manufacture of wood and of products of wood and cork, except furniture	0.283	0.313	0.443	0.429	0.454
Manufacture of paper, paper products and printing	0.598	0.751	0.679	0.709	0.704
Manufacture of chemicals and chemical products	0.774	0.783	0.755	0.774	0.751
Manufacture of rubber and plastic products	0.911	0.939	0.938	0.950	0.947
Manufacture of other non-metallic mineral products	0.563	0.579	0.538	0.418	0.307
Manufacture of basic iron and steel	0.969	0.988	0.974	0.993	0.994
Manufacture of Fabricated metal products except machinery and equipment	0.822	0.911	0.843	0.901	0.930
Manufacture of machinery and equipment N.E.C.	0.889	0.985	0.902	0.686	0.900
Manufacture of Motor vehicles, trailers and semi-Trailers	0.689	0.962	0.910	0.915	0.851
Manufacture of Furniture; Manufacturing N.E.C.	0.218	0.315	0.301	0.212	0.224
Total	0.443	0.551	0.459	0.476	0.442

Source: CSA, Report on Large and Medium Scale Manufacturing and Electricity Industries survey, 1998.

Rural industries are other forms of industries which process agricultural raw materials, add values to the farmer's produce, and generate employment opportunities (Helmsing, 1998). Rural industries in Ethiopia, however, are under developed and have low contribution in this regard (Box 2).

Box 2: Features of Rural industries in Ethiopia

The features of rural industries in Ethiopia indicates that small scale industries are mainly concentrated in few major urban centers. Those outside major centers account for only 34 % of the total employment in small scale industries. Food products and beverages are by far the most important types of industries. The industries on average hire only about 3.3 persons per establishment. Hence, its contribution towards employment is very limited. The output contribution of small scale industries is very negligible. Those outside the major urban centers contribute only 1 and 0.7 % to the total gross value and value added respectively.

Cottage industries in the country are numerous accounting for 76 % of enterprises. Their employment potential however is very limited as they average 1.3 persons per establishment. Their contribution to outputs is low. They form only 24% of the output.

Cottage industries have limited capital, are informal and seasonal in character. Most of the persons engaged in cottage industries are also illiterate.

The regional distribution of both small scale and cottage industries is extremely uneven in that only the biggest three regions namely Oromiya, Amhara and SNNP dominate the enterprises. Hence all other regions are highly underrepresented in the activities of small scale and handicraft. Generally, small scale industries and cottage industries in Ethiopia are underdeveloped.

The use of manufactured farm implements and inputs by the agricultural sector is another form of linkage that industry and agriculture will have. This type of linkage, however, is very minimal. At household level, a study conducted in Tigray found out that the backward and forward linkage of the agricultural sector with the non-farm sector in the region is small (Tassew, 2000). The average fertilizer use in the study woreda is found out to be only 62 birr per household, which is only a very small percentage of farm output (3.2 %). Similarly the use of veterinary medicine is low (Table 4).

The examination of the location of purchase of fertilizer in some study areas revealed that parastatals and rural based institutions are more important sources. For example, in Robe woreda in Arssi zone, Service Co-operatives which are found in rural areas are the major source of fertilizers for farmers (Tegegne, 1999). Similarly in Limu Kossa woreda, government agency, the Bureau of Agriculture, is the major source of fertilizer (Tegegne, 1999). The sources of other inputs also show the same patterns as that of fertilizer. The fact that local traders in small towns and rural market centers are not engaged in input distribution discourages the growth of non-farm employment in these centers.

Table 4: Forward and backward production linkage of agriculture with non-farm sectors

	Birr/household	% of household using
Backward production linkage		
Expenditure on fertilizer	61.78	29.6
Expenditure on insecticide	0.62	3.7
Expenditure on veterinary medicine	1.87	15.4
Labor and Market linkage		
Expenditure on hired farm labor	89.85	39.6
Forward Production Linkage		
Sale of crop output	252.64	44.3
Sale of livestock products	72.94	18.2
Sale of livestock	176.99	23.1

Source: Tasew, 2000, p.189

The type of agriculture and the degree of intensification are critical factors affecting the extent of backward linkages (Livingston, 1997). Agriculture in Ethiopia is rain-fed, subsistence and employs traditional tools and implements. The tools used by farmers are mostly home made except the tip of the plough, which might be done by a blacksmith. There is no use of wheel driven transportation system that might require some transportation facilities. Agriculture depends on rainfall and there is negligible irrigation that might demand pumps and pump related equipments. The use of modern inputs such as fertilizers and tractors is very negligible. Table 5 shows the characteristics of agriculture in Ethiopia and other countries.

Table 5: Characteristics of agriculture in Ethiopia and other countries

	Arable land per agricultural worker (ha)	Arable land irrigated (percentage)	Fertilizer consumption per cultivated hectare (kg)	Cereal yield Kg/ha	Tractors per 1000 hectares
Ethiopia	1.0	0.77	29.2		
SSA*	1.6	2	9	800	1.4
Asia	0.8	27	46	1900	2.0
North Africa	2.8	20	72	1400	6.6
Latin America	4.9	7	53	2,000	5.4

* excludes South Africa

Source: For Ethiopia Mulat Demeke and for other countries, Livingston

In Asia where rural industries and non-agricultural activities are more developed, the intensity of agriculture is much higher compared to Ethiopia. The proportion of irrigated arable land in Ethiopia is only 0.77 percent as compared to 27 per cent in Asia while fertilizer consumption per cultivated hectare in Ethiopia is 29 kg as opposed to 46 kg in Asia. There

are evidences, which show that agricultural intensity is closely related with rural enterprises. In Pakistan and India, the production of diesel and electric tub wells and pump sets have grown rapidly in regions that have adopted improved agricultural practices (Ho, 1986). The type of agriculture in Ethiopia on the other hand does not generate backward linkages with industry. The traditional technological base of agriculture is thus a constraint for the development of rural industry.

Consumption Linkage

Agriculture in Ethiopia is shown to have a stronger linkage with the consumptive sector rather than the productive industrial sector. This is evidenced from the marketed surplus of food that is tuned towards the service sector (Abebe, 2001). Teff is found out to be the single most important crop with the highest marketed surplus (Abebe, 2001). This is a crop that is geared directly for consumption. The service sector, particularly the hotels and tourism, have the highest investment next to real estate between 1992 and 1999.

The importance of consumptive linkage is also evidenced from a district level study. The general relationship between farm and non-farm in a district in Tigray showed that there is a high correlation between distributive trade and farm output (Tassew, 2000) as opposed to a negative correlation between farm output and service trade and small and micro enterprises.

The structure of micro enterprises in six small towns of the Amhara region namely Bati, Haik, Tita, Werilu, Jamma, Legambo, revealed that consumer activities are predominant in small market towns. Table 6 shows service activities occupy the largest number of establishment in the towns and also account for the second highest activity in terms of employment in the towns. Services include construction, repair, tailoring, photographing, transport, shoe shining, hair cut etc. Food and drinks activities have the highest level of employment and the second highest number of establishment in the towns. On the other hand manufacturing and processing signified less both in terms of employment and number of establishment. This is an indication that as service centers, agricultural market centers serve principally the agricultural household as consuming unit rather than as producing unit (Gibb, 1984)

Table 4 : Number of micro enterprises and employment in six small towns of the Amhara Region

Activity type	Establishments		Employment	
	No	%	No	%
Trade Activities	72	21.7	103	17.1
Food and drinks	91	27.4	226	37.6
Manufacturing and processing	24	7.2	65	10.8
Handicraft and cottage	35	10.5	50	8.3
Services	110	33.1	157	26.1
Total	332	100.0	601	100

Source: Tegegne and Mulat, 2003

Physical Linkage: Infrastructure

Physical (spatial) linkage is expressed through infrastructural development. The road infrastructure is the main form of infrastructure serving for more than 95 % of the volume of ton km and passenger km in the country (MEDAC, 1999). Thus the extent to which different parts of the country are served by the road network is an indication of their connectivity and rural-urban linkages.

Nearly 80 % of the population depends on the use of traditional modes of transport that is head and back loading, walking and animal transport which are slow, burdensome and time consuming (ERA, 2002).

The road network in Ethiopia is in its early stage of development. In the year 2004, the total road network is 36,496 km of which 4,635 km (13%) are paved and the remaining 31,861 km (87%) are gravel (ERA, 2004). Out of the total road network, about 18,540 km is the main road network administered by the Federal Government (ERA) and the remaining 15,956 km is of 'low level' roads generally categorized as 'rural roads' administered by the Regional Rural Roads Authorities (ERA, 2003) (Table 5). There is also another 2,000 km community road.

Table 5: Length of classified road network (in km) (1996-2004)

Type of road and year	Federal	Regional	Community	Total
Paved				
1996	3656	-	-	3656
2001	3294	-	-	3294
2002	4053	-	-	4053
2004	4635	-	-	4635
Un paved				
1996	12133	8043	-	20176
2001	12467	14480	-	26947
2002	12564	16680	-	29244
2004	13905	15956	2000	31861
Total				
1996	15789	8043	-	23832
2001	16391	14480	-	30871
2002	16617	16686	-	33297
2004	18540	15956	2000	36496

Source: ERA network analysis

The conditions of the road network is not also encouraging since only 30 % of the road is classified as in good condition in 2002 (Table 6). The fact that 40 % of the road is in poor condition and 30 % is only in fair condition means that higher transport cost and loss of travel time is evident in movement of goods and people in the country.

Table 6: Condition of Road network (percent)

Road condition	Good			Fair			Poor		
	1995	2001	2002	1995	2001	2002	1995	2001	2002
Federal roads	14	30	31	36	27	25	50	43	44
Regional roads	25	25	28	15	30	35	60	45	37
Average	18	28	30	29	28	30	53	44	40

The large part of the country has no access to road facilities with a consequence of lack of access to social services and agricultural markets for agricultural outputs and modern inputs. It is estimated that nearly 70 % of the country's land area is not served by modern transport system (FDRE, 2002). The road density in the country is 29 km per 1000 km² as opposed to the African average, which is more than 50 km per 1000 km².

A graph theory analysis of the road network shows the extreme underdevelopment and lack of connection between the different towns and villages. It was found out that the beta index which describes the linkages per place or node is only 0.9 against a maximum of 3.0 (ERA, 2003). The index value is even much more lower when we consider the regions (Table 7). Underdeveloped and peripheral regions such as Afar, Soamli, Benishangul, Gumuz and Gambella have a very low linkage as shown in table 7. This implies that there are many isolated nodes in the peripheral regions. Similarly, for the gamma index, which measures the

degree of connectivity, a value of 30 percent is attained for the country as a whole. This implies that 70 % of the centers of the population have no connection to the road network (ERA, 2003). The road network in Ethiopia being radial also contains no loop or circuits.

Table 7: Estimated beta index for regional network of Ethiopia

Region	Vertices* (e)	Edges (v)	Beta index (e/v)	Maximum possible links $3(v-2)$
Tigray	74	62	0.84	216
Afar	28	20	0.71	78
Amhara	208	200	0.96	618
Oromiya	305	350	0.93	1119
Somali	69	36	0.52	201
Benishangul	16	12	0.75	42
Southern	149	140	0.94	441
Gambella	14	9	0.64	36
Ethiopia	933	829	0.89	2793

Source, ERA, 2003, p.28

* vertices considered are only those over 3000 people

Opportunities and Threats for Strengthening Rural-Urban Linkages in Ethiopia

Opportunities

The most important opportunity to strengthen rural-urban linkage is the policy environment set to address different socio-economic dimensions. Agriculture sector policy, industrial sector policy, road sector policy, decentralization policy all include some opportunities in them for enhancing rural-urban linkages.

In agriculture sector policy, the liberalization of output markets is a major opportunity for enhanced rural-urban exchange. A liberalized output market will raise producers' prices and allows efficient movement of grain between the rural and urban areas. The transitional government of Ethiopia liberalized the grain market and brings to an end to the Agricultural Marketing Corporation (AMC) quota system, restriction on grain movements and the system of fixed pricing for farm produce. The Ethiopian Grain Trade Enterprise was established in 1992 by restructuring the AMC and is expected to survive in free competition. The grain market liberalization has raised output price. However, the government has to improve the marketing system by avoiding the problems of limited inter-regional traders, lack of working capital, poor road conditions and limited storage capacities.

In input marketing, AISCO (the parastatal Agricultural Inputs and Supply Corporation) was the monopoly importer, wholesaler and retailer of fertilizer. The government ended the monopoly power of AISCO in 1992 when the fertilizer market was liberalized allowing the private sector to engage in the importation and distribution of fertilizers. The government,

however, continued to regulate fertilizer prices as the maximum price was set by the Prime Minister Office (PMO). The PMO after making the necessary assessment sets the maximum retail price, the rate of subsidy and the margins for wholesalers and retailers (Mulat, 1996). Fertilizer subsidy has been removed starting from 1997 and fertilizer prices were de regulated completely since February 1998. The reform re-established AISCO as an autonomous enterprise operating in a competitive environment under the name of AISE (Agricultural inputs supplies enterprise). By 1999, there were one public and six private importer/distributors¹. The share of private importers/distributors in the total sales of fertilizers increased from 19 % in 1995 to 69 % in 2000 (Techane, 2003). Though the fertilizer business has attracted many retailers and wholesalers, most of them have discontinued due to the input credit delivery system administered by regional governments favoring only importers and distributors, unattractive margin and lack of working capital (Techane, 2003). For example in retailing, the share of private traders was 2.8% of the national (DAP) market share in 2000 (only 2.3 % for Urea) as opposed to their dominance in the early 1990s when credit extended to farmers was very low (NFIA, 2001).

Some studies showed that fertilizer importing is dominated in effect by monopoly with a possibility of collusion (NFIA, 2001). The domination of the market by a few large wholesalers will negatively affect the economic development of small towns in two ways. First, it increases the concentration of income earned out of trade in a few hands which in turn reduces the consumption linkages in the small towns (Helmsing, 1998). Second, large traders located in big towns bypassing small towns altogether. In general, however, a liberalized input market will also help deliver inputs more efficiently and effectively. Liberalization allows the private sector to participate in these activities and generates non-farm activities.

In terms of industry, a development strategy was recently prepared to promote the industrial sector. The basic principles on which the strategy rests are: the recognition of the private sector as the main engine of industrial development; agricultural development led industrialization; export led industrialization; labor intensive industrialization; partnership between domestic and foreign investors; a strong leading role of the government; and mobilization of the community for industrial development. The strategy identifies conducive situation for industrial development ranging from macro economic situation, financial system, infrastructure conditions, manpower training to efficient administration and justice system. The policy focuses on identifying strategies for sub-industrial sectors. The sub-

¹ These were AISE, Ambassel Trading house, Guna trading house, Ethiopian Amalgamated limited, Fertiline private company, Wondo Trading company and Dinsho trading company. The last two are limited to local distribution of fertilizers (though they have import licenses) while the first five are involved in importing fertilizer.

sectors which are given emphasis include textile and tailoring industry; meat, leather and leather products; agro-processing; construction industry and micro enterprises.

Agro processing industries and micro enterprises have particular role in fostering rural-urban linkages. The agro processing industries relate agriculture and industry. Agro processing adds value to agricultural products and creates market for agricultural products. Since there are different types of agro-processing industries based on their raw material requirement, it is quite possible to specify specific strategies to different agro-processing industries. These strategies may entail creating partnership in some industries such as coffee processing, maize processing etc. Others could be done in the form of cooperatives and by small private investors. The importance of agro processing industries to foster rural-urban linkage can hardly be emphasized. Agro processing industries locate near their raw material in rural areas and small towns. They can also improve the agriculture sector by establishing strong backward linkage. Micro and small industries are labor intensive and require lower capital amount. They are believed to be suitable for countries such as Ethiopia. Micro and small enterprises encompass all enterprises involved in commerce, manufacturing etc. These enterprises could be established in rural areas and small towns. As a result their promotion and enhancement is key to strengthen rural urban linkages.

The Ethiopian government has put together a road sector policy in 1997. The first phase of the program took place between 1997 and 2002. The focuses of attention during this phase were² :

1. The restoration of existing network especially those roads radiating from Addis Ababa to regional centers.
2. Opening up of potential areas to development by emphasizing new road connecting urban centers with rural areas on the basis of agricultural production, improved regional administration and integration and the need to improve the quality of life of the rural population.
3. Improving rural transport services to overcome underdevelopment of connectivity, accessibility and mobility.

The RSDPI has brought some changes in terms of improving the accessibility of the country. The main focus, however, was on rehabilitating and restoring the already existing roads and therefore construction of new roads was not a priority (ERA, 2003). During RSDPI as of June 2002, a total road of 8,636 km² were constructed or rehabilitated of which 2,636 km² are federal roads and 6,000 kms are regional roads (ERA, cities in Asnake, 2006).

² The other objectives related to institutional and policy restructuring of federal and regional road authorities involving finance, contracting, commercialization and technology

The RSDPII hopes to open new construction especially to open the western border for agriculture and mining activity and connect regions and improve rural access of the country. The proper implementation of RSDPII will improve the road connection and thereby avoid the transport problems of the country. One of the specific targets of RSDPII is to increase by 2007, the percentage of acceptable condition of the country's paved, gravel and regional roads from 57% (average condition of all roads) to 84%, 63% and 60% respectively.

A subcomponent of RSDPII is the ERTTP (Ethiopian rural travel and transport programme) which is aimed at addressing the rural accessibility and mobility issue. ERTTP is envisaged to be implemented in close collaboration with sector development institutions, NGOs and private sector and the community. The major components of the programme are (ERA, 2002):

- Development of low standard rural roads;
- Facilitation of the improvement of accessibility to domestic and socio-economic facilities through expansion of facilities and optimizing their allocation;
- Promotion of the capabilities of the rural household to use existing facilities through facilitating the development of agricultural and non-agricultural income generating schemes (e.g., cash crop production, irrigated farming, improved livestock, credit facilities etc)
- Promotion of the transport service development through provision and expansion of sustainable and affordable transport means and services.

Rural transport services operate to and from hubs to villages, village to market centers and towns. Rural transport involved the use of multi modal system i.e., conventional, intermediate and traditional modes.

The road sector policies which are vigorously pursued in the country have a far reaching implication in improving the physical linkage between rural and urban areas. Successful implementation of the road sector policy will ensure rural-urban linkages.

Ethiopia is pursuing one of the most radical decentralization policies. The decentralization policy of the country has two phases. The regional decentralization policy and the woreda level decentralization policy. The latter started to be implemented starting from 2001 and includes the move to strengthen local government including municipalities. The presence of a decentralized governance structure is a prerequisite for enhanced rural-urban linkages. Decentralized governance when effective generates strong levels of local rural-urban interaction (Wandschneider, 2004). Decentralization and good local governance are emphasized by international agencies and academics to bring about institutional change and

successful area based development programs (World Bank, 2004). Neglect of this has led some past rural market town development to fail (Wandschneider, 2004).

Hubbard et al (2000) mentioned that the decentralization process has several important impacts on rural non-farm activities and rural-urban linkages. This includes the functions of local government as a key provider of rural services particularly road, clinics, school, agricultural and business services, procurers of services (putting spending power into the local economy through buying labor and services), a key decision maker in public investment (type, size, location), a key enforcer of regulation (taxes and licenses). These functions indicate the potential of local government in shaping rural-urban linkages.

In addition to the above-mentioned issues, the recent move to strengthen micro finance institutions which are established for the purpose of serving the poor particularly in rural areas is an important policy area that provides opportunity for enhanced rural-urban linkages.

Threats

As the existing rural-urban linkage is limited, the threats are numerous. These threats range from some policies to the functioning of the socio-economic environment.

Elements of the rural land tenure policy poses a great threat to enhancing rural urban linkage in Ethiopia. Rural land is publicly owned. Individuals have a usufruct rights. In order for this right to be exercised physical presence is considered as essential criteria. This has two fold impacts on rural urban linkage. In the first instance, it discourages farmers mobility to urban areas thereby limiting the flows of people (Tegegne, 2005). Secondly, the requirement will not give a chance for urban small entrepreneurs to engage in rural farming activities. Hence, the flows of resources and people from urban to rural in a temporary or permanent way will be highly limited.

Marketing has a very significant role in rural-urban linkages. Markets are provided by small, medium and large towns. These towns however do not have the necessary marketing facility. Storage capacity is considered as one important elements of marketing infrastructure since it allows farmers, traders to store crops when there is no demand and use them whenever needed. In the same way the absence of a system of market information to the farmers will reduce the interaction between the two.

Roads that connect the rural and urban areas is very important to bring about all kinds of linkages. The low level of the road network and the vast majority of the areas being inaccessible to all weather roads reduces communication and mobility. Particularly the absence of farm-market road is a serious threat to rural-urban linkage

The limited flow of finance to rural areas from commercial and development banks will reduce the development of rural areas and hence limit the linkages urban areas will have with the rural areas. In addition, the limited capacity of the existing MFIs to adequately cover and meet the demands of rural finance is a strict limitation for increased flow of finance from urban to rural areas.

Agro processing industries in Ethiopia are few. Those, which have high potential, have a higher import content signifying the limited linkages. The fact that industries import most of their raw material is a threat for backward linkages expected from these industries.

Small enterprises and rural industries are in their infancy or in underdeveloped state and lack dynamism. These enterprises would have absorbed raw materials from the rural sector and would have fostered stronger farm-nonfarm linkage. Besides they are suitable for smaller towns and rural areas. Their lack of dynamism, however, limits them from being agents of growth in rural areas.

Ethiopian agriculture is subsistence and is less intensified. As a result its low use of inputs such as irrigation pumps, fertilizers, etc. discourage non-agricultural activities. Though liberalization policies are in place, their implementation is a serious threat for rural urban linkage. For instance, the domination of the fertilizer market by few importers and distributors is a threat for private sector development and rural and urban linkage. Similarly the various problems faced by the grain market limits marketing linkage between rural and urban areas. Similarly, the farming land size which is constantly decreasing in the face of the fast growth of population has implications for rural urban interaction. Small land size results in reduced marketable surplus that reduces the linkage.

Ethiopia has a typical primate urban character where secondary cities and small cities are less dynamic in terms of supporting urban functions. As cities do not have the capacity to serve their rural hinterland and are not economically related to the rural areas, the linkage is expected to decrease leading to separate development. Small towns in Ethiopia are dominated by service functions mainly retail traded and bars with complete absence of production related activities (Fasika and Daniel, 1997). The study showed that businesses are dominated by retail trade (32.8%) and preparation of food and beverages (20.3%). The dominance of service-oriented enterprises highly limits the desired forward and backward linkages of micro and small enterprises with medium and large enterprises and they play limited role in fostering rural-urban linkages.

Conclusion

The promotion of Rural-urban linkage is a desired development strategy. Ethiopia has underdeveloped rural-urban linkages as manifested by different indicators. Spatial flows between rural and urban areas are constrained due to the subsistence nature of agriculture, lack of participation of the private sector in input distribution, limited interest of the formal banks in financing rural people. Inter-sectoral linkage particularly production linkage between agriculture and industry is also constrained since agriculture cannot supply the required raw materials and inputs to industry. Agriculture shows more of a consumptive linkage rather than production linkage. The current physical linkages between the two spatial units is far from desirable since large portion of rural areas lack any connection to the urban centers. As a result, socioeconomic development in Ethiopia is not benefiting from symbiotic relation. This has to change. The existing policy environment is a good beginning in this regard. The road sector policy which is vigorously pursued not only to upgrade and maintain the existing roads radiating from Addis and those found in regions, but to construct new roads particularly in rural areas is key to the success of rural urban linkage. In the same way, the emphasis on agro-processing and micro and small scale enterprises by the industrial sector has a crucial input to strengthen the linkage. This is because agro processing industries are resource based industries and have to be located near the raw materials. Similarly, micro and small scale industries are located in small towns which are found at the interface between the rural and urban areas.

Despite such opportunities there are, however, several threats. Some of these threats are policy related while others related to the functioning of the socio-economic environment. Strategies to avoid these threats should be encouraged and implemented. Some strategies along these lines include:

- Agricultural development to generate surplus;
- Promoting a decentralized urbanization;
- Strengthening small and intermediate towns;
- Fostering production linkages between agriculture and industry;
- Strengthening marketing facilities;
- Intensifying the physical connection; and
- Avoiding threats to rural-urban migration

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Rural-Urban Linkage and the Role of Small Urban Centers in Enhancing Economic Development in Ethiopia

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Background

RUL, Small Urban Centers [SUC] and Economic Development are the three key terms to reckon separately and in an integrated manner. In this paper emphasis is made on the present and near future plausible situations and conditions that govern the RUL and role of SUC in the economic development endeavors of Ethiopia. Supposedly the future will be heavily dependent on the development policies and strategies of the prevailing FDRE Government primarily those contained in the Urban Development Policy [UDP]²; the Plan for Accelerated and Sustainable Development to End Poverty [PASDEP]; and Millennium Development Goals Needs Assessment [MDGs-NA].

In the rest of the paper, next a brief review of recent literature is made to highlight the plausible answer about what is known and not known about RUL and role of SUC in economic development. This is followed by a discussion on RUL and SUC in view of the current politics and policies of the country. The working definition of urban and a brief discussion on the Rural-Urban configuration are presented in section four. RUL and the role of SUC in Ethiopia in view of expectations by 2015 and researchable issues are discussed in section five. The discussion in this section revolves around institutions, specifically cooperatives, marketing facilities, information and core infrastructures, mainly roads effect on the expected RUL and SUC emergence, growth and expansion in Ethiopia. At the end concluding remarks are made.

What is known and not known about RUL

What is known?

Much has been written about RUL and SUC both within and outside Ethiopia. Resources, policy, markets, institutions, infrastructure, and migration were reported influencing the RUL in different countries with varying degree. Fan et al., [2005] reported that the relationships between urban and rural sectors in developing countries is characterized by an economic

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² Ministry of Federal Affairs. Urban Development Policy [Approved by Council of Ministers]. March 1997 E.C. [2005] Addis Ababa. [Text in Amharic].

dualism i.e., by the coexistence of a modern urban sector and a traditional rural sector. Their report is based on evidences from China and India. They concluded that infrastructure such as transportation and communication is crucial for achieving better RUL as it facilitates mobility and therefore access to markets, employment, and services for the rural population. Investment in rural infrastructure, as well as agricultural research and development, and education are encouraged together with government reform policies to nurture the further development of rural industries and small towns that lay a key bridge role between rural farming communities and urban centers.

Chowdhury et.al [2005] reported that market institutions can affect links between urban and rural areas. Their study gave RUL cases of five countries, namely Indonesia, Ethiopia, Kenya, Bangladesh, and Peru. They concluded that mere market liberalization may not be sufficient to integrate rural urban markets when information asymmetries, transaction costs, transportation and communication costs, policy induced barriers, and social and non-economic factors inhibit efficient integration. They also reported that institutions such as cooperatives do lay a tremendous role by reducing information asymmetries and enhancing integration. According to Quisumbing and McNiven, [2005] migration and social networks are key factors that influence RUL.

Two studies conducted during the same period in Kenya and Ethiopia [Demese, 1996, Tegegne and Tilahun, 1996] revealed the role of politics and political administrative boundaries in RUL and SUC emergence, growth and expansion. Demese examined the nature of RUL in agriculture-based economy in two selected small-urban centres, namely, Naivasha and Molo, in Nakuru District, Rift Valley province of Kenya. The study concluded that in an agricultural rural economic set-up, the growth or decline of the SUC starts from the rural area. It is mainly agriculture oriented businesses and services that make the RUL prevail and if agriculture is affected, be it by economic or political factors, then the linking bond becomes weak and leads to economic decline not only in rural areas but the nearby SUC. The study revealed how ethnic based conflicts adulated by the prevailing politics can harm the performance of agricultural based rural economies.

Tegegne and Tilahun examined whether agricultural development has a significant impact on the growth patterns of the economies of small urban centres in predominantly rural regions by taking two case studies from Etheya and Huruta towns of Arsi Region in Ethiopia. They concluded that the fact that agriculture improvement will directly lead to the growth of towns as a result of direct and indirect linkages- processing, marketing, public services- cannot, therefore, be easily guaranteed. There are for sure some linkages (trade and service linkage) but a conducive environment must be created in order to nurture these linkages and exploit their potential advantage in bringing about sustainable and symbiotic urban-rural development. They reported, politics, particularly that affect the administrative status of

SUC could result in lack of continuity in some of SUC's development activities, particularly with respect to government services and facilities.

What is not known?

The RUL problems are contained in a complex situations and conditions inclusive of factors which are identified and made known by studies highlighted above. Of course, it is not only the afore-cited but also many other studies published in professional journals, proceedings, study reports and related publications identified similar factors [institutions, economic base i.e. natural resources, agriculture, etc., infrastructure, markets and marketing systems and facilities; policies, politics, and global relations; demographic factors and migration etc.] to affect RUL and the role of SUC in economic development. Still what makes developing countries economy to be immersed in a continuous and persistent underdevelopment and specifically rural areas to remain in abject poverty with a declining agriculture while their economic base remained mostly natural resources and agriculture based with weak RUL, is not known. Simply, what is not known is not the specific factors contributing to problems of RUL and SUC emergence, growth and expansion but their systemic and integrated effect on RUL and SUC during implementing interventions that are meshed with these factors. Beside to the neglect of systematic and integrative analysis, several studies dealt with policy in isolation to the role of politics and political systems in swaying the factors identified.

The strength of RUL and SUC emergence, growth and expansion in a given country depend on the recognition and conditional adjustment of development projects to a prevailing political system. Identifying policy as one factor to influence RUL and role of SUC in economic development in a given study does not mean the findings and hence the recommendations made out of the study contain the prevailing political system as a determinant factor affecting the same. The author presumes that RUL enhancing and SUC emergence, growth and expansion related projects implementation often fail largely because of underestimation or deliberate negligence of political systems at different tiers, which explicitly or implicitly build on negations to government's position on national and regional development policies and strategies. This is a testable hypothesis, perhaps to be considered in RUL and SUC thematic research area of GMP.

Partly, the failure emanates because many academicians, researchers and advisors when they are called in to the real world, circumvent the basic principle in policy formulation process and omit some of the factors that influence policy positions taken by a prevailing government in a given country. They neglect the core lessons of the policy formulation process. These include that policy is determined in the political arena and policy decisions are fundamentally political decisions.

Often social scientists, particularly economists, consider economic development policy formulation is a modeling issue and omit those not captured in the model but have a tremendous effect on measures taken including the whole gamut of being ready to act and react; given the prevailing ability and capacity, to the synergetic movement of actors and factors of economic development in the flux of institutions governed by political, social, economic and cultural situations and conditions [Demese, 2004]. Knowingly or unknowingly they neglect that policy positions are derived from the interaction of facts, beliefs, values and goals that are held by individuals. At a government level, a policy position indicates a conclusion based on recognition of such interactions, as to what the role of government ought to be with respect to a particular problem or set of circumstances.

RUL and SUC in view of politics and policies

Whether it is internally or externally initiated intervention, say by programmes such as GMP, in order to make a meaningful contribution to enhance RUL and the role of SUC in the economic development of Ethiopia, one has to understand the prevailing regime, EPRDF's, development policies and strategies. Particularly one has to know the contents of :

- RDDDS [Revolutionary Democracy Development Directions and Strategies, Nehasse, 1992 E.C. [1999 G.C, Text in Amharic]] and
- RDPS: Rural Development Policy and Strategy, [2003]. The Amharic text was published in Hedar 1994 [November 2001],
- UDP: Urban Development Policy [Approved by Council of Ministers]. Ministry of Federal Affairs, March 1997 E.C. [2005] Addis Ababa. [Text in Amharic]. and
- PASDEP [Plan for Accelerated and Sustainable Development to End Poverty], Text in Amharic, Yekatit 1998 [February, 2006]

At present, the implementation of EPRDF policies and strategies are contained in PASDEP. PASDEP represents the second phase of the PRSP, which begun under SDPRP [Sustainable Development and Poverty Reduction Program [2000/01-2003/04]]³. It is Ethiopia's guiding strategic framework for the five-year period [2005-2010] and is claimed to be a scaling-up of efforts to achieve the Millennium Development Goals [MDGs]. RDPS, SDPRP-I and PASDEP are directed by the national economic development strategy referred as the Agricultural Development Led Industrialization (ADLI)⁴.

The latest extensive work in Ethiopia that addresses the synergy to exist in rural-urban linkages and overall economic development is covered by the MDGs Needs Assessment

³ SDPRP was a program to reduce poverty. PASDEP is a plan not only to reduce but also to end poverty. Readers are advised to read the FDRE government five year [2005-2010] Plan, published by MOFED, February 2006, Addis Ababa. [Text in Amharic].

⁴ Relevant policy and strategic issues contained in PASDEP will be highlighted in section five of this paper.

sector level and macro studies. Hence, in addition to the aforementioned policy and strategy documents, any study, at present and in the near future, on RUL and the role of SUC in enhancing economic development in Ethiopia should be based on the facts, beliefs, and values set to achieve MDGs in Ethiopia by 2015. Particularly, the components and interventions listed in the Rural and Agriculture Development,⁵ and Urban Development sectors of MDGs Needs Assessment studies should be carefully examined. These studies were designed, by government and donors' agreement, to start from reviewing existing policies and strategies in particular those included in the SDPRP, RDPS, the Food Security Strategy [FSS], and the New Coalition for Food Security (NCFS) documents and other relevant sector oriented policy and strategy indicators⁶.

It is important to note that the FDRE Government in the RDPS document underscores the basic objective of the nation's economic development endeavors:

To build a market economy in which (i) a broad spectrum of the Ethiopian people are beneficiaries, (ii) dependences on food aid is eliminated; and, (iii) rapid economic growth is assured.

Further more in this document, it is stated that rapid economic development would be ensured through agriculture-led and rural-centered development. Trade and industry will grow faster following and in alliance with agriculture. Agriculture accelerates trade and industry development by supplying raw materials, creating opportunities for capital accumulation and enhancing domestic market. This point out that the basic directions of agriculture and rural centered development revolves around the extensive utilization of human labor; proper use and management of land, water and other natural resources; agro-ecology based development approach; integrated approach to development; targeted interventions for drought-prone and food insecure areas; encouraging the private sector; enhancing the benefits of the working people; and enhanced use of agricultural technical and vocational training.

In the RDPS document it was also stated that in countries like Ethiopia where millions of farmers are engaged in subsistence agriculture on fragmented farm plots, *cooperatives* play a significant role not only in creating improved marketing system and providing market information, but also in other agricultural development works. It underscored that it would be no exaggeration that neither meaningful agricultural development nor an efficient agricultural marketing system can materialize in Ethiopia without having a visible breakthrough in the development of cooperatives.

⁵ In 2004/05, the EPRDF Government through MoFED and with the Support of the United Nations, via UNDP, and the World Bank commissioned nine sector level and a macro level MDGs Needs Assessment studies. The author of this paper was a team leader of the Rural and Agricultural Development sector, and also a member of the macro team.

⁶ Several policy and strategic plan documents written in Amharic were obtained from various government offices and as much as possible the important issues, facts and guiding principles are incorporated in this section.

In short, a review and recognition of the EPRDF government economic development policies and strategies indicate that the core factors to embark on to analyze the future RUL and role of SUC are institutions, specifically cooperatives, markets [system and facility], information technology and infrastructure. Before we go to a detail analysis of these factors in relation to the topic of this paper, there is a need to settle some definitional issues and related current spatial distributions of population, which is the focus of the next section.

Definition and rural-urban configuration

1. Although UN and other international organizations tend to use minimum population size of 2000 persons as a criterion to define a place as urban, in Ethiopia, thus far the country has been using different criteria to distinguish between urban and rural areas. Much of the most recent data that we have on urbanization in Ethiopia, nonetheless, is based on the working definition that the CSA adopted and what was considered acceptable by the Ministry of Urban Development and Housing during the MDGs Needs Assessment study. According to this definition any settlement could be taken as an urban center provided that it fulfilled any one of the following conditions: if it had 2000 or more inhabitants;
2. if it was an administrative center regardless of population size;
3. if it had an urban dwellers association regardless of population size;
4. if it had 1000 inhabitants engaged in non-agricultural activity.

As a result of the application of the criteria given above, the 1994 Census has listed certain extremely small localities as urban. Fully aware of the implications of relying on such criteria for distinguishing between urban and rural settlements, the Ministry of Federal Affairs has set criteria to determine the *urban levels* in the latest Urban Development Policy document⁷, which is already approved by the Council of Ministers. Since there are no explicit measurable criteria to distinguish between urban and rural even in this document, the statistics and related explanation in this paper are based on the criteria used by the CSA, and thus all those areas that are not fulfilling the above conditions are referred as rural.

The present Ethiopia's total population is close to 73.1 million and the urban-rural population settlement projection indicates that about 16% of the population is residing in urban areas and the share of these areas by 2015 will be about 19% [Table 1]. In 2004, when the MDGs Needs Assessment was done, the number of urban centers was 925. These urban centers are different in sizes and dispersed in the various regions of the country. Addis Ababa, the national capital, account for about one-fourth of the total urban population of the country. However, the primacy of Addis Ababa

⁷ In the UDP Amharic version, published March 1997 E.C., Chapter four, sub-section 4.5.1 contains four criteria to determine the level of urban areas. These are (a) The strength and role to lead as a center of development for the surrounding environ, specifically as market center, service center, and industry center, (b) population size, (c) their role to be center of politics, and (d) their role as historical and cultural centers.

has been declining in the recent past. Addis Ababa's share of the total national urban population has declined from a high of about 30 percent in 1984 to a low of 25 percent in 2004 [Table 2]. Only over a period of 20 years, the number of urban places in the country has increased from what were 648 in 1984 to 925 in the 2004. This development has in effect led to a rather thin spread or haphazard scattering of the urban population in the country thereby lessening the chances of the emergence of meaningfully large agglomerations or potentially metropolitan centers other than the capital. In fact, as the data on the size-class distribution of Ethiopian towns in Table 2 shows, the country is clearly lacking large and medium sized urban centers.

Table 1: Population in Ethiopia for Selected Years, in 000'

Year	National				
	Total	Urban		Rural	
		No.	%	No.	%
2000	63495	9473	14.9	54022	85.1
2005	73044	11675	16.0	61369	84.0
2010	83483	14351	17.2	69132	82.8
2015	94526	17479	18.6	77047	81.4
2020	106003	21077	19.9	84926	80.1

Source: CSA, 1998. The 1994 Population and Housing Census of Ethiopia. Country Level

Table 2: Changes in the Distribution of Urban Centers by Size-Class 1984-2004

Urban Size-Class	1984		1994		2004	
	Number	%	Number	%	Number	%
<2,000	325	50.15	389	42.19	219	23.68
2,000-4,999	186	28.70	294	31.89	338	36.54
5,000-9,999	72	11.11	126	13.67	184	19.89
10,000-19,999	39	6.02	61	6.62	99	10.70
20,000-49,999	14	2.16	39	4.23	61	6.59
50,000-99,999	10	1.54	9	0.98	13	1.41
100,000-149,999		0.00	2	0.22	4	0.43
150,000-249,999	1	0.15	1	0.11	5	0.54
250,000 & above	1	0.15	1	0.11	2	0.22
Total	648	100.00	922	100.00	925	100.00

Despite Ethiopia's overall low level of urbanization, the country's rate of urban growth is one of the most accelerated in the world. As shown in Table 3, during the 1994-2004 period, the urban population of the country grew on the average at about 4.3 percent per annum. It is with such growth rate that the total urban population of the country would be 17.5 million by 2015 and 21.1 million by 2020 [Table 1].

There is a substantial regional disparity in the level of urbanization in the country. The 11.2 million urban residents of the country are unevenly distributed throughout the country. The Oromia region, which is a home to about 41 percent of all the urban centers in the country, accounts for nearly 30 percent of the national urban population followed by Addis Ababa, a

⁸ Most of the statistics is taken from the works of Solomon Mulugeta and Mathewos Asfaw's extensive study and report on this and related issues in their Urban Sector and Slums MDGs Needs Assessment Report, December 2004.

home to more than 25 percent of the country's urban population (Table 4). Dire Dawa and the Harari region, are also predominantly urban. In terms of number of towns as well as size of urban population, Gambella is the least urbanized region followed by Benishangul Gumuz and Afar.

Table 3: Urban Population Growth Rates by Region, 1994-2004

Region	Year		Growth Rate (%)
	1994	2004	
Tigray	469	746	4.6
Afar	80	117	3.8
Amhara	1,265	2,005	4.6
Oromia	1,970	3,207	4.9
Somali	437	671	4.3
Benishangul-Gumuz	36	56	4.4
SNNPR	705	1,163	5.0
Gambella	27	43	4.7
Harari	76	114	4.1
Addis Ababa	2,085	2,805	2.9
Dire Dawa	173	272	4.5
Total	7,323	11,199	4.3

Source: FDRE-MoFED, "Ethiopia-Urban Sector Needs Assessment for Millennium Development Goals: Improving the levels of Slum Dwellers." 2004.

Table 4. Ethiopian Urban Population by Region (2005-2020)

Region	2005	2010	2015
Tigray	780	975	1210
Afar	122	148	180
Amhara	2097	2635	3269
Oromia	3361	4237	5287
Somali	703	877	1087
Benishangul	59	73	91
SNNPR	1219	1534	1908
Gambella	45	55	69
Harrari	118	14	167
Dire Dawa	284	348	419
Addis Ababa	2887	3328	3792
Total	11675	14351	17479

Source: FDRE-MoFED, "Ethiopia-Urban Sector Needs Assessment for Millennium Development Goals: Improving the levels of Slum Dwellers." 2004.

Excluding Addis Ababa, which is as mentioned earlier a true primate city, the country has only ten cities with population sizes of more than 100,000 inhabitants. Of these, the largest city, Dire Dawa, is 14 times lesser than Addis Ababa in population size. In fact, a close observation of Table 2 reveals that well over 60 percent of the urban centers of the nation are small towns whose population is less than 5000 inhabitants. On the whole more than 80

percent of the country's 925 urban places are small towns each with a population size of less than 10,000 inhabitants. The majority of them are road-side towns that have come into existence to serve the tasks that are created by rural commercial and administrative centers.

RUL and SUC by 2015 and beyond: Researchable issues

The previous sections highlighted, more or less, the status quo. In this section an attempt is made to indicate how the identified factors will govern RUL and the role of SUC in the economic development of Ethiopia in the coming years. The discussion is footed on the proposition that in the near future the RUL and the role of SUC in the economic development of Ethiopia will depend primarily on institutions, specifically cooperatives, infrastructure, and markets. Strong and healthy rural-rural linkage (RRL) through market centers and increasing existence of primary cooperatives and their dynamic interaction will be the basis for enhanced RUL and the emergence of SUC. The RRL is not contained in the latest UDP and remains a gap to deal with⁹.

It is possible to assess the present and future RUL and role of SUC in under different policy scenarios, but as alluded earlier, the reasonable way is to assume the present policy will remain overriding with timely refinements that are footed on conditional policy making [Raussor and Farrell]. For example, one area of refinement in the recent UDP and RDPS is to capture the RRL in the emergence and growth of SUCs. Based on the principle of conditional policy making, policy dialogues and refinements can continue while embarking on RUL and SUC related pragmatic development undertakings via assessing potential and actual capacity and ability, be it in terms of human, physical or financial resources, to scale up existing sound programmes and specific interventions or undertake new ones which have been identified in the process of setting up PASDEP and achieving MDGs in Ethiopia.

In the near future, RUL and the birth and change in number and size of SUC depends heavily on:

- the FDRE government settlement policy;
- the policy and strategy to establish cooperatives at different levels (without cooperatives the prevailing RUL will be unhealthy and the emergence of new SUC that sustain on the basis of their economy in a dynamic free-market system be impeded);
- the parallel effort to develop primary markets and associated infrastructures,
- the policy and supports to be rendered for the emergence and expansion of commercial large-scale private agriculture and agro-processing firms;

⁹ UDP recognizes only rural-urban and urban-urban linkages.

- as well as on the frequency of restructuring of political administrative boundaries of various levels of governments¹⁰

The resettlement programme which resumed after the launch of RDPS and embodied directly in the New Coalition for Food Security initiative [NCFS, Vol. II, 2003] will have its effect on the emergence and expansion of new SUC in the coming decade. According to the NCFS programme about 440,000 rural households, or 2.2 million people were targeted to be resettled in five years, of which about 149,000 households reported to be settled voluntary by the end of 1997 E.C (Mid 2005)¹¹.

Until recently, cooperative societies and unions played no significant strategic role to enhance RUL and the emergence, growth and expansion of SUC in the economic development of Ethiopia. The cooperatives during the Derge regime were used mainly to promote the socialist economic system which did not adore resources and commodities mobilization in a free-market system. In 1996, in recognition of the need for a strong cooperative sector in a free-market economy, a cooperatives desk was established in the Office of the Prime Minister together with Cooperative Bureaus at the regional level. In 2002, the cooperative desk was strengthened and transformed in to a federal Cooperative Commission, headed by a Commissioner and with three departments and two support units. In January 2004, under Proclamation No. 380/2004, the Cooperative Commission was transferred to the newly created MoARD. It is today with a status of an agency.

Cooperatives could play multiple purposes. They will be the core institutions to achieve the desired market driven income based poverty reduction goals of PASDEP and MD in rural Ethiopia. As voluntary associations of private farmers they can promote the competitiveness of agricultural markets, which are currently dominated by collusive actions and malpractices of some private traders. In a broader view, in the near future in Ethiopia, the link between primary cooperatives and primary markets and hierarchically to cooperative unions and secondary markets, federations and terminal markets¹² as well as to the international market,

¹⁰ About five years ago, there were four tiers of governments in Ethiopia: Federal, Regional, Zonal and Wereda. At present there are three main tiers of government i.e. Federal, Regional and Wereda. The Wereda further is divided in to smaller tier known as the Kebele. There are urban and rural kebeles, which are also known as urban dwellers' association whereas the rural kebeles are known as peasant associations. The restructuring, which has abolished Zonal levels, has brought reconfiguration and change in size of some urban centers.

¹¹ PASDEP, p.73, Amharic version. PASDEP was also issued, not officially, in English in October 2005. For various reasons including '*Measure of aptness*' and 'a document *passed by the parliament*', the author of this paper, adheres to the Amharic version published in February 2006.

¹² A primary market is a supply area for farmers whose major objective is to ship to the market offering the highest net price. It is a catchments area for small farmers who are located at points where the price is the same and make farmers indifferent to ship to one market or another.

Secondary market is a supply area mainly for traders and rarely for farmers in the vicinity. Depending on the nature of the agriculture produce some commodities once transported and stored at primary market could be shipped either to secondary or terminal markets. Put differently, a secondary market is a market larger than primary markets with further value adding due to storage, transportation, packing, grading and standardizing while the commodities are trucked to larger terminal markets for raw material or final consumption. The secondary market is also conceived in the context of regional urbanization process. While secondary markets have a lot to do with SUC dispersion, the primary markets are essentially influenced by a rural environ, RRL and bound by rural towns formation.

as shown on figure 1, will solve marketing related problems of the poor small farmers and pastoralists, while introducing urbanization in rural areas. Specifically, the relationship between primary markets and primary cooperatives will be the foundation for the emergence of SUC. SUC, which emerged as a result of such relationships will continue to grow in size via agglomeration effects, which will prevail over the traditional SUC emergence and sustenance that is linked to local government administration centeredness often located at or adjacent to highways.

The rural population, which is 85% of the total population, livelihood is based on agriculture. This population is both producer and consumer of agricultural and non-agricultural products. As producers and consumers, farmers should have an increased bargaining power to get a higher share of consumer price. Cooperatives are instruments to boost such power. It is this share at farm gate or at the first selling point that enable the farmers increase their spending on manufactured goods such as clothes, shoes, iron-sheet, etc. For increased demand and use of farm input, the market share of farmers' agricultural products price must increase. Of course, such large number of the population is not only a buyer of final manufactured goods but also a buyer of wide-range of agricultural inputs. Again the buying power of the farmers must increase if the domestic input manufacturing and marketing firms are expected to grow. Cooperatives can also be established as saving and credit associations organized separately from marketing cooperatives. Overall in the absence of marketing and service cooperatives, the market chain continue to be long and farmers bargaining power marginalized, and their share of consumers' price diminish with a high transfer cost of a unit of consumable agricultural produce.

Indeed cooperatives enhance the buying and selling power of small farmers. Some doubt this role of cooperatives, based on the experiences of the Derege period, and still some elements of politics in the present ones. To overcome the ills of the past and the present, cooperatives should not embark on collectivization of property as it was during the Derege regime and instead facilitate for private resource allocation and production decisions via voluntary marketing of inputs and outputs with freely elected business minded, not politically preferred, leaders.

In rural Ethiopia primary cooperatives shall be established at kebele level¹³ and are to serve a group of peasant associations (Kebeles). The cooperative formation and its management have to build up with the changing kebele land and population sizes. The land under peasant

Terminal markets are markets where the produce is sold out to final consumer or processor and not to traders in the local market chain. Any commodity market, be it in grain, horticulture or livestock that serve as a thorough-way from primary to terminal is referred as secondary.

¹³ The Agricultural Marketing Strategy and Implementation Procedures (text is in Amharic), Agricultural Marketing & Inputs Sector, MoARD.

association is changing from what has been during the Derge era. During the Derg period a peasant association was bound with a land area of about 20 Gashas (800 hectares). As of now the average land holding a peasant association (Kebele) has reached to a range of 30-40 Gashas. When large kebeles, in terms of area, may have a primary cooperative, depending on the size, for efficient and effective management, others may have a primary cooperative that may serve two or more kebeles, all established voluntarily by membership applications. It is important to note again that it is not a must that all farmers who are members of a given kebele be members of a primary cooperative.

Primary markets and cooperatives are tied together by a rural population settlement spatial distribution and density. Existing documents hint that on the average a kebele, which is also a peasant association, has 800–1000 rural farm households. The average family size of rural households in Ethiopia is 5.2. The EPRDF government RDPS entail one primary cooperative is to be established in a kebele, and in terms of the population density to serve about 5200 rural people. In this connection though each kebele may have its local market centres, a primary market centre is to have an infrastructure and facilities to serve about 16,000.¹⁴ Recent studies indicated that primary markets serve 1–5 kebeles [FDRE, AMIP VOI II]. This paves the way to link primary cooperatives to primary markets and eventually to the settlement and distribution of the rural population. If we assume that a primary market serves, at least, about three kebeles the site of the market can emerge as a site for the expansion of existing or a birth of a new SUC via the dynamics of RRL by an acceptable definition.

The MDGs NA Rural Development and Food Security Sector study (December, 2004) contains the base configuration of primary cooperatives using the 2005 rural population projections as reported in the 1994 population and Housing census. According to this configuration 11756 rural kebles shall exist by 2005. The study developed a simple projection factor and estimated that, the rural population will settle in 14817 rural kebles by 2015¹⁵. In 2004, according to the AMIP Formulation Report, vol II, there were a total of 7366 primary cooperatives and 50 unions in Ethiopia. According to PASDEP¹⁶, at the start of the planning period (2005/06) the number of primary cooperatives is 14423 and expected to be 24677 by 2009/10. The plan is also to make 70% of the society a beneficiary of cooperatives. Cooperative Unions were 105 by 2005 and expected to reach to 646 by 2009/10.

¹⁴ On the basis of AMIP formulation report and the assumptions made in the MDGs NA Rural Development and Food Security Sector study (December, 2004). Of course one may think such market driven SUC may also be centres to establish education, health, research finance, and input supplying infrastructure in rural areas. Indeed these can be part of the entire configuration but they are not the necessary conditions for primary market strengthening or establishing undertakings.

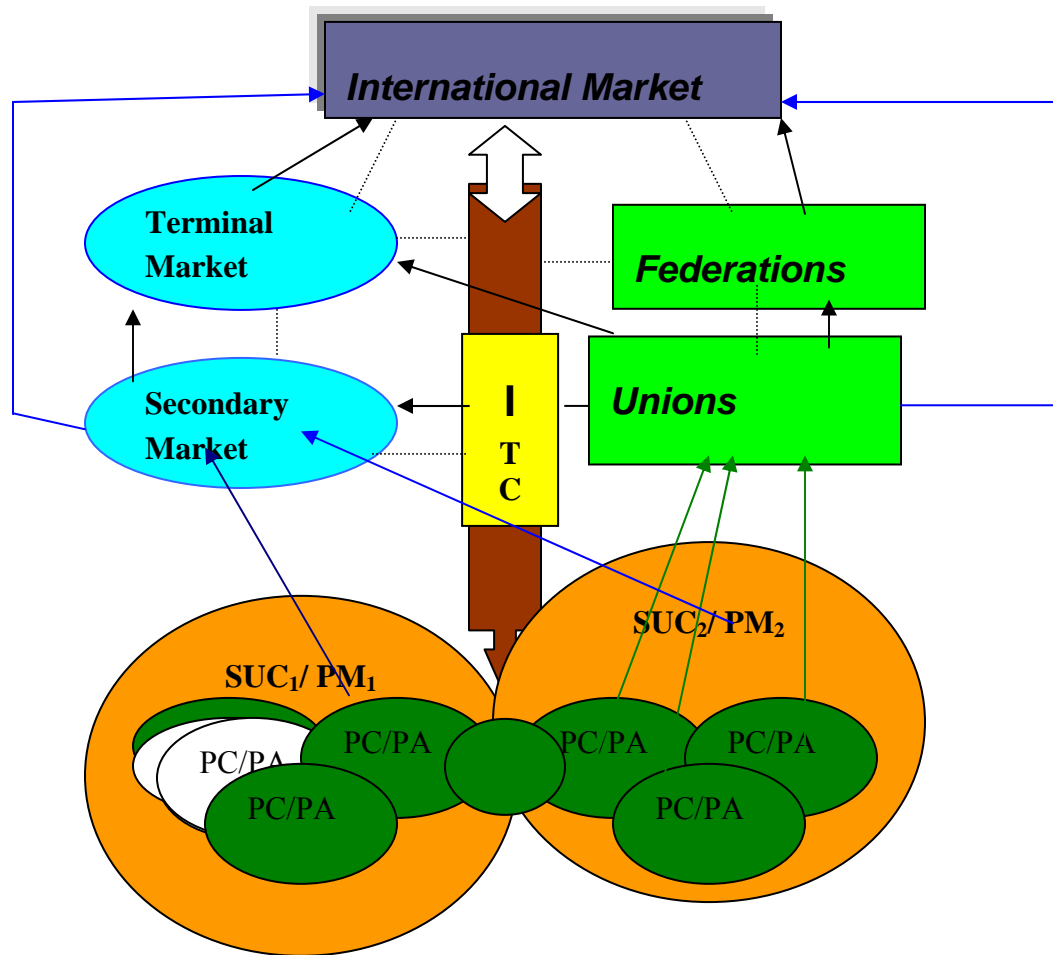
¹⁵ According to PASDEP Amharic version sub-section 6.1.5.1, already by 2005 the total number of peasant associations in the country has increased from 15000 to 18000.

¹⁶ Amharic version, sub-section 6.1.4.6 p.77.

Using the available information and population-based projection of rural kebeles, at the end of 2015, as pointed out above, there will be, at least about 15000 rural kebeles. With further conjecture that a primary market is to serve at least three kebeles, which in turn is based on the assumption that at least one primary cooperative exist in a kebele, it was predicted to yield between 2351 and 3918 SUC. This of course calls for further study, and perhaps may be a large number to comprehend in view of the trends of the last two decades. But one thing remains tautological. That is by 2015 the number of SUC in Ethiopia will increase by more than a thousand. In this circumstance a sound linkage among rural-urban, rural-rural and among SUC will be heavily dependent on the extent of market liberalization which is accompanied by free mobility of resources to highest value center and at the same time free mobility of agriculture as well as nonagricultural commodities. Presumably, these sound linkages will be dependent on the improvement to be made in terms of meshing marketing systems, market facilities, and the infrastructure and information technology and communication system. In other words, parallel to the promotion of multipurpose cooperatives, public and private investment in markets and their facilities, information technology and communication systems [ITCS], as well as infrastructure such as roads will play a crucial role in the future RUL and role of SUC in Ethiopia's economic development.

In figure1, market infrastructure and facilities are incorporated with a three-tier configuration. These are primary, secondary and terminal markets. Outside these, export cum international markets exist and are linked to the national configurations via market infrastructure, facility, information, and cooperative functions. The primary, secondary terminal markets setting will be a cause and effect of agglomeration of economies [Richardson 1979, Tomek and Rsoinson, 1981]. Put differently, an agglomeration of economies is both a cause and effect of market infrastructure and facilities improvement that enables the movement of people and commodities with low transportation cost and reduced market chain¹⁷.

¹⁷ Apart from the population concentration and urbanization phenomenon, a market is also characterized and governed by distinct suppliers of agricultural products and supply issues. The products are also differentiated as livestock, crop etc. The livestock market types could include bush, primary, secondary, terminal, and export markets. In the case of horticulture, the markets could be local, primary and export, or local, primary, secondary, domestic terminal or export. For grain, e.g. wheat, it could be primary, secondary, terminal, or primary and terminal. Wheat can be transported from a primary market in Bale directly to a terminal market say Addis Ababa where it is finally bought by the flourmill industry or households for final consumption. Or it could be transported to a secondary market, say to Nazareth where the Nazareth traders' sale it in different times to different terminal markets, such as Awassa, D.Zeit, Addis Ababa, or Dire Dawa. In general, the conceptual base of primary, secondary, and terminal markets is complex which partly is related to the biological and physical nature of various agriculture products and the infrastructure and facilities they need, and partly related to urbanization process, and not necessarily linked to the tracing of commodity movements in the market chain. Also note that in addition to product markets there are also input markets. In order to influence the use of inputs by smallholder farmers, the inputs must be taken to easily accessible, trusted outlets close to the farmers, or at least within their command of mobility. This could be achieved through the establishment of stocking and retail outlets if possible at the primary market level. To this end, the interventions should encourage and assists the importers and producers for the establishment of marketing network targeted to serve the smallholder farmers across the country. This networking could be a reality only via strengthening RUL and the role of SUC.



PA= Peasant Association
 PC= Primary Cooperative
 PM= Primary Market
 SUC= Small Urban Center

Figure 1. RUL and SUC: Market, Information and Cooperatives Web

Most marketing and market related interventions call for improved information, infrastructure and facilities. In this regard, ITCS is an essential element to link the private and public sector at various levels of governments, starting from kebeles' up to regional and federal levels. The ITCS is an indispensable development instrument, which with its mesh formation integrate and network local, regional, national and international markets with farmers' and enhance the RUL and role of SUC in national economic development. ITCS integrate cooperatives from primary level up to the level of a league. The ITCS at Wereda, Region, and Federal level should cater for cross-cutting issues in the data collection that will be used by various stakeholders both in the public and private sector starting from farmers and petty traders up to the specific needs of the government and the NGOs that are currently collecting or using market information.

ITCS at kebele level can be an integral part of the extension system [agriculture, health]. In addition to this the education system, specifically at high school level, is to be increasingly linked with an IT system. All these will enhance the RUL and role of SUC in development. At kebele level when institutions get furnished by electronic information devices including computers and radios and when the Development Agents is responsible for the coordination and implementation of the activities of the government development programmes the future rural settlement patterns and service centers configuration will be different from what is existing today. The already started agricultural commodities exchange programme, which is also heavily dependent on IT, will have its own contribution in the future RRL, RUL and role of SUC in Ethiopia.

Improving market infrastructure and facilities assist to overcome several problems affecting RRL, RUL and role of SUC in economic development. The primary markets in rural areas require reconfiguration to make them acquire the critical infrastructures and facility to exchange and transact agricultural produce including grain, livestock, horticulture, dairy products. In the context of strengthening RUL and enhancing the role of SUC in economic development, rural assembly markets should be up graded to a functional primary markets in production surplus areas. The isolation of a rural site to initiate the emergence of SUC in conjunction with a primary market that caters for three-to-five kebeles will be determined by the nature of the market reflected at least in five aspects,

- Markets that have more than a purely retail function;
- Markets that have a clear role as assembly points,
- Markets that are in areas that have surplus production and the majority of products being in their areas of specialization;
- Markets where land is available and use is not a constraint; and

- Markets where feeder roads are crossing and easily accessible by outsiders i.e. those who come from other place other than the designated kebeles participate in the various economic undertaking of the emerging SUC site.

The market infrastructure and facility development component may include storage and farm to market transport, providing promotion to farmers and primary cooperatives to adopt simple on farm and cooperative managed storage and processing facilities and intermediate means of transport. Post-harvest infrastructure (particularly storage) is inadequate in today's rural Ethiopia, and most rural areas often have poor road access.

Roads are essential prerequisites for rural development and hence poverty reduction. But the classified road network in Ethiopia is one of the lowest densities in Africa (25 km /1,000 km² or about 0.43 km per 1,000 people). As a result, large parts of the country remain isolated and rely heavily on traditional means of transport. This is in spite of feeder roads construction and maintenance through food for work or cash for work, particularly in the food insecure woredas where the aid resource [Productive Safety Net Programme] is available. So far feeder roads constructed through food for work or cash for work have played important roles in RRL, RUL and connecting SUC with other development centers and to woreda, and regional, at least during the dry season. They give, at least, temporary access to bring farm inputs, aid materials, etc. closer to the villages (kebele towns) and farm products to larger SUC. Of course, food/cash for work is expected to gradually diminish as the problem of food insecurity, hunger and poverty is alleviated through sustainable and rapid agricultural production and overall economic growth of the country. Then, the Road Sector Development Program should take the whole responsibility of constructing new feeder roads and up grading those roads constructed through food/cash for work. Of course, given its rough topography, the scattered settlement pattern of the population and the resources limitation, it may not be possible to provide classified (high standard) road network for the whole country, at least in the short term. In realization of this fact, the Government has given emphasis to constructing of low level low cost roads through community active participation under the Ethiopian Rural Travel and Transport Sub-Program (ERTTP). Thus, the understanding is that the Road Sector Development Program will cover all the rural community roads, which eventually pave the way to strengthen primary markets, and give birth for non-administrative SUC emergence, growth and expansion.

Conclusion

This paper was prepared to give an experience based insight about RUL and role of SUC in the economic development endeavors of Ethiopia. Institutions, economic base i.e. natural resources, agriculture, etc., infrastructure, markets and marketing systems and facilities;

policies, politics, and global relations; demographic factors and migration have been reported influencing the RUL in different countries with varying degree. Still what makes developing countries economy, including Ethiopia, to be immersed in a continuous and persistent underdevelopment and specifically rural areas to remain in abject poverty with a declining agriculture while their economic base remained mostly natural resources and agriculture based with weak RUL, is not known. Simply, what is not known is not the specific factors contributing to problems of RUL and SUC emergence, growth and expansion but their systematic and integrated effect on RUL and SUC during implementing interventions that are meshed with these factors. Besides to the neglect of systematic and integrative analysis, several studies dealt with policy in isolation to the role of politics and political systems in swaying the factors identified.

In Ethiopia, RUL and the role of SUC in economic development will continue to be influenced by the policies and strategies of the political party, which is at the helm of the political system. The existing policies and strategies of the EPRDF government indicate that the relationship between primary markets and primary cooperatives will govern the future growth or decline of SUC in rural Ethiopia. The emergence of market driven SUC (other than those which are local government head quarters) will initially be due to the growth of the hinterland, influenced by RRL, with its unique economic base, often natural resources based industries, namely agriculture, forestry and wildlife products, energy extraction, non energy mining and fishing. Simply this entails that research on the emergence, growth and expansion of SUC and RUL should be footed on the linkage between rural community centers i.e., RRL. The policy gap in addressing RRL has to be part of the research in RUL and SUC in years to come.

The FDRE government recognizes the cooperative movement as a distinct and one of the major stakeholders in the national economic development effort. Cooperatives will have a tremendous role in achieving MDGs targets. Particularly they have a crucial role to play in rural areas where the poorest of poor live, where jobs are scarce and basic services are weak. Cooperatives could provide services, which government cannot, or services captured by a few haves, where private provision is too costly or too difficult. Such services include, among others, credit, marketing, health, education, utilities. Most importantly cooperatives are part and parcel of the private sector, and accelerate the business cooperation. They are also major instruments for increased consumption of non-agricultural commodities, produced nationally or internationally. They are also instruments for capital accumulation, credit and saving. For these reasons, the cooperatives should be targeted as core factors to enhance RUL and strengthen existing SUC or lead to the emergence of new SUC that are grounded on market driven economic activities with appropriate and adequate market infrastructures and information systems. Research must be geared to assess the integrated effect of cooperatives,

markets and marketing systems, infrastructure, and ITCS in a pragmatic way without ignoring the conditionality of policy making, review and strategy settings.

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Experiences of MERET in natural resource management and enhancement of productivity in Ethiopia - an opportunity for RUL

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Relevance of the natural resource management (NRM) theme to RUL in Ethiopia

True to the character of an agrarian economy, in Ethiopia the natural environment is a means of livelihood. However, the natural resource base is under considerable stress. Land degradation affects in various measures both the food insecure and the 'high potential' areas of the country. Indeed, the land degradation-food insecurity-poverty nexus is nowhere apparent than in Ethiopia. This is manifested, among others, through loss of precious biodiversity and bio-potential, use of cow dung/crop residues for home energy, water degradation and reduction of access to clean water and the attendant repercussions on labour availability and quality; and damage to reservoirs, natural parks, tourist attraction sites, etc. In short, land degradation is primarily a physical process with immense livelihoods consequences. If agriculture goes wrong, no productive sector is likely to thrive in a sustainable manner.

It is, therefore, incontestable that land degradation is a national concern and Sustainable Land Management (SLM) should be a national priority. This is predicated on the conviction that natural resource conservation in complex and degraded environments like Ethiopia are prerequisite for enabling development. From the above it follows that RUL should be conservation-based in content. Such an approach to RUL is bound not only to avoid instability in product supply but also will promote diversification – two important prerequisites for the evolution of a sustained and mutually reinforcing urban, peri-urban and rural systems.

Illustrations from the MERET project

Grassroots level experience has shown that food insecure areas are endowed with considerable potentials for marketing valuable produce and promotion of farm and off-farm NRM-based income opportunities. The realisation of these potentials demands considerable catchment rehabilitation and associated land intensification measures. The MERET (Managing Environmental Resources to Enable Transitions) experience points towards the possibility of realising the potentials noted above. MERET is a WFP-financed project

implemented through the MoARD system. It operates in over 300 communities across 72 woredas (districts) of mainly highland Ethiopia.

The objective of MERET is to improve livelihood and food security opportunities for the most vulnerable, and in particular women headed households, through the sustainable use of the natural resources base. The main building blocks of MERET include: participatory watershed planning, adherence to technical standards that are governed by tried and tested work norms and technical specifications, productive NRM, homestead productivity intensification, capacity building of communities and government field staff, promotion of natural resources-based income generation opportunities, forging of synergies with educational drives and HIV/AIDS mainstreaming, and results-based management (RBM). The project has demonstrated the possibility and importance of improved land husbandry and creation of productive community and household assets through integrated watershed development (see Figure 1). Clustering of contiguous watersheds to create viable planning units (called ‘critical watersheds’) has been an important methodological shift in the thinking of the project in implementing programme activities. Such a clustering drive will further be intensified so as to create what are called ‘Impact Points’ – larger spatial units where land rehabilitation, promotion of livelihood diversification, and institutional development activities will be concentrated on. The project has also shown that the development of the natural base requires direct involvement of communities at all stages of programme conception and execution and that this has to be pursued in conjunction with grassroots level institutional development.

Internal as well as external evaluations aimed at assessing the impact of the MERET project carried out between 2002 and 2004 have shown, inter alia, that the project contributed to a reduction of 40% food gap and that communities have reported better capacity to cope with the effects of drought. A social and institutional assessment work that IFPRI/WFP carried out recently also showed that the project has made considerable progress towards women’s empowerment and local institutional development.



Figure 1: Illustrations of some of MERET sites in the SNNP (Omo Sheleko) and Amhara (Dessie) respectively (Photo by Gete Zeleke, 2005)

Furthermore, a cost-benefit analysis on the effects of the project has shown that many of the activities that the project supported have a rate of return in excess of 12%. In addition, this study underlined that the project has had visible downstream and environmental effects (increased water tables, more consistent water flows, improved biodiversity, higher flood protection potentials, increased soil fertility, etc). In a nutshell, the overall supply side effects of the project have been one of increasing agricultural production and contributing to the diversification of the range of rural produce available to the market.

Encouraged by its achievements, and guided by an ‘SLM beyond borders’ conviction, the project has taken in earnest advocacy for a nation-wide implementation of a sustainable land management (SLM) approach as an important drive towards rural agricultural development. To this end, the project has supported not only the production of the Community-Based Participatory Watershed Development guideline but also has financed its publication. Moreover, the project has provided valuable inputs to the training of government staff in the guideline and to overall capacity building to the food security sector. Experience sharing and dissemination of best practices has also been another thrust of the project aimed at popularising the theme of SLM.

In sum, from the perspective of MERET, the following constitute NRM opportunities of relevance for RUL:

1. MERET sites suitable to eco- and agri-tourism (local and international)
 - MERET operates in areas characterised by breathtaking landscapes
 - MERET coverage of a wide range of cultures and farming systems (Konso – Kilde Awulalo – Kebribeyah).

2. Integrated NRM activities drive increased produce flowing into local markets.
3. MERET provides support to the expansion of opportunities for marketing new produce and promotion of new packaging forms in a culturally appealing manner.
4. MERET supports intra-and inter-community experience sharing and skill transfers.
5. MERET activities promote the establishment of linkages between agriculturalists with small cottage industries/artisans. Examples include
 - Bee keepers in closures/nurseries and around fenced ponds linked to potters,
 - Basket makers linked to weavers and crop producers.
6. Support to co-operatives and market appraisal
7. MERET anchored on the development of phased plans for introduction of specific produce and packages.

Research, development and programmatic challenges: RUL perspective.

In Ethiopia, considerable progress has been achieved in the area of natural resource management and conservation-based agriculture. However, these experiences need to be filtered out and disseminated more systematically so that a more robust and organically linked economic system could be nurtured. From a perspective of RUL in the context of natural resources management, the following constitute some of the more important issues that need to be given due attention:

1. Alignment of MoARD extension system to the demands of RUL.
2. Meshing of watershed/spatial planning approach with the largely sectoral planning practice.
3. Provision of support measures to realise the full potentials of the tourism industry in its entirety. The later, in particular, argues for the need for considering the promotion and expansion of eco-and agro-tourism.
4. Involvement of the private sector in NRM-based RUL.
5. Development of capacity building strategy for RUL at all levels, including communities.
6. Development of a mass media communication strategy for RUL developed
7. Identification of quick wins/entry points that would promote RUL to be given priority. This has to be conceived as a necessary first step towards the establishment of a fully-fledged system in support of RUL
8. Addressing pervasive negative socio-cultural biases towards ‘occupational groups’/ artisans.
9. Need for systematically integrating lessons from other countries.

An integrated Approach to Enabling Urban Agriculture: Experience from Uganda and Kenya

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Definition of Urban Agriculture

According to (Mougeot, 2000), Urban Agriculture (UA) is defined as the production of food and non-food items through cultivation of plants, tree crop, aquaculture and animal husbandry within urban and peri urban-areas. Urban agriculture also involves processing and distribution of a diversity of foods and non-food products, using large amounts of human and material resources, products and services found in and around those areas; in turn.’ Many authors have defined urban and peri urban farming systems based on different criteria such as reasons for practicing agriculture (Mougeot 1994), scale (Foeken *et. al.*, 2000), places or location as by Mougeot quoted by Bakker *et. al.*, (2000) and type of crops or livestock other use a combination of factors. In order to consider issues of sustainability it would also be useful to classify urban and peri-urban agriculture based on the source and use of nutrients.

Why Practice Urban Agriculture?

The rapid increase in the population of many developing countries implies that food production has to increase correspondingly to meet the increasing demand. Although rural agriculture has a major role to play, urban agriculture (UA) has become recognizable partner in meeting this demand. Some of the advantages UA has over rural agriculture include proximity to the major demand centres, low transportation cost between farm-gate and retail market and reduction in post-harvest losses due to reduced time between harvest and sales Gyiele *et. al.*, (2002). Gyiele *et. al.*, (2002), further stated that, in the urban and peri urban areas low cost organic waste and wastewater are easily accessible in large amounts which enables crop production activities all the year round. Urban agriculture contributes substantially to food security of many cities, both as an important component of urban food system and as a means for vulnerable groups in addressing their food insecurity. Conservative estimates by Mougeot (1994) suggesting that from 15% to 20% of the world food was produced in urban areas. Urban farming has also been reported to provide for 70% of vegetables consumption in Dakar and 90% in Dar es Salaam (Nugent, 1997). Soemarwoto (1981) stated that, urban agriculture could provide some residents with up to 40% of their recommended daily allowances of calories and 30% of their protein needs including vitamins and mineral crucial to their health. Other benefits arising from UA include creation of

employment especially for poor women and disadvantaged groups, reduced poverty increased community solidarity, enhanced business activities and, improved environment (UNDP, 1996). Despite urban agriculture having various benefits, it also has associated risks, which will be discussed later.

Who is Involved in Urban Agriculture?

According to Smit *et. al.*, (1996) an estimated 800 million people are engaged in UA worldwide and of which, 200 million are considered to be market producers, employing 150 million people. Globally, the number of urban farmers is expected to reach 1 billion by 2015. Denninger *et. al.*, (1998) estimated that by 2020, 35-40 million urban residents in Sub-Saharan Africa will depend on UA to feed themselves. The extents of UPA in selected cities in SSA are presented in Table 1.

Table 1. Percentage of households involved in agriculture in different cities in Africa.

City	% of household involved in agriculture
Brazzaville (1994)	25
Bissau (1993)	30
Yaounde (1998)	30
Doula (1998)	16
Garoua, Maroua (1994)	10
Accra (1997)	15
Nairobi (1987)	20
Nakuru (2006)	30
Lusaka (1992-1993)	45
Dar es Salaam (1988)	20
Kampala (1993)	30

Source: Armar-Klemesu and Maxwell (2000), Lee-Smith *et. al.*, (1987) and Maxwell (1993)

In her study of six towns in Kenya Lee-Smith *et. al.* (1987) showed that two thirds of urban households grew part of their food, 29% of whom grew these crops within the urban area in which they lived. These proportions vary from 57% practicing urban subsistence farming in Kitui to 20% in Nairobi. Urban farming was carried out by all income groups, although those from the very low income groups tended to use public land while other groups had access to their own backyard gardens. As quoted by Poynter (1999) and Freeman (1991) UA in Nairobi was dominated by women and they suggested that the reason for this was the large influx of female migrants to the city after independence. Hide and Kimani (2001) in their study of informal irrigation in the peri-urban zones of Nairobi found a similar situation, where 63% of a randomly selected sample, were women. A similar study by Poynter (1999) in Anloga and Aboaba areas of Kumasi revealed that, 68% of livestock keepers were male.

There are different types UA, for example in Kumasi, two out of three households growing crops or keeping small animals for home consumption did it in their backyards which is

referred to as 'on-plot' cultivation. This has been shown to support only a small share of UA activities in any given urban centre. The bulk of UA thus takes place in public land which includes; along the railway line, roads, river valleys, flood plains and any other free urban land including privately owned pieces. This type of UA is referred to as 'off-plot' cultivation and it is practiced mostly by the urban and peri urban poor. The third type of UA is the peri-urban farming where owners of plots which were formerly classified as rural, but after the extension of towns they are now within the municipality or town administrative boundaries. These are quite common in the fast growing municipalities of the SSA where they continue to contribute a large share of vegetables, animal products such as eggs and milk. For example 90% and 70% of lettuce, cabbages, carrots, Asian vegetables and spring onions that are consumed in Accra or Kumasi in Ghana and in Nairobi, Kenya are produced in the peri-urban zones (IMWI fact sheet, 2003). According to UNDP survey commissioned to the urban agriculture network (TUAN) in 1992, over 40 different farming systems which reflect wide diversity of African urban gardens which address a range of non-horticultural systems (Lee-Smith and Memon, 1994).

The most important crops of urban and peri-urban farmers are perishable fruits and vegetables grown in or near the city by small or large farmers for home consumption or sale on the urban market (Nugent, 1997, Smit *et. al.*, 1996). Blake *et. al.*, (1997) reported that, in a survey conducted in 6 villages in Kumasi, traditional maize – cassava – plantain – cocoyam mixed cropping were present in all the villages and were predominantly grown by women. The men were engaged in growing of cash crops, the commonest forms being either tree crops (oil palm or cocoa) or vegetables (tomato, egg plant, cow pea. The survey also showed that majority of farmers paid no fee for using the land (81% of females and 74% of males), with a smaller proportion involved with share cropping (12% of females and 17% of males). However, those who had access to free land lacked security of tenure. In Nairobi, Kales, tomatoes, cabbages and spinach are the most widely grown crops by irrigating farmers (Hide and Kimani, 2000).

Although most urban planners regard livestock keeping as a transitory phenomenon in developing countries, studies by Sawio (1994) show that as urban centres grow larger and people stay there for a long time, livestock population also seem to increase. A survey carried out in Anloga and Aboabo areas of Kumasi, Ghana by Poynter (1999), showed that the most popular animal species was poultry 53%, followed by goats and sheep each 28%, and then cattle 25%. The observed trends in these two cities could be due to the availability of markets, less space and small livestock were cheaper to acquire for stocking purposes. Similarly, Freeman (1991) found that, in Nairobi, urban livestock producers preferred poultry followed by goats and then cattle. Small livestock like goats require less feed and attention. They are usually set free in the morning to graze or feed on their own and only come back to

the pens late in the evening. Ishani *et. al.*, (2002) showed that in eight areas of urban and peri urban Nairobi, the common type of livestock were goats, chicken, ducks, cattle and sheep in that order. In other parts of Africa, where cities show a multi-centred, 'pluralistic' structure with a scattered distribution pattern, the practice of raising livestock for milk and meat is widespread (Smit *et.al.*, 1996b). Urban poultry production plays a key role in the future food supply of the world's cities (Dasso *et. al.*, 2000, Smit, et, al., 1996b).

Urban Waste Management and Urban Agriculture

Solid waste management presents a major challenge for many municipal authorities in SSA cities, where rapid growth, social and cultural change, widespread poverty, inadequate and weak local governance and limited financial resources all contribute to increasing pollution and waste disposal problems. Effects of urbanization and modernization are leading, respectively, to increasing waste flow and changes in waste composition, resulting in the growth of unsanitary conditions in many urban areas. Despite the potential of waste reuse in urban agriculture, the focus of solid waste management remains on the priority challenges which are collection and disposal using the conventional dumpsite or landfill disposal. A major handicap in many African cities is their heavy reliance on capital-intensive technologies and inappropriate waste management policies. Thus unfortunately, heaps of garbage are a common feature of a majority of the continent's cities.

Urban Organic Solid Waste (UOSW) include not only the organic material in municipal solid waste, but wastes generated by gardening, urban agriculture, park and road maintenance, livestock keeping, food processing and other agro- industries (Furedy, 2002). In Nairobi over 2400 tones of solid waste is generated daily (JICA, 1997,ITDG 2002) and Kumasi generates 860 tones (Olufunke, 2003). It is estimated that 70% of the municipal waste from Nairobi is organic, contains approximately 1.5% N, 1.5 % P and 2.5% K plant nutrients which could be harvested through compost making (NRC, 1996 and World Bank, 1997) which would produce an equivalent of 2,223tones N and 2,223tones P and 3,700tones K and a qualitative amount of carbon for crop production annually. Unfortunately, only 1% of the potential compost is produced by community based organizations. Presently, only 40% of the solid waste generated in Nairobi is collected and disposed. The rest is uncollected and generally unmanaged, leading to the proliferation of garbage heaps which are now common feature in residential areas, along the roads and even within the central business district (ITDG-EA, 2003). In most industrialized countries services have expanded to the extent that over 90% of the population (and 100% of the urban population) have access to waste collection services. This is not the case in developing countries. The failure to provide adequate collection services poses a serious threat to human health in many developing countries (WHO, 1992). Yet it should be noted that municipal services in developing countries are handicapped by limited finances and an ever-increasing demand on urban

services. As a result non-conventional approaches to waste management have gained greater prominence, with some municipal authorities moving from conventional waste management to resource recognition approaches in which waste materials are recognised as unused resources (UN-Habitat, 1999; Furedy, 1992). This move incorporates an attitudinal shift from focusing solely on conventional engineering systems (waste collection, transportation and disposal) to developing community-based initiatives with broader social and ecological goals. In some countries the contribution of informal sector to formal waste management systems is slowly being recognised and valued and ways are being sought to integrate public and private systems in order to avoid competition. Private companies or community-based organizations are increasingly taking over part of the responsibilities of the municipalities by forming public-private partnerships, sometimes under pressure of structural adjustment programmes.

Community participation in waste disposal can be a catalyst in community-development work, because it gives residents a feeling of self-esteem. It can also lead to the possibility of income generation through recycling which will also reduce the quantities of material that have to be transported for disposal (UN-Habitat, 1989). For a smooth functioning of a waste collection and disposal system, it is essential that the understanding and cooperation of citizens are obtained and they should be encouraged not only to dispose of their waste in proper way but also to cooperate by separating at source. The disposal of household waste is just one of the many routine duties of household and so it is to the women that appeals to reduce waste or to make more effective use of available resources. Sometimes children take over part of these duties, such as by bringing household waste to communal bins.

In order to consider issues of sustainability it would be useful to classify urban and peri-urban agriculture based on the source and use of nutrients. Drechsel *et al.*, (1999) in their model of urban areas as nutrient sinks with little recycling, illustrated that, increase in urban food demand is giving way to a gigantic one-way flow of food (i.e. biomass and crop nutrients) into the city centres where large quantities of valuable nutrients are finally 'wasted' in latrines, landfills or contribute to urban pollution. There is however high potential for waste recycling into urban agriculture through composting, as 60-80% municipal solid waste in developing countries is organic (Harris *et al.*, 2001). Composting refers to the process by which biodegradable waste is biologically decomposed under controlled conditions by microorganisms (mainly bacteria and fungi) under aerobic and thermophilic conditions. The resulting compost is a stabilized organic product produced in such a manner that the product may be handled, stored and applied to land according to a set of directions for use. Important to note is that the process of 'composting' differs from the process of 'natural' decomposition by the human activity of 'control' (Olufunke, 2003). Key factors affecting the biological decomposition process and/or the resulting compost quality

comprise: carbon to nitrogen ratio, moisture content, oxygen supply, aeration, particle size, pH, temperature, turning frequency, microorganisms and invertebrates, control of pathogens, degree of decomposition and nitrogen conservation (Olufunke, 2003).

Lee-smith *et al.*, (1987) in their study on urban food production and the cooking fuel situation in urban Kenya, reported that only 30% of urban farmers in 6 towns in Kenya use manure. For those who used manure, 47% had own sources, 2% bought, 21% got it from friends while 30% got it through other means. The main problems given for non-use of manure were sources being far, lack of money, supply was inadequate and manure was too expensive. The same study indicated that only 25% of the urban farmers in the six towns use compost and most farmers (96%) had own sources while only 2% purchased. Brook and Da'vila (2000), revealed that in Kumasi, poultry manure from intensive units was dumped and sometimes burned by roadsides, and its disposal was stated as being a problem for poultry farmers. Ishani *et al.*, (2002) in their study of urban and peri urban livestock keepers in Nairobi established that, rural-urban linkages are poor or non-existent. Only two livestock keepers used manure for rural farms while another four livestock keepers owned farms in the rural areas, but did not bring any produce to town or take any manure/products to the rural areas. In Nakuru only 5% of livestock manure is recovered for farming. A more detailed exploration of the nutrient cycles within and between urban and rural areas is needed to identify potential bottlenecks and opportunities for intervention.

Throughout Africa urban farmers use wastewater out of necessity, yet it is a reality that is being ineffectively controlled or simply denied. Use of wastewater in agriculture is already widespread and contributes much more to farmer's livelihood and to food security than is commonly understood. In fact in some cases, farmers would be unable to earn a living without using wastewater and for others, its uses increases the income they would normally not make, thus lifting them out of poverty (Faruqui *et al.*,2004). It is estimated that up to 1-tenth of the worlds population eat food produced using wastewater (Lunven, 1992 *quoted by* Scott *et al.*, 2004). As populations continue to grow and more fresh water is diverted to cities for domestic use, 70% of which returns later as wastewater, the re-use of wastewater is certainly going to increase both in acreage of irrigated land and quantities used or applied to the environment (Faruqui *et al.*, 2004). Wastewater contains nutrients useful for plant growth and ensures an all round supply of agricultural produce especially fresh vegetables to a readily available markets in urban centers. For instance, in Nairobi only 50 % of the wastewater ends up in the treatment facilities as farmers tap it from the sewer lines to irrigate their crops. It is estimated that these farmers are cultivating 720 ha using raw sewage (Hide and Kimani, 2001).

Urban Farming and Environmental Health

Like rural agriculture, urban agriculture entails risks to health and the environment, if not managed and carried out properly. Urban agriculture is usually considered as an environmental hazard coming from soil erosion, use of contaminated water, compost, excessive use of agro-chemicals, and fumes from vehicles.

According to Birley and Lock, (1999) and Zeeuw and Lock, (2000) health issues related to urban agriculture are grouped into 7 broad categories;

- Contamination of crops with **pathogenic organism** (e.g. bacteria, protozoa, viruses or helminth), due to irrigation by water from polluted streams, or inadequately treated waste water or organic solid waste products;
- Human diseases transferred from **disease vectors** attracted by agricultural activity;
- Contamination of crops and/or drinking water by **residuals of agrochemicals**;
- Contamination of crops by uptake of **heavy metals** from contaminated soils, air or water;
- Transmission of diseases from domestic animals to people (**zoonosis**) during animal husbandry, processing or consumption;
- Human diseases associated with **unsanitary post-harvest processing, marketing and preparation** of locally produced food and;
- **Occupational health risks** for workers in the food-produced and food-processing industries.

UPA is especially attractive for perishable crops, such as vegetables and vegetable production is a desirable and profitable activity, but it is also associated with certain risks. Drechsel and Kunze (2001), in their case studies of concerns of UPA in Accra and Kumasi in Ghana, found out that, farming takes place under hazardous conditions especially with respect to the quality of irrigation water and there is widespread evidence of water contamination mostly with coliforms. According to UNDP (1996) health and hygiene problems associated within UA could originate from crops grown in polluted places.

In Nakuru, a study carried out to assess health risks associated with keeping dairy cattle in urban areas by Urban Harvest, University of Nairobi and Kenya Green Towns Partnership association, revealed 6.1% of Bovine tuberculosis, 26% of Cryptosporidiosis cysts in cow dung, 6% Aflatoxin (n=117 households) linked to animal supplements and 5% Brucellosis in milk obtained from dairy cows (Kang'ethe et al., 2006). In a similar study for Kampala, Uganda carried out by Makerere University and International Livestock Research Institute

(ILRI), E. Coli was identified in 42% while 43% of the milk gave positive reaction to Brucellosis test (Nasinyama and Randolph, 2004).

Policy Issues Affecting UA and Formulation Process

The legal situation on urban agriculture is unclear with most urban dwellers assuming it is illegal. However, a close look at the Local Government and Public Health Acts, as well as the Nairobi By-Laws, indicates that urban farming may be practiced under certain restrictions. Amidst the uncertainty however, farming activities have continued to thrive in urban centers in Kenya often with little regard for associated health issues (Ayaga, *et al.*, 2005). There are also no rules regulating farmer's access to public land, and as such if the value of the land is required for development priority is given and the farmers are displaced to the periphery of the city. To protect the interest of the low-income urban farmers residents who rely on informal access to land for subsistence farming, urban land administration and planners should encourage localized land use planning, guarantee timely and adequate compensation for the loss of access to land (Maxwell, 1996). Study carried out by Ishani *et al.*, (2002), on urban and peri urban poor livestock keepers, revealed cases of farmers harassment by city council and local administration. Urban farmers do not receive adequate critical support services like extension services and credit access. To facilitate access by the community to provincial and municipal services and to open a dialogue with the city council, Nairobi and Environs Food Security Agriculture and Livestock (NEFSALF) was established in 2004 and brings together 15 community groups mostly involved in mixed crop-livestock farming, government ministries, NGO's and local government representation (NEFSALF, 2005).

In recognition of the diverse opinions on urban agriculture, the Kenya Agricultural Research Institute (KARI) in collaboration with the Urban Harvest, a system-wide initiative of the Consultative Group of International Agriculture Research (CGIAR) organized a one day stakeholders' workshop in July 2004 to develop a consensus on providing an enabling environment for advancing urban and peri-urban agriculture in Kenya. The representatives of key national institutions, including Kenya Agricultural Research Institute (KARI), City Council of Nairobi (CCN), the Ministries of Agriculture, Livestock and Fisheries Development, Lands and Settlement and the local Government, confirmed their commitment to carrying forward a policy dialogue and presented substantive data and information relating to urban and peri-urban agriculture from the perspective of their sectors. The workshop recommended that the Ministry of agriculture was the right institution to carry forward the process of developing UPA policy, with assistance of KARI, which was to take the next step of convening a meeting of key stakeholders from community, market, government, civil society and other actors in UPA to create a National Inter-institutional Steering Committee of these stakeholders. The Ministry of Agriculture in collaboration with KARI, Urban Harvest

and other organizations have formed a task force to carry forward development of a National urban agriculture policy in Kenya as well as localizing it in Nairobi city. In Nakuru town, through a participatory process supported by Department of International Development (DFID) and International Development and Research Centre (IDRC), Urban Harvest, Kenya Green Towns Partnership Association and the Municipal Council of Nakuru (MCN) have produced a draft of Urban Agriculture by-laws. Urban Harvest and partners are currently fund raising for the completion of the urban agriculture by-laws formulation process for the Nakuru Municipality. Since the 1990's, Kampala City Council has had an active Department of Agriculture and has been working closely with local non-governmental organization (NGO) such as Environmental Alert and Kampala Urban Food Security, Agriculture and Livestock Committee (KUFSALC) and farmers in the development of ordinances, standards and guidelines on UA. January 2004, Kampala City Council (KCC), the political and administrative authority of the city of Kampala passed a set five Ordinances, which acknowledge the right, by law, for urban residents to grow food and raise livestock within the city limits for individual and commercial purposes. On the 11th of May, this year, the Mayor of Kampala assented to the ordinances pushing them to the final step of publication in the national gazette to become law. The policy change in Kampala is a remarkable achievement, considering that urban and peri-urban agriculture is still restricted or only tacitly accepted across the sub-Saharan. It comes on the heels of increasing recognition of the contribution of UA to urban food and nutrition security, income-generation and employment and hence its real and potential impact on poverty reduction, health improvement and women empowerment for the rapidly growing cities in Africa and other developing countries.

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The role of Urban Agriculture in ensuring food security: The case of Addis Ababa

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Background

Addis Ababa is located at the central part of Ethiopia with a surface area of 530.14.km² and an altitude range of 2100 to 3000 meters above sea level. Addis the Capital of Ethiopia is relatively a modern city rapidly expanding with a creation of new housing and industrial areas making the city one of the largest cities in sub Saharan Africa. The population of Addis Ababa is estimated to have reached around 4 million (Kerveller-city Mayors 2004) with a rate of 8% annually (Karveller: 2004). The centrality of the town and the urban and rural migration – especially during the famine and civil war period of 1980's contributed to the fast growth of the population of the city (Wondimu, 2005).

The city's population below absolute poverty line is estimated to reach 60% with about 40% of the working age unemployed (WB, 1992 cited on PSPC, 2003).

Urban agriculture in Addis Ababa:

Agricultural practice in Addis Ababa is a traditional practice that is taken as a means of livelihood for many. It is practiced in a formal and informal manner with practitioners utilizing their spare land at home, river sides, idle public lands etc. However general observations indicate that informal roadside cultivation is not taking place in contrast with Nairobi, Kenya where it is prevalent (Lee-Smith & Memen: 1994). This is true today as most of the land within the city is well controlled by the local authorities either at sub city or kebele level. Therefore, those that are formal are long established agricultural lands e.g crop in the periphery, and vegetable productions on the river sides occupied by cooperative farmers, and registered dairy farms etc.; and those that may be considered as informal are homestead small scale dairy farms, seasonal vegetable and crop farms in idle public lands and at household level for personal consumption.

In general, the main agricultural activities related to Urban Agriculture in Addis Ababa are crop, vegetables and livestock (PSPC, 2003) and to some extent honey production.

The GRDP share of the sector in the region in 1995 (E.C) was indicated to amount to 9.7% (PSPC, 2003). In terms of spatial occupation, it covers about 16,000 hectare of the city

surface area of which 11,182 hectare are cultivated. The sector is known to have involved some 50,000 people as a means of their livelihood (PSPC, 2003).

There are 4,100 rural farm households (in the periphery of Addis) forming 7 cooperatives that are supporting up to 23,447 families; and about 1400 households practicing horticulture using rivers, streams, and springs organized in 11 long established cooperatives occupying 382 hectares of land covering up to 7.13% of the vegetable demand of the city. In addition, over 400 households with about 3,110 families are engaged in vegetable production for consumption and sale (PSPC, 2003).

The total woodland coverage of the city is about 6028 hectare and is being administered by different public and other organizations such as the Urban Agriculture office, Addis Ababa Construction and Fuel Wood Development and Marketing enterprise, Ethiopian Heritage Trust etc.

In relation to livestock production 5167 dairy farm exist in the city, within which majority are small holders between 1-4 dairy cows, covering 80% of the milk supply to the city (PSPC 2003).

Urban Agriculture in the recent Structural Plan

Urban Agriculture has been recognized as one of the land use component within the 10 years City Structural Plan, 2001 – 2010. As a result the plan reserved 7175 hectares of land for urban agriculture representing 13% of the total land use within the city. This makes urban agriculture the third important land use component in terms of land occupation after housing and open spaces.

Role of Urban Agriculture in urban development

Urban Agriculture is proven to be a means of livelihood and source of food for many urban dwellers, particularly low-income households in developing countries. The case is true in Addis Ababa as indicated above. However, its contribution towards urban food security or livelihood has never clearly been recognized, simply because urban agricultural practices are largely assumed a replacement for rural agricultural activities therefore not encouraged and bound to fizzle out as cities develop. As a result, the sector has never received the support it deserves.

In recent years however, urban agriculture is gaining popularity and is being promoted as a means to enhance food supplement, income and employment by NGOs and recently by the relevant governmental offices at the city and even national level. Thus, apart from

encouraging and supporting existing practices a number of poorer households are being encouraged to involve in urban agricultural practices.

ENDA Ethiopia has been amongst the pioneer organizations in promoting, advocating for urban agriculture, and giving support to existing urban agricultural practitioners within Addis Ababa since 1995. And since 2001, a program with a theme “Leaving Healthy Life in a Clean and Green City” integrating urban agriculture and waste management has been running with an objective to improve nutrition and income; secure employment, and upgrade the environment involving Households; students and teachers from schools; iddirs (traditional CBOs); youth and women’s associations; governmental and non-governmental organizations.

Other NGOs involved in Urban Agriculture are:

- Mery Joy – supporting youth and women’s associations
- Plan international – women’s groups, households, youth groups
- ECI Africa – HIV/AIDS related households, associations
- JCCDO – Jerusalem Children and Community Development organization
- Abebech Gobena Orphanage and School
- NACID
- Plan International
- Kale Heyuet Church Development Program

Governmental initiatives

In recent years the city government’s positive out look towards Urban Agriculture and the recognition of its benefits and contribution to the city’s development efforts is remarkable. This has been reflected through:

1. The setting up of an Urban Agriculture office which is the first of its kind in Africa, if not even in other parts of the world.
2. Included in the 10 year master plan of the city (2001-2010)
3. A first study commissioned in 2003 on the benefits and Prospects of Urban Agriculture within the city, which reflected a positive outlook on the sector.
4. Urban agriculture taken up as one option of Micro and Small Enterprises for employment

The challenges

However, many positive intentions and efforts have been made in recent years there are factors that still require further adjustment to gain full benefit from the sector.

In general, there are no clear policy to encourage the sector therefore inadequate attention towards practitioners in terms of:

- Land use policy – still contribution of urban agriculture is taken as secondary to other economic activities within the city – land of peri-urban farmers claimed for other development activities e.g housing.
- Lack of technical assistance: such as improved and appropriate technologies for intensification of production, product development, market access for farmers operating within the urban setting.
- Incentives and/or support to encourage the sector considering its contribution towards the city's need.

Challenges specific to implementation

- Limited water resource
- Access to good quality seed
- Highly polluted river waters (with heavy metals from various factories established on the banks of the river discharging their affluent to rivers e.g Tanneries, Dye, textile factories etc.) used to cultivate vegetable that may cause serious health hazard to producers and consumers.
- Lack of effective waste management systems in the case of dairy farms.
- The poor lacking basic finance to start their own urban agriculture activity, even to set up backyard vegetable garden. (to buy seed and tools)

Urban Agriculture towards Food security in Addis Ababa

In 1994 Axumite G/Egziabher's investigation indicated Urban Agriculture as a traditional practice in Ethiopia and 'an "Ultimate" survival strategy (1994:104), and particularly important as it encourages people to eat vegetables which traditionally is given low attention (1994:102).

Still, the above facts remains true as the sector proves to be an area that has a huge contribution towards securing/supplementing food needs of urban inhabitants, particularly Addis Ababa. These can be because the sector is.

A Means of Livelihood: The sector continues to be a means of livelihood to a number of households in Addis Ababa by providing formal employment to 50, 000 and above people engaged in agriculture activities within the city of Addis Ababa. *According to the Ethiopian Agricultural Sample Enumeration (2003), the Addis Ababa total population in agricultural household was 148 575:79 056 in rural kebeles and 69 518 in urban kebele (cited in Wondimu: 2005) In the*

case of ENDA's experience the majority of household vegetable cultivators are housewives (407 out of 566 households are women) who claim that it has become an occupation which provided them with income they can control.

Enhance Nutrition: The production of fresh vegetables, cereals, dairy products etc., within the city enhance nutrition at households level – the 11 vegetable cooperatives within the city cover up to 7.13% of the city's overall vegetable demand and small scale dairy farms cover up to 80% of the city's milk supply (PSPC, 2003). ENDA's in house survey in 2003 indicated that the households cultivating vegetable in their backyards consume 161 gram of vegetable/day, 39 gram less than the daily requirement of 200 gram/day compared to those who don't produce which consume only 5 gram/day.

Saving on Food Purchase: Poor people in poor countries generally spend a substantial part of their income (50-70%) on food (RUAF) thus *growing/producing ones own food* provides saving on food purchase. Households involved in vegetable production in their backyard revealed that 75% of their vegetable produce is consumed in house saving them the amount they would have spent on purchasing vegetable (ENDA; 2003).

Copping Mechanism during difficult times: Urban agriculture, particularly vegetable gardening such as Cabbage, traditionally is taken as a copping mechanism during food crisis/shortage. Rearing dairy cows at household level are also taken as a means to supplement income e.g. pensioners.

Source of energy supply: Woodlands/biomass around Addis Ababa is a source of energy (as fuel wood) to majority of households within the city, supplying upto 10% of the total energy demand of the city, which is 2.4 million cubic meters (PSPC, 2003).

Balancing the Ecosystem of the City: The vegetation cover of the city is estimated to be 7,900 ha. (14.6% of the total areas), and securing the vegetation within the city means enhancing the environment of the city by controlling pollution, run-offs, soil erosion, and maintaining the ecosystem and biodiversity at large.

The Rural Urban linkage in relation to Urban Agriculture

- The population increases, which partly is due to the rural urban migration, is usually the cause for an increase in food demand in urban areas
- The rapid urbanization process in Addis Ababa claiming rural farmers' land for other urban functions. In the years between (1989-1985 E.C) 3289.2 hectares of land, of 2,407 farming households, have been claimed for housing development leaving farmers to adjust to a new life on non-farm activities (PSPC, 2005).

- Urban agriculture provides employment to rural poor migrants – in the case of Addis Ababa – almost all members of the vegetable cooperatives come from the Gurage area (Davis: 2005) the Gurages, traditionally rural Agriculturalists (O’Connor 1983, cited in Davis: 2005), continue to farm in the city because this is the trade and life style they know (Davis:2005).

Thus, it might have been a pulling factor for more rural migrants to move to the city to join their families within this specific community.

However, it is difficult to conclude that all rural migrants that come to Addis engage in agricultural activities and those that are engaged in agricultural activities – except the vegetable growers – are migrants from the rural area.

- Remittance flow from urban to rural families. In the case of the vegetable producers in Addis Ababa financial support to their families in rural areas is common, as the Gurage community traditionally maintain a strong tie with their families in rural area.
- Urban Agriculture is a means to minimize urban waste dumping as it can be recycled into natural fertilizer which otherwise will be polluting water and land of the towns and villages downstream. 75% of Addis Ababa’s solid waste is organic and out of it only 10% is recycled into compost so far. And out of the total solid waste produced no more than 65% is managed by the municipality, the rest is assumed to be dumped indiscriminately and normally washed away with flood into the rivers and streams.
- It balances the shortage of supply for dairy and fresh agricultural produce due to inadequate transportation systems from rural areas – This of course may leave poor rural producers impoverished as they are not able to compete with farmers within the city producing and transporting highly perishable produce.
- Influence on the food production and consumption style of rural inhabitants – diet habits, e.g. vegetable consumption, in rural areas. Eating well with a balanced diet is a culture that is developing in the cities. This culture can be adopted by rural inhabitants and making them not only producers but consumers of their own products.

How strengthening Rural Urban Linkages could affect Urban Agriculture.

Urban Agriculture will remain an inevitable practice no matter how cities grow and become sophisticated. The most developed cities in the world today produce their food supply; 200 million urban residents provide food for the market and 800 million urban dwellers are actively engaged in urban agriculture producing substantial amounts of food for urban consumers. A global estimate (data 1993) is that 15-20% of the world’s food is produced in urban areas (Margaret Armar-Klemesu 2000; RUAF).

In the case of Addis Ababa, the practice of urban agriculture is expected to increase as the relevant governmental and non-governmental organizations continue to engage in the promotion of the sector as a means to fight food insecurity and poverty in general within the city. **Thus, strengthening the Rural Urban Linkages will then mean improving the practice of urban agriculture in to a sustainable system through:**

- Creating coordinated efforts at all levels to promote the sector – amongst governments of sectoral ministries, local authorities, NGOs, etc.;
- Facilitating in formulating effective urban & rural policies in terms of access to land – use of private and public land for sustainable urban food production;
- Putting in place mechanisms to monitor competition on natural resources (a) recognize the livelihood means of peri-urban farmers as part of the city development (b) in case of expansion of Urban Agriculture into commercial practice in peri-urban areas to ensure sustainable systems - appropriate technologies in place that can intensify production, whereas reduce pollution and degradation of natural resources;
- Promoting intensified practice of recycling of solid waste and waste water which otherwise would have polluted villages and towns downstream;
- Highlighting options for securing livelihood of rural inhabitants (near by villages) due to new opportunities in meeting the demands of nearby cities.

Research direction:

Recognizing the importance of urban agriculture in the fight against urban poverty, how should policy makers, and other relevant stakeholders respond, in terms of:

- facilitating access to land and water,
- providing technical assistance,
- exploring opportunities for credit to the poor and,
- the safe re-use of urban nutrients for agriculture,
- land conflicts during urban-rural transition (difficulty to access land for agriculture in urban areas (even idle land), whereas rural agricultural land are acquired for non-agricultural use with ease).

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Managing Nutrients on the Move within the Rural-Urban Context

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Food insecurity and environmental degradation in SSA is aggravated by decline in land productivity, which is associated with soil erosion, nutrient mining, poor land resource management, limited investment on land based resources and unhealthy agricultural policy. As a result, agricultural productivity in SSA remained stagnant while productivity elsewhere doubled or tripled. In comparison to the 1960s, the area of cultivated land in Africa has tripled while the cultivated land in Europe remained the same, thanks to stagnant crop and livestock yield in Africa. For instance, while cereal yield in SSA remained below 1 ton ha⁻¹ for the last four decades, cereal yield in Asia and Latin America increased from 1.3 ton ha⁻¹ in the 1960s to above 3.5 ton ha⁻¹ in 2000 (Bationo et al., 2004), mainly associated with increased use of external inputs of chemical fertilizers, improved varieties and pest and disease management interventions. The yield potential in Africa could be explained by crop yield that African researchers are measuring in controlled plots, whereby the yield gap in comparison to yield of neighboring communities could be as much as 4 fold. However, there is still on-going debate whether yield stagnation in Africa is solely associated with lack of inputs. The socio-economic, institutional and policy barriers which inhibited access to inputs, information on markets and knowledge, limited access to credit, market security and functional policies at various levels have contributed to the slow change of agricultural systems.

Resource degradation in African Highlands

Declining the resource base aggravated by increasing population pressure, deforestation, soil erosion, nutrient mining, inappropriate land policies and limited access to information, markets and inputs has hugely contributed to the current food insecurity and natural resources degradation in Africa. As a response, the African Highlands Initiative was developed as a collaborative institution to address NRM issues in African highlands in 1995 as an area where partnership could make a difference. AHI facilitates collaboration and institutional strengthening of partner research organizations that provide useful contributions to solve complex issues related to natural resource management (NRM) and agricultural productivity. Solving the conundrum of poverty and land degradation has been the driving force and heart of AHI's regional work. Initially, AHI used a "participatory, integrated agro-

ecosystem management approach” emphasizing local development of multi-disciplinary research teams and partnerships in the benchmark sites to achieve sustainable intensification and diversification of farm systems through participatory testing and farmer integration of multiple technologies (Stroud, 2001). Following an extensive review of approaches and contributions, it was realized that more focus on ‘integration’ and working at higher scales, levels and disciplinary dimensions is required to achieve better NRM, income and food gains.

Challenges in sustainable nutrient management

While nutrient management is the major components of the various production systems investment on nutrients is very much limited in SSA for various reasons. 1) Chemical fertilizers are expensive while agricultural produces are sold relatively cheap to the level that it may not cover the cost of investments 2) Most of the nutrient movement is facilitated by erosion, which commonly emerges from communal lands. However, there is rarely an institution or a community strategy committed to manage these resources as there is limited incentive for individuals to invest labour and money to manage them. 3) Farmers manage multiple enterprises of crops, livestock and/or woodlots which are interdependent to each other. Hence, priority is given to those which have a direct impact on household food security and health than those with indirect long term benefits 4) The multiple enterprises managed by farmers at various scales are interacting positively and negatively in terms of nutrient use and application. In some cases, the trade-offs among components is much more stronger than the benefits in terms of environmental services (e.g. effect on water, nutrients and so on) and yet they could be economically attractive to dominate the long term effects. In this case, farmers single out enterprises with huge economic benefits regardless of the negative impact on other system components and future production scenarios.

Despite the complexity of issues affecting agricultural productivity and livelihoods in SSA, nutrient mining, particularly through excessive physical, biological and chemical removal of nutrients, has been a major factor affecting crop and livestock productivity in Africa. In SSA, while we remove about 4.4, 0.5 and 3.0 million ton ha⁻¹, year⁻¹ of nitrogen, phosphorus and potassium, we return only 0.8, 0.3 and 0.2 of these major nutrients, respectively (Bationo et al., 2004). Hence, there has been a 5 fold nutrient mining in comparison to nutrient application every year.

On the other hand, nutrients are imbalance at global level, while there is a huge nutrient imbalance among components at various spatial scales of farms, landscapes, countries and continents. At a global scale, what has been lost from farmlands or a landscape could be accumulated in other systems including grazing areas, lakes, oceans, etc. in the same and/or

different regions and countries. In SSA, the main causes of nutrient movement are the following:

1. Excessive removal of biomass from the respective systems. The biomass removal, which includes a huge removal of nutrients in different forms, could happen in terms of deforestation, overgrazing, burning of crop residues, forest and manure, growing high yielding crops for market, poor nutrient recycling to return the nutrients to the source, mismanagement of household and community waste etc...
2. Soil erosion. It is a primordial occupation to the highlanders since time immemorial and yet only few communities have developed effective strategies to harness soil and water loss in the highlands. It affects not only nutrients but also eroded livelihoods of millions through affecting production, labour productivity and other livelihoods options and negatively with poverty levels. Land productivity gradient in Ethiopian highlands positively correlates with slope and vegetation cover. The most vulnerable systems are those where slope is high and vegetative cover is low to minimize erosion effects. Moreover, due to land pressure, farmers are forced to plough hillsides and mountains, even those exceeding 45% of slope, particularly in Ethiopia, Rwanda, Burundi and DR Congo. There is also lack of effective land use policy that should prohibit farms not to change forests and protected hillsides to agricultural lands. All this has facilitated land degradation and nutrient removal to the level that, in some cases, it will be difficult to reverse the situation in the coming decades.
3. Limited return of nutrients to the respective systems. Nutrients are in a continuous move, they are transported from place to place and from country to country across space and time through:
 - Trade in agricultural products, including grain, flour, milk, meat, eggs, vegetables, fruits, flowers and other agricultural produces;
 - Trade in industrial goods, including chemical fertilizers, herbicides, insecticides, and other agricultural inputs across countries, regions and communities;
 - Transportation of nutrients by wind and water, particularly where erosion is apparent;
 - Movement of nutrients from land to the atmosphere and vice-versa through volatilization, emission and rain, particularly in the form of ammonia, N₂O, SO₂ and other forms;
 - Huge amount of nutrients get lost through leaching, particularly in sandy and sandy-loam soils whereby the clay content and soil organic matter is very low. Leaching could be aggravated by high rainfall intensity and poor land management.

Nutrient movement across scales has been recognized for some time and it could be seen from scale perspectives. At farm level, nutrients could move from the house to the home garden in the form of household refusal, chemical fertilizer, human waste, animal manure etc... It also moves from the far away fields to the homestead fields in the form of grain, crop residue for feed, mulch, fuel wood and other uses. A detailed nutrient flow analysis in Southern Ethiopia revealed that nutrient distribution varies among landscapes, households, farms and farm subunits. In Areka, Southern Ethiopia, the home garden fields had a positive nutrient balance while the outfields had a strong negative nutrient imbalance (Table 1), partly associated with preferential management of farm plot and enterprises by farmers.

Table 1: Nutrient balances at farm level in relatively rich or poor households in Areka. (Unpublished data, 2006)

Farm units	Rich farmer		Poor farmer	
	N	P	N	P
Enset garden	12	11	-12	6
Midfield	-3	8	-5	4
Outfield	-95	7	-54	3

This has been justified by continuous application of household refusal, farm yard manure, human waste and other inputs to the nearby fields at the expense of the mid and far away fields. Farmers associate the preferential treatment with shortage of labour for transporting manure and household refusal to far away fields, the type of enterprises growing around the home being more important for food security, shortage of organic waste and manure to be distributed to all farm plots and heavy erosion losses, particularly in the unprotected outfields. Details nutrient flow analysis at a farm level is presented in Fig. 1.

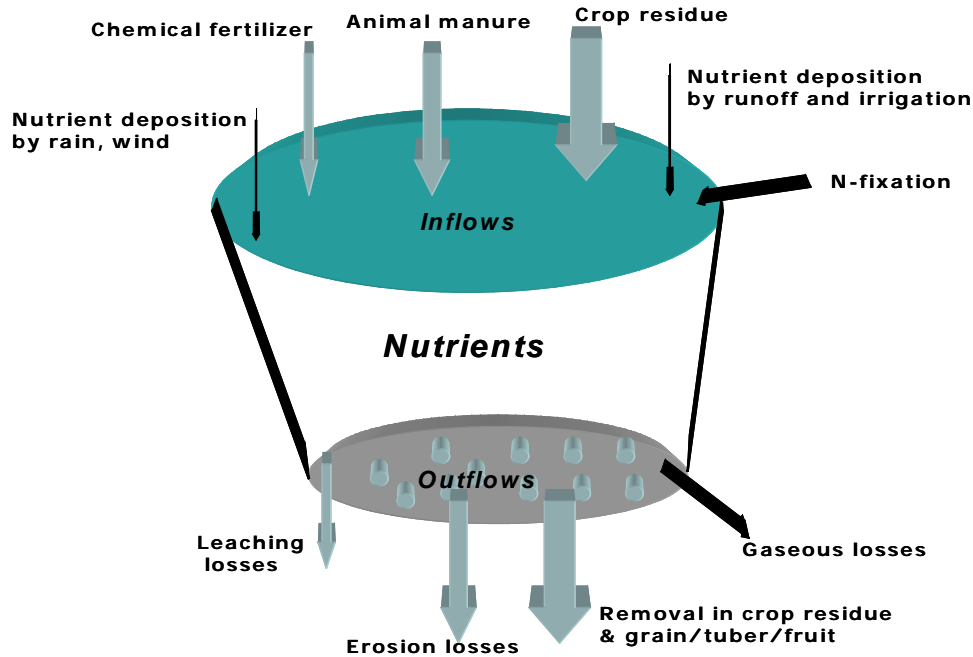


Fig. 1. Components of nutrient flows (inflows and outflows) at farm level in African highland production systems.

At a country level, there is huge nutrient movement, particularly from rural farms to small towns and big cities in terms of grain, feed, fuel wood, construction materials, milk, meat, eggs and other livestock products, vegetables, fruits etc..., while they flow back in a limited amount to the rural systems in the form of polluted rivers, chemical fertilizers, compost, processed food items, clothing and other products.

In Ethiopia, Addis Ababa being the major city in the country and a market destiny to most people, it attracts a huge amount of nutrient from every part of the country in the form of agricultural produces for food, fiber, feed, fuel and construction. Besides the livestock population that invades Addis during the major holidays and festivals, it is the home of about 170,000 cattle, 65,000 sheeps, 22,600 goats, 16,000 donkeys and above 500,000 chickens (Bureau of urban agriculture, 2004). Moreover Addis produces about 70% of the vegetables that supplies Addis market. It also produces about 40,000 ton per year of solid waste, of which 70% of it is of organic origin, which holds a huge accumulation of nutrients.

Most of the nutrient movement is facilitated by seasonal and perennial springs crossing the towns and cities, with an apparent effect on the source and the sink, particularly during the rainy seasons and occasional showers. Even within cities, there is a continual flow of nutrients from the various sources, which may include households, small scale factories, garages, recreational places and other sources, and to the sinks, which may include downstream irrigation users, households using water wells, ponds, and those washing cloths

downstream and other water users. Polluted rivers are used by semi-urban dwellers (e.g. Akaki and Khaliti farms in Addis Ababa) to grow vegetables all year round. This has a direct effect on human health and environmental health affecting soil, water, below and above ground biodiversity.

However, most of the nutrients that have been reaching the cities are lost and/or became major sources of health hazards. It became necessary to develop a strategy to facilitate a functional nutrient recycling scheme so that part of the nutrient is going back to agricultural and floricultural systems in various forms. The major reasons that interrupted nutrient recycling are:

1. Lack of awareness among households, communities, policy implementers and policy makers about the degree of resource misuse and health hazards associated with poor resource management practices at various scales
2. There are no immediate benefits for households, including financial, social or otherwise for the communities to recycle nutrients. In situations where there were policy incentives for people to recycle nutrients to reduce health hazards but also to convert waste to resources, communities could not invest their time, labour and resources to recycle nutrients.
3. Policies which enforce improved resource management, including nutrient recycling, in town and cities are non-existence. Even if some households are interested to recycle resource other free-raiders may complicate the social dynamics and attempts to form collective action for improved resource recycling by individual households may fell. In this case, an effective national and regional policy supported by a community by law is required to reverse the mismanagement of resources.
4. There is limited social capital in towns and cities as town dwellers are coming from different ethnic and social roots. In this case, there is a need for social negotiation and collective action towards improved management of communal issues, including nutrient recycling.
5. Although communities could be willing to separate organic waste from other debris at a household level, collect and process, there is limited institutional capacity and linkage to the end-users of organic fertilizers and compost. Hence, there is a need for multi-institutional engagement that could facilitate the linkage of urban compost producers to peri-urban and rural farmers and other fertilizer users.

Potential interventions to improve nutrient recycling

More organic biomass into the rural agricultural systems to reduce easy movement of nutrients

It has been recognized for some time that agricultural system productivity is strongly associated with soil organic matter content, which is a process that invites the increase of biomass production and incorporation, presence of effective biota and favourable soil environment for decomposition and appropriate land management to build and maintain the process in the rhizosphere. However, the soil organic matter content of most East African soils vary from 0.5 to 1.5 % and is in a declining state. Shortage of organic matter in the system is partly because of low vegetative cover and low biomass productivity of the existing crop and forage species. It is also due to strong competition for organic biomass for feed, fuel, cash earning and soil fertility. Recent survey in central Ethiopian highlands showed that about 80% of the manure was used a cooking fuel (Amede, 2003, unpublished). As a consequence it affects the soil water holding capacity and most soils apparently became prone to drought. Effective nutrient management in agricultural systems could not be achieved without improving soil organic matter of the system. Besides being an indispensable source of plant nutrients, soil organic matter enhances the capacity of the soil to release nutrients slowly and facilitates uptake of nutrients through retention of moisture for extended period of time. Strategic crop rotation, continuous incorporation of organic inputs, minimizing erosion effects and integration of high biomass yielding herbaceous legumes and perennial trees into the respective systems are vital components.

Participatory nutrient flow analysis as a means to enhance farmer innovation

The differential application of different sources of fertilizers within the farm over years created a clear soil fertility gradient from the home stead to the outfield soil nutrient status decreasing from the homestead to the outfields, regardless of resource endowment categories. In a recent study in southern Ethiopia (Amede and Tabore, 2004), there was a significant difference in nitrogen, phosphorus, potassium and calcium contents of the soil between the homesteads and the outfields. Phosphorus was the major nutrient in deficit in the outfield followed by potassium, less than 25% of the P content of the homestead in both categories. Similarly, there was significant decrease in organic matter with distance from the home whereby the organic matter concentration in the outfield was about 40% of the homestead field regardless of farm categories. Using this as entry point, we have conducted negotiation with the respective farmers and the results of the negotiation provoked farmer innovation schemes. Farmers, regardless of wealth groups, initiated three innovation schemes to enhance the management of the outfield. Firstly, they have minimized the transportation of crop

residues that was taken as mulch (e.g. maize and wheat stover) - with limited feed value- and compost it on the spot to recycle back to the field. Secondly, they have been growing N-fixing, fast growing legumes (mainly vetches and stylosanthes) that they have identified earlier as short term fallows and intercrops in the outfields (Amede & Kirkby, 2004). Thirdly, they have started to construct soil bunds to minimize run-off and nutrient losses. This could reduce not only nutrient loss but also minimize washing away of organic matter, seeds and applied chemical fertilizers otherwise implying very low crop and forage yield. In a recent soil analysis farm plots of neighboring fields with structured soil bunds contained higher nutrient and organic matter content than those fields with out barriers (Amede and Tabore, 2004; SCRP, 1996). Other possible innovation schemes to be validated by the communities were a) growing same crop varieties (e.g. maize) on the same date and under the same management across the soil fertility gradient as a means to display nutrient gradients of farmers to help them in their decisions in allocating resources and choosing crops 2) Formulating technological options that would not demand excessive labour to transport manure/crop residues from one farm corner to the other (e.g on spot mulching like the Zai system in the Sahal).

Awareness creation on the relationship between nutrient budgets and human nutrition

Nutrient recycling in a subsistence system, particularly between soil-crop-livestock and people is a very important component of sustainable livelihoods of subsistence farmers in Africa. In situation where nutrients for humans are limiting one option to minimize the risk of malnutrition is through reallocation of cropland in favour of crops with high content of the nutrient in deficit. Once the nutrient budget of these systems is quantified and the type of the nutrient in deficit or excess is identified, the nutritional balance could be improved by reallocation of cropland, and increasing the land area allocated to crops rich in requisite nutrients (Amede et al., 2004). For example in southern Ethiopian highlands, the current root crop-based system was found to be in deficit of most of the nutritional components, except for iron. Extremely high deficiency was found in zinc and calcium, which was only 26 and 34% of the required, respectively (Amede et al., 2004). The scenario was not different even for relatively resource-rich farmers except for energy. Modelling the cropping system, by considering the adaptability of the crop to the environment in question, could offer a better and faster opportunity to reverse malnutrition. However, the possible acceptance or rejection of the model largely depends on the compatibility of the new crop adjustment with cultural values, food habit, labour, input demands and soil fertility management options. By doing this, it was possible to identify the major limiting nutrient in the system, particularly for humans and animals, and develop a strategy to fill the nutritional gap either through introduction of crop species with high content of nutrients in question (e.g Teff or Amaranthus for Iron) or calling the attention of external nutrient sources to augment the

deficit. Moreover, Amede and Taboré (2004) revealed that a shift from cereal-dominated system to a perennial-dominated system may reduce erosion effects by up to 50% through improved Crop-factor. However, any policy suggestion for change in cropland allocation and systems should be done through bottom-up negotiations with households, communities and district stakeholders.

Developing integrated nutrient recycling framework for action

For the effective nutrient recycling to be operational in African towns and cities, there is a critical need to analyse the major factors affecting resource management:

- a. There is a need for developing an awareness creation strategy at household, community, woreda, district, city and higher levels. This should encompass the sources of nutrients (e.g. households, factories, garages) and sinks of pollutants and organic waste (town dwellers, peri-urban farmers, policy implementers and policy makers)
- b. Develop an inventory of actors at different levels engaged in resource management or mismanagement at various scales
- c. Identify key hotspots of nutrient sources and sinks at various gradients and scales using participatory approaches
- d. Develop short term and long term strategies to integrate nutrient management with financial income, human health, environmental health and sustainable recycling of resources
- e. Develop strategies to create/strengthen collective action schemes at various scales to collect, concentrate, process, pack and sell nutrients to end-users
- f. Assist communities to develop and implement bylaws in collecting, managing and processing resources in their vicinities
- g. Enhance the capacity of local actors, kebele officials, local administrators and other actors to develop/strengthen policy options for sustainable nutrient management and appropriate use
- h. Develop information and knowledge transfer strategies for different users in the form of brochures, decision guides, posters and other materials that could be used by households, communities, development actors and local and regional administrators.

For GMP to be an important player in facilitating proper management and use of land-based resources there is a need to create a strong alliance at local and regional levels. The research for development alliance should be in a position to develop the following public products in the area of nutrient recycling.

- a. Effective policy strategies that would enable communities to separate and convert waste to resources at household and community level

- b. A function platform that will advocate for production, processing and marketing of organic resources formed and became functional
- c. A strategy to return nutrients from the towns and cities to peri-urban and rural farmers established
- d. Major agents of nutrient movement, mainly human actions, erosion and run-off, are minimized through improved management of upper-watersheds. In this case, there could be a need for soil and water conservation interventions, afforestation, establishing waterways and other practices through enhancing community and farmer innovation.

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Rural Urban Linkage in Ethiopia: Implications on Water

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Introduction

Synonymous to all urban areas of the world, urban centers in Ethiopia are heavily reliant on rural areas for food supply, water supply, energy and as a sink of pollutants, etc. There are also considerable urban agriculture worldwide. Urban agriculture is a widely practiced phenomenon actively involving more than 800 million people (Drechsel et al 2006). Rural areas and peri-urban areas are also dependent on urban centers for selling their produce, obtaining manufactured goods, get casual employment, as gateway and link to the other parts of the world. These strong inter dependence on one another and sustainable development is achieved through symbiotic relationship. Civilizations in urban centers in the world are strongly associated to the ability to control and manage water in the surrounding and remote rural areas.

There exist various dimensions of poverty in urban and rural areas of upper catchments. Among the various forms of poverty, water poverty is one of them and depends on the nature and depth of poverty, location of the poor, the depth of environmental degradation and level of productivity, and requires understanding complex nature and cause of poverty in a community. Attempt to poverty alleviation require innovations and investment interventions in technological, institutional change and sociological learning. In the rural and peri-urban areas thorough intervention analysis is important to identify the most convenient land and water management technologies that need to be promoted and implemented, which can be identified through multiple scales of analysis of interventions

Hydrology links urban-rural and Upstream-Downstream

Figure 1 below, adopted from Kirkby (CPWF 2003) shows conceptual models of upstream-downstream interactions in watersheds, which includes interaction of various elements of a watershed including urban and rural areas.

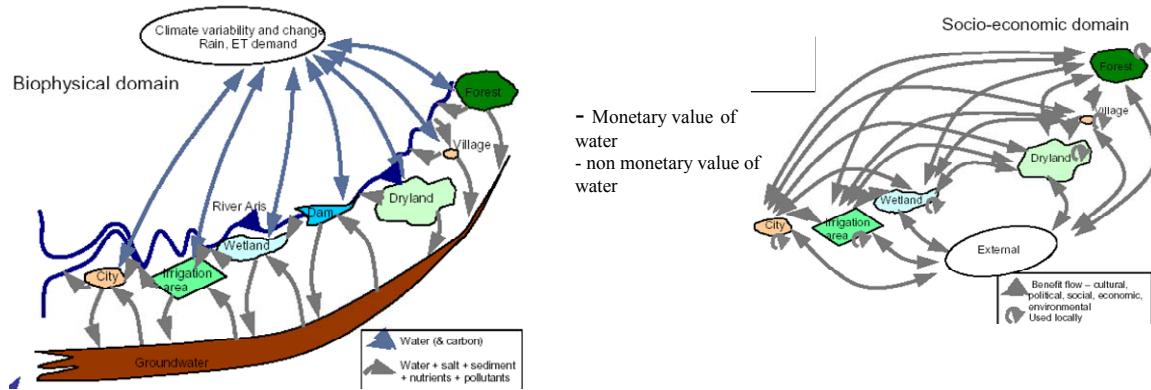


Figure 1: Conceptual model of upstream - downstream interactions (Adopted from CPWF 2003)

The above Figure is an important schematization and similar interaction of watershed, upstream downstream and rural urban could be developed around any setting that may be considered for investigation and clarify various aspects of interactions.

Urban Demand and Water

As stated earlier urban areas rely on water and water product flows from the surrounding areas. For sustainable development of urban areas there should be

- Adequate and clean source of water for drinking, sanitation, municipal supply and industrial supply. The source of these supply could be rivers, storage reservoirs and ground water;
- The sources of energy in urban areas and as a link to urban and rural areas, particularly in developing countries such as Ethiopia, could be mainly derived from traditional source such as fuel wood, animal power such as for transportation. Modern sources are hydropower, coal fired stations, geothermal station, nuclear power, wind, wave power and sun energy. These traditional and modern sources are also dependent directly to water such as hydropower, wave power and geothermal, or indirectly as water for plant and forest growth, water used to grow feed and animal drinking supply;
- Agricultural produce that are supplied to urban areas dependent on water whether in rain fed, wetlands, upland forest or irrigated systems. Irrigation could utilize water storage upstream or downstream of urban areas. In the latter case urban areas also contribute as a source of water. All have certain influence on water and hydrology;

Water and Water Product Flow in URL: Example of Addis Ababa

General

Addis Ababa is one of the highest capital city in Africa, at an altitude variation of 2200m-2400m above mean sea level, bordered by the Entoto mountain chain in the North and North West direction. The mountain area is the upper watershed, and plateau is a drainage divide between Awash and Nile (Blue Nile) rivers. The Addis Ababa City is particularly found in the Awash basin. The Awash river is the highest exploited river for productive uses of irrigation, hydropower and water supply to Addis and the surrounding urban areas. The population of Addis Ababa by 2005 is estimated at 2,973,004. The average annual rainfall of Addis Ababa is about 1200mm.

The Water Supply and Sanitation Addis

According to various estimates, example MOFED 2004, 82.5% of urban population and 31.4% of rural population of Ethiopia has access to safe water supply. The supply of water to Addis is provided through surface water provided at Gafersa, Legedadi and Dire Dams and ground water source of Akaki well fields, which are located in the periphery rural areas of Addis. The main concerns on reliability and sustainability of these sources are: meeting demands under growing population, potential pollution of the wells due to urban and industrial waste and rapid siltation of the storage dams due to land degradation.

As to sanitary facilities in Addis is 74% and less than 10% provided with modern sewer system. Figure 2 below shows the only sewerage treatment plant of Addis Ababa, which is found at Kaliti. The city is poorly managing the solid waste, industrial and other effluents which potentially pollute the water supply sources and the ecosystem in the tributary rivers, particularly Akakai river and the main Awash itself.



Figure 2: Kaliti Oxidation Pond: The modern sewer treatment plant in Addis

Energy Supply of Addis

In Ethiopia over 90% (~94%) of energy is from traditional source. The ~6% of modern energy source is mainly from hydropower generated in rural areas such as Fincha, Koka, Melka Wakana, Gilgel Gibe, and Tisisat.

Ethiopia Hydropower Source and Magnitude

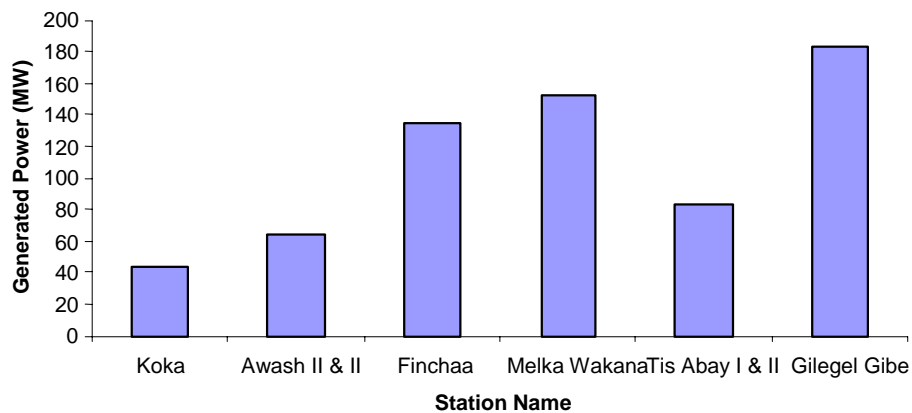


Figure 3: Source of hydropower energy of Ethiopia: mainly dependent on water, a particular example of NR (water product) flow

All of the modern energy supply of Addis Ababa, in the form of electricity supply comes from hydropower in the form of interconnected system. Most of the urban areas still relies on traditional energy sources such as for cooking and heating. Poverty in urban areas is the major factor not to use modern energy source for various purposes, such as cooking. Traditional energy source is mainly reliant on wood and forest resources surrounding the city and areas far away along the main road networks.

Hydropower is the major trust of energy supply for future of Ethiopia and is a source of comparative advantage for Ethiopia including export. Besides the energy supply, it can provide other benefits to environment as it is clean and renewable energy source and can be developed in conjunction with other investments such as irrigation as multi-purpose development to reduce capital cost of investment.

The major constraints for hydropower development are that degradation due to deforestation and consequence of aggradations of reservoirs, limited capital to expand hydropower and other renewable energy sources to avail the alternative energy source and poverty and poor income of most of the people to use the modern energy source.

Agricultural Production

Almost all crops, livestock and horticulture and fruit supply to Addis is from rural areas. Urban agriculture related to horticulture (mainly irrigated) provide certain share of the supply.



Figure 4: Urban irrigated agriculture in Addis, based on Google image

The major trusts of agriculture and Addis Ababa are that poor farmers in urban and peri urban areas get good market both for input and out put, relatively better infrastructure and more access to modern technologies. On the other hand, some of the main concerns are pollution of the water sources, health hazard of use of untreated water for irrigation, environmental degradation and allocation of agricultural land to other purposes.

Key Issues of NRM-Water in URL

The following are key issues that need to be considered in URL related to Ethiopia and Addis Ababa in particular:

1. Environmental flows:
 - Quantities of minimum flow, and minimum flow requirements
 - Management of water quality for ecosystem service
2. High gradient watershed and hillside hydrology:
 - Understanding the frequency, intensity and management of incoming high and rapid runoff from the hillside
 - Control of high rate of erosion, sediment and debris transport
 - Mitigation of low flow to exceed minimum ecological flow requirements
 - Managing mean and flood flow of mountainous urban and the impact on downstream rural areas
3. Storm water management:
 - Estimation of quantities
 - Innovations to manage urban storm for productive use in urban and peri urban areas
4. Pollutant transport:
 - Source of pollutant, quantities and sinks
 - Technical and policy options that are feasible to reduce the risk of chemical and food contamination in industrialized areas
5. Making assets out of waste water:
 - How to make an asset out of wastewater through efficient and viable interventions along the contamination pathway to reduce health risks for farmers and consumers while maximizing its benefits for farm households and society?
 - What is the extent of waste water use for agriculture in urban and peri-urban areas?

-
6. Irrigation water quality:
 - Extents of waste water and clean water usage in irrigation in urban and peri-urban areas
 - Socio-economic and health impact of waste water use for irrigation
 - Impact of low cost treatment options, alternative irrigation practices and other health risks reduction measures in farms, markets and households on the level of pathogens and other contaminants
 - Options to increase human and institutional capacities, improve policies and promote health safety measures in support of urban and peri-urban agriculture

 7. Benefit sharing of water related resource flows to urban areas:
 - Viable policy options related to compensation for rural dwellers losing their land and water for developments related to water infrastructure benefiting urban centers
 - Best approaches to share the benefit of revenue generated from rural developments of water infrastructure

Conclusions

This paper is based not on past extensive research undertaken in the subject. Rather it discussed water as an important component in natural resource flow in the context of Rural and Urban Linkage (RUL), particularly focusing on Ethiopia and Addis Ababa. It highlighted that comprehensive understanding of the system is required considering various modes of interactions such as watershed spatial scale, upstream downstream and socio-economic domains.

Water resources, creates both positive and negative impact in the RUL. Water (in the form of drinking water supply, irrigation, in the form of flood, etc.) and water product (as energy, agricultural product, etc.) are crucial component of natural resources flow in the RUL.

Key challenges and important issues that are pertinent for further research in RUL context are also highlighted. Although, these are complex, it is important to address them as they are strongly related to poverty reduction, health, reversal of natural resources degradation and socio-economic development.

The International Water Management Institute (IWMI) in collaboration with Global Mountain Program (GMP) and other institutions can contribute in addressing the above key issues.

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Product Flows and Growth Linkages In Ethiopia

IFPRI

A NOTE^{1,2}

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An economic sector is interlinked with the rest of the economy in a verity of ways. Some involve product flows, while others take the form of flow of funds (such as saving/investment, taxes, and transfers) or labour. This note focuses only on the first kind referred to as demand linkages in the relevant literature. Its primary aim is to provide a descriptive summary of what these linkages are and how strong they are in Ethiopia. However, since the significance of these linkages become more apparent as a sector grows, the note also report briefly on estimated growth linkages across sectors of the Ethiopian economy.

Demand Linkages

Economic agents (such as firms, households, and individuals) operating in an economic sector buy/sell goods and services from/to those associated with other sectors.⁴ The product flows such transactions lead to are referred to as demand linkages. Demand linkages fall into two broad categories - production linkages and consumption linkages.

As implied by their title, *production linkages* are centred on inputs and take two forms – backward and forward linkages. Backward production linkages represent the input demands of producers in a sector, while forward linkages capture the demand for the goods and/or services produced by the sector in question as inputs by producers in other sectors. To take agriculture as an example: farmers demand fertilisers, fuel, pumps, and repair services (backward linkages) and, in parallel, non-agricultural producers demand agricultural products as inputs (forward linkages). Empirically, the direction and strength of these linkages are measured by input-output interrelationships (commonly as coefficients).

Consumption linkages, in contrast, summarise the pattern of household and individual demand for (or expenditure on) consumer goods and services. To continue with the agriculture example: agriculture-related consumption linkages consist of the demand for

¹ This is a revised version of a presentation to the “Planning Workshop on Rural-Urban Linkages (RUL) Thematic Research Area of the Global Mountain Programme (GMP),” held on August 29-30, 2006 in the International Livestock Research Institute (ILRI), Addis Ababa Campus.

² **Acknowledgment:** This note relies on the findings obtained via the “Agriculture Growth Linkages” project of the Ethiopian Strategic Support Program (ESSP) of the International Food Policy Research Institute (IFPRI). The bulk of this note indeed forms part of Taffesse, et al. (2007) which reports those findings fully. The author would also like to thank Gete Zeleke, the Regional coordinator for Africa of the GMP, for the invitation to make a contribution on the RUL Workshop and his continued encouragement toward finalising this note. All errors and omissions are the author's alone.

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⁴ The demarcation of sectors, including the criteria and scale used, can vary largely depending on the purpose of the classification.

agricultural products by farm and non-farm households together with farm households' demand for non-agricultural goods and services.

Two applications continue to motivate the interest in demand linkages. Both relate to the fact that production and consumption linkages represent important characteristics of any economy. As a consequence, demand linkages are an effective device for describing the structure of any economy.⁵ That represents the first application. A related, but more analytical, application involves the use of demand linkages to specify and measure growth linkages. The central tasks, in this latter case, are identification and measurement of the impact of growth in a sector on the rest of the economy. It has been established that production and consumption patterns play a crucial role in determining the direction and importance of such growth linkages.⁶

Demand Linkages in Ethiopia

This section presents estimates of some key demand linkages in Ethiopia. As a prelude, it begins with a brief description of the sources of the data used in this section and subsequent ones. That is followed by remarks on the sectoral composition of production in the country.

Data

Most of the data for the analysis is extracted from the 2001/02 Ethiopian Social Accounting Matrix (SAM).⁷ The 2001/02 Ethiopian SAM is a 63x63 matrix and contains an account for each of twenty production activities, five factors of production, twenty-five commodities, transactions costs, three household groupings, three enterprise types, recurrent government, three types of public investment, savings/investments of institutions other than the government, and the rest of the world.⁸ As can be surmised from the table in Annex I, the SAM captures the diversity in production activities and the interdependencies among the various sectors and institutions that characterise the Ethiopian economy.

Sectoral Composition of Production

Agriculture dominates the Ethiopian economy, accounting for 80 percent of national employment, 41 percent of gross domestic product (GDP) and 33 percent of total exports

⁵ More specifically, the technological relations (such as input-output coefficients) and behavioural relations (such as consumers' spending patterns) briefly described above comprise two key elements of the structure of an economy. For a comprehensive characterisation of economic structure see Syrquin (1988). A related, but broader and more abstract, characterisation can be found in Tohmé and London (1997).

⁶ The literature on growth linkages is large and still growing. For recent summaries see Haggblade, Hammer, and Hazell (1991) and Dorosh and Haggblade (2003).

⁷ A brief description of a SAM is provided in Annex I. The details of the structure of the SAM are also presented in that annex as Table A1.

⁸ Choosing the year for which a SAM is to be built is one of the first key tasks. The year selected should ideally be a 'normal' year. It is not always easy to follow this rule, partly because what is 'normal' is relative. With this caveat, in the present case, the year 2001/02 was chosen because it is the most 'normal' recent year. It also has the additional attraction of being the year covered by the Ethiopian Agricultural Sample Enumeration (EASE) survey.

or 70 percent of merchandise exports (Table 2).⁹ More than 80 percent of these agricultural output and value-added (amounting to more than a quarter and a third of national output and value-added, respectively) is generated by subsistence farming.¹⁰ More interestingly, subsistence livestock production accounts for close to 40 percent of agricultural output and a third of value-added.

Table 1 – Structure of the Ethiopian Economy

	Agriculture			Manufacturing		Mining, Construction, Utilities	Services	GDP at Factor Cost
	Crops	Livestock	Others	Large	Small			
Value-added								
Level (million Birr)	12642	8073	3761	2213	1181	4659	27681	60210.9
Share (%)	21.0	13.4	6.2	3.7	2.0	7.7	46.0	100.0
Export earnings								
Level (million Birr)		2711		852		301	4420	
Share (%)		32.7		10.3		3.6	53.4	
Share in Merchandise Export Earnings		70.2		22.1		7.78		

Source: Ethiopian SAM 2001/02.

In comparison, the small industrial sector produces only 14 percent of GDP, the top three industrial sub-sectors being construction, large-scale manufacturing, and utilities. Surprisingly, the small capacity in industry, particularly in large/medium manufacturing, is not utilised fully. Capacity utilisation in large/medium manufacturing is so low that actual output represented 48 percent of annual capacity in 2001/2002 (CSA (October, 2003b)).¹¹ This contrasts with the substantial importation of manufactured goods such as textiles and leather products.

Another striking feature of the Ethiopian economy is the size of the service sector. The share of services in national GDP is a few percentage points higher than two-fifth - much higher than what appears to be consistent with the country's level of development.¹²

⁹ The employment figure is obtained from the labour force survey CSA (November, 1999).

¹⁰ Output and value-added shares reported for agriculture in this section are out of output and value-added in 'agriculture, forestry, and fishing'.

¹¹ The rate of capacity utilisation displays considerable variation around this average rate. For further details see CSA (October, 2003b). Furthermore, low capacity utilisation is not unique to 2001/02. In 2003/04 only 48 percent and 66 percent production capacity was on actually used by the private and public firms belonging to the sector, respectively (CSA (October, 2003)). Indeed, low capacity utilisation is a perennial problem in manufacturing. During 1997/98-2003/04 period, private manufacturing enterprise could, on average, use only 34 percent of their full capacity. The corresponding rate in public manufacturing was 55 percent.

¹² A note on the size of the service sector. Using data from the World Bank and the OECD, Easterly et al (1994) attempt to develop an international norm for the appropriate size of services at different levels of development. They suggest that service sector shares of 50 per cent and above in GDP are appropriate for countries in the middle and upper-income countries. This implies that for low-income developing countries the size of the service sector should be lower, much lower for very poor countries like Ethiopia, than this level. This general understanding is corroborated by the share of services in the GDP in many developing countries (World Bank (2006)). Similarly, the regression results of Kongsamut, Rebelo and Xie (1999) imply that the GDP share of the services sector in Ethiopia corresponds to per capita GDP of close to US\$4000 - a level many times over the per capita GDP of Ethiopia in 2001/02.

Demands

As Table 2 reveals, by far the largest two components of domestic demand are household consumption (or consumer demands) and intermediate consumption (or input demands). Household consumption (44 percent) constitutes the largest component of domestic demand, followed by intermediate demand (33 percent) and investment (13 percent). Not surprisingly, the share of household consumption is much higher (70 percent) in domestic demand for agricultural commodities. In contrast, intermediate consumption (41 percent) dominates domestic demand for industrial commodities.

These demands are covered by domestic production and imports, with the latter accounting for 17 percent. The share of imports reaches a third with respect to the demand for industrial goods, and is much higher for petroleum products, chemicals, and machinery and equipment. Indeed, industrial imports make up close to 75 percent of total imports.¹³ That the largest fraction of domestic industrial demand is for intermediate consumption and that imports provide for a third of this demand means that access to these commodities is likely to be a binding constraint to economic growth. On the other hand, it indicates to considerable room for import substitution – an opportunity.

Table 2: Composition of Domestic Demand

Commodity/Sector	Share in Domestic Demand (%)				Domestic Production	Imports
	Household Consumption	Intermediate Consumption	Government consumption	Investment		
Cereals	84.9	15.1	0.0	0.0	86.4	13.6
Pulses and oilseeds	81.5	18.5	0.0	0.0	98.9	1.1
Coffee, tea, and chat	63.0	33.6	0.0	3.4	98.6	1.4
Fruits and Vegetables	92.5	7.5	0.0	0.0	99.3	0.7
Other Crops	98.6	1.4	0.0	0.0	99.4	0.6
Livestock and Livestock Products	68.1	31.9	0.0	0.0	99.7	0.3
Forestry and Fishing	30.9	50.6	0.0	18.5	99.9	0.1
<i>Agriculture</i>	69.6	27.0	0.0	3.4	96.0	4.0
Manufactured food, beverages, and Textile and leather	76.1	18.6	0.0	5.3	96.8	3.2
Other manufactured products	83.5	12.6	0.0	3.9	71.9	28.1
Other Industrial Products	12.8	56.7	0.0	30.6	36.4	63.6
<i>Industry</i>	28.2	41.3	0.0	30.5	66.6	33.4
Trade, transport, and communications	8.8	37.4	0.0	53.8	100.0	0.0
Services – Other	26.3	73.7	0.0	0.0	70.2	29.8
<i>Services</i>	34.9	28.6	33.8	2.8	89.0	11.0
Total	43.7	32.8	10.1	13.3	82.9	17.1

Source: Ethiopian SAM 2001/02.

Input Demands

Despite its large size and expected comparative advantage, the agricultural sector provides only about a quarter of intermediate inputs and most of this to itself (Table 1). The sector's demand for inputs originating in other sectors is also very small. Indeed, the rather limited use of modern inputs constitutes one of the sources of low productivity in

¹³ It is noteworthy that 13% and 28% of the demand for cereals and textile/leather products is met by imports, respectively. Food aid makes up almost all of cereal imports.

the sector. Comparatively, industrial goods represent close to half of intermediate consumption, but the bulk of this are imported.¹⁴

Table 3 - Input Demand in Ethiopian Agriculture and Manufacturing

Shares of output (%)	Crops		Livestock	Manufacturing					
	Subsistence	Modern		Food		Textile and Leather		Other Manufacturing	
			Large	Small	Large	Small	Large	Small	
Input source									
Agriculture	9.1	5.6	30.8	23.3	8.0	35.1	0.0	1.5	0.5
Industry	4.0	13.2	0.0	24.3	48.9	38.3	46.5	56.7	42.1
Services	0.0	0.0	0.0	2.2	6.9	0.8	11.0	4.0	2.8
Total Inputs	13.2	18.8	30.8	49.8	63.8	74.1	57.5	62.3	45.5
Value-added	86.8	81.2	69.2	32.1	36.1	17.7	42.5	27.0	54.3
Indirect taxes	0.0	0.0	0.0	18.1	0.1	8.2	0.0	10.7	0.2
Total	86.8	81.2	69.2	50.2	36.2	25.9	42.5	37.7	54.5
Total Gross Output	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Share of Imports in raw materials (%)	4.0	13.2		27.6		23.8		74.3	

Source: Ethiopian SAM 2001/02.

Notes: Imported inputs in agricultural essentially fertilisers.

Consumption Demand

The SAM provides more details about household consumption. It summarizes current spending patterns such that its column coefficients represent average budget shares. However, household spending out of additional income (marginal expenditure or budget) typically differs from that out of initial income (average expenditure or budget). As a result marginal budget shares are more realistic projectors of consumption spending as income grows. Table 4 provides a summary of both.¹⁵

The average budget shares in Table 4 reveal a commodity composition of private consumption demand in Ethiopia that is characteristic of economies at the early stages of modern development (see, for example, Syrquin (1989)). Given the low level of average incomes, private consumption is concentrated on agricultural products, constituting about 66%, 51%, and 25% of demand by farm households, wage earners, and entrepreneurs, respectively. The bulk of this expenditure is made on food items.¹⁶ The share of food in total expenditure is even higher once non-agricultural food items are included. Expenditure on food stands at about 63%, 58%, and 31% of farm households', wage earners', and entrepreneurs' total consumption expenditure, respectively.

¹⁴ It is rather surprising that small-scale food processing has a larger intermediate input use as a fraction of output than large-scale food processing. The dominance of grain milling within the former explains the outcome. Relative to their size, most small grain mills use considerable amounts of electricity obtained from the national grid or self-produced via diesel generators. This amounts more than half of intermediate consumption, while the corresponding level in large-scale food processing is about a quarter.

¹⁵ Wamisho and Yu (2006) describes how budget shares were estimated using household expenditure data from 1999/2000,

¹⁶ The only non-food items are forestry products which respectively account for about 7%, 4%, and 2% of consumption expenditure by farm households, wage earners, and entrepreneurs.

Table 4: Consumer Spending Patterns in Ethiopia

Item	Average Budget Share (%)			Marginal Budget Shares (%)		
	Farm Households	Wage Earners	Entrepreneurs	Farm Households	Wage Earners	Entrepreneurs
Cereals						
Barley	2.8	0.6	0.2	0.9	0.1	0.1
Maize	8.3	3.2	0.5	2.4	-0.9	-0.5
Sorghum and Millet	5.1	1.5	0.2	2.8	-0.3	-0.2
Teff	6.9	15.5	7.6	7.0	5.0	2.9
Wheat	5.6	4.0	1.3	5.8	0.5	0.3
Other Cereals	0.0	0.2	0.2	0.3	0.4	0.2
Sub-total	28.7	25.0	10.0	19.2	4.8	2.8
Other Food						
Pulses and oilseeds	6.5	5.0	2.1	3.9	1.0	0.6
Root crops	7.2	1.9	0.6	1.3	0.2	0.1
Coffee, tea, and chat	4.2	3.2	1.5	5.1	1.1	0.6
Fruits	0.3	0.2	0.2	0.8	0.2	0.2
Vegetables	2.2	3.4	2.1	1.2	2.2	1.3
Other crops	3.6	3.1	1.6	2.0	1.3	0.8
Livestock	0.1	0.0	0.0	0.4	0.0	0.0
Livestock products	6.0	5.3	5.6	8.5	8.3	5.1
Forestry and Fishing	7.0	3.6	1.6	3.4	0.9	0.5
Manufactured food, beverages, and tobacco	3.7	11.2	7.3	-5.0	8.3	5.1
Sub-total	40.8	36.9	22.6	21.6	23.5	14.3
Non-food - Industry						
Textile and leather	8.6	9.3	10.9	12.9	16.7	10.3
Other manufactured products	4.8	7.1	10.0	7.3	19.1	13.3
Mining and Construction	0.1	0.1	0.2	0.9	1.6	1.1
Utilities	1.6	3.2	2.5	0.9	2.9	1.8
Sub-total	15.1	19.7	23.6	22.0	40.3	26.5
Non-food - Services						
Trade, transport, and communications	0.6	2.1	4.0	1.2	5.0	4.9
Tourism, hotels, and restaurants	0.7	0.9	1.6	1.1	1.8	1.1
Health and education	0.2	0.4	0.5	0.2	0.8	0.5
Public administration	0.3	0.4	0.5	0.3	0.7	0.5
Other services	13.6	14.7	37.3	34.6	23.2	49.3
Sub-total	15.4	18.5	43.9	37.4	31.5	56.3
Total	100	100	100	100	100	100

Source: Wamisho and Yu (2006).

As income increases, the share of food expenditure in total expenditure drops steadily. Consumption shares decrease with increased income for most food items, with the exception of teff and processed agricultural products. When disposable incomes increase, households tend to allocate more income to industrial goods and service. This is especially the case for private service sector (including hospitality, recreation, entertainment and personal services), and average expenditure on private services surges fourfold from the lowest to the highest income quintile in rural areas.

Marginal propensity to consume (MPC) decreases across income level for most commodities except for processed agricultural products in rural and service sector in urban areas. However, despite declining marginal propensity to consume in staple food across income, the absolute level of consumption exhibits a strong upward trend due to significant income gaps. Thus, it is observed that absolute level of demand for most staple foods increases with income growth, and the relative increase is more manifest among poor households.

Briefly, agriculture figures prominently in the Ethiopian economy, especially in employment and exports; the small manufacturing sector imports a lot of its inputs and appears to be uncompetitive; and there is a large and growing services sector. Moreover, household consumption is dominated by food, though manufactures and services grow in importance at higher incomes. On the other hand, inter-activity domestic input demands are not very large while imports form a considerable fraction of input demand within manufacturing. Indeed, the use of modern inputs by the subsistence farming, the dominant sector, is so limited that it is identified as a key bottleneck to further growth in farm productivity. Finally, manufacturing production capacity is commonly not utilised in full.

Growth Linkages in Ethiopia

The inter-sectoral demand linkages described above condition the impact of growth within an economy. This section considers this issue.

Growth in economic sector takes the form of increased output, and higher incomes, within the sector. This direct impact in turn induces second (and further) rounds of demand-led growth through production and consumption linkages.

As illustration, consider a productivity rise in the crop production sector. Suppose also that the source of growth in productivity are new high-yielding crop varieties. The initial spurt in farm productivity and incomes will be followed by more growth due to production and consumption linkages. The efficient and full realisation of the potential that the new high-yielding varieties offer is likely to require greater use of fertilisers and pesticides, and more reliable water supply. In turn, these lead, among others, to higher demand for pumps, sprayers, and repair services from non-agricultural firms. Together, these generate substantial backward production linkages. Furthermore, important forward production linkages can follow from expansion in milling, processing and distribution of agricultural produce.

In parallel, crop farmers will spend some fraction of their incremental farm income on agricultural as well as non-agricultural goods and services. Thus, consumption linkages from growing farm income can induce sizable second rounds of rural growth via

increased consumer demand for non-agricultural goods and services as well as perishable, high-value farm commodities such as milk, meat and vegetables.

There is considerable evidence that better identified and measured growth linkages can be substantial.¹⁷ The same evidence also revealed that this potential is neither present nor equally realisable everywhere.¹⁸ In other words, realisable growth linkages are in part determined by demand linkages, which can vary considerably across locations and technologies.

The pattern of potential growth linkages in the Ethiopian economy would thus reflect its key features, including demand linkages, briefly noted above. For instance, limited inter-industry demands for domestic inputs imply that production linkages are likely to be weak. In contrast, the prominence of consumption in total expenditure indicates to the possibility of large consumption linkages. Still another example is the observed presences of considerable unused capacity in manufacturing - it means that, in principle, the sector can meet some of the growth-induced expansion in demand. In short, the direction and size of the growth linkages reported below should be interpreted in light of such structural features of the Ethiopian economy.

Estimates

A recent study on Ethiopia produced estimates of growth linkages.¹⁹ Specifically, the study applied two complementary approaches to assess potential agricultural growth linkages in the country.²⁰ Both approaches reveal the same pattern of linkages, albeit with differences in the magnitudes involved.

Estimates based on a fixed-price semi-input-output (SIO) model indicate that *large growth linkages are generated by most of the sectors examined*. Nevertheless, those induced by agricultural activities are larger. This difference arises primarily because of much higher value-added created by the direct increase in agricultural outputs. As a fraction of the gross value of output, value-added can be as high 91 percent in agriculture, the sectoral average being 78 percent. The flexible-price economy-wide multi-market (EMM) model, which also accounts for spatial differences, produces comparable, albeit smaller, estimates for staples and agricultural exportables.

Model results reveal that the impact of growth on poverty is larger when the additional growth is driven by agriculture rather than non-agriculture. Given its larger impact on poverty, agricultural-led growth in Ethiopia lifts more rural people out of poverty

¹⁷ A very substantial body of such evidence has been accumulated over the years via a large number of studies. The later include Mellor and Lele (1971), Mellor and Lele (1973), Johnston and Kilby (1975), Adelman (1984), Johnston and Kilby (1975), Haggblade, Hammer, and Hazell (1991), and Dorosh and Haggblade (2003).

¹⁸ A good summary of the relevant issues and evidence can be found in Sarris (January 2001).

¹⁹ A complete description of both the study and its findings can be found in Taffesse, et al. (2007).

²⁰ These approaches are the semi-input-output (SIO) approach and the economy-wide multi-market (EMM) approach. Details about these approaches can be found in Diao, et al. (July 2005) and Taffesse, et al. (2007).

compared to non-agricultural-led growth. Non-agriculture-led growth reduces urban poverty more than agriculture-led growth. In total, however, there will be a larger number of people coming out of poverty in the agriculture-led growth compared to non-agriculture-led growth, despite the fact that overall GDP grows at the same rate in both scenarios.

Estimates also imply that growth in staple production will generate more than proportionate increase in total GDP. Moreover, such growth linkages become stronger over time. On the other hand, the linkages from agricultural exports to total GDP is strong only in the initial five years, the linkages become weaker overtime, and the growth multipliers fall below one by 2015.

In light of the usual focus on exports, it is useful to briefly comment on *why does growth in staple crops have such a significant effect*. Cereals and other staple crops are the most important income source for the majority of small farmers. Domestic supply of staple crops is also the most important source of food energy for both rural and urban poor consumers. Both of these features are likely to continue to apply for the next 10 years or so (the horizon being examined, that is). Thus, raising productivity in staple crops will increase the food supply, lower food prices, and help reduce the poverty rate in both rural and urban areas. Clearly, better incentives and improved production conditions will give farmers more opportunities to diversify. As a consequence, many presently subsistence crops grown extensively by poor farmers can become marketable commodities and this shift would further increase poor farmers' cash income.

Furthermore, once growth in the agricultural sector is combined with improved marketing margins through cross-sector linkage effects, both GDP and agricultural GDP grow more rapidly. Reducing marketing costs primarily benefits smallholders via the increased net prices they receive for their goods, thereby raising their income from the same level of output. Improving market conditions also creates a more efficient trading sector as well as other service sectors, which itself can generate greater non-agricultural income without increasing costs. Due to such cross-sector linkages and positive price effects, the poverty rate can decline significantly, the decline being more pronounced in rural areas.

While market improvement supports agricultural growth and generates additional non-agricultural growth (though mainly in trade-related services), broad non-agricultural growth, including manufacturing and other services, is also critical. Non-agricultural growth not only creates non-farm opportunities and rural income but also increases urban income; further, rural non-farm income creates market demand for agriculture. Cross-sector linkage effects induce additional non-agricultural growth over and above that generated by the agricultural growth and market improvements discussed above. As a consequence, GDP grows faster and poverty declines more rapidly.

Some Concluding Remarks

The Ethiopia government has opted for an agriculture-based growth strategy to meet the challenges of accelerating overall growth and poverty reduction. In the face of such a broad strategy, there remain considerable specific policy choices that involve carefully considering the options as to: which sectors have larger prospective linkages; what is the growth and poverty-reduction potential of these sectors and constraints thereof; and which policy interventions are capable of unlocking the growth potential. In order to answer these questions, it is necessary to empirically identify which types of agricultural growth linkages are potentially available and to establish how large they are. The assessment needs to be disaggregated since the extent of these linkages varies across branches of the large and diverse agricultural sector. Finally, growth options need to be systematically linked with policy interventions such that the instruments of achieving the desired goals are ascertained. The types and scale of public investment are clearly vital, in this regard.

The recent study (Taffesse, et al. (2007)) provides estimates, which help clarify some of the relevant issues. More specifically, it finds that:

- Agricultural growth induces higher overall growth than non-agricultural growth. It also leads to faster poverty reduction since it generates proportionately more income for farm households who represent the bulk of the poor. From within agriculture, staple crops have stronger growth linkages.
- Consumption linkages are much stronger than production linkages. In most cases, the impact of increased consumption demand due to growth (agricultural and non-agricultural) is much larger than that of the corresponding expansion in input demand.
- Non-agricultural growth cannot be neglected, however. Such growth can, in its own right, have large growth effects in some cases. More importantly, non-agricultural sectors have to grow in order to match growing supply of agricultural products and increasing demand for non-agricultural products. Otherwise, falling prices of agricultural products may dampen the realized gains in growth and poverty reduction. Given the rather small industrial sector, import-substitution investments in the relevant sectors appear necessary to achieve success

The key message is therefore that exploiting the potential growth linkages towards poverty reduction and structural transformation require a diversified (or ‘balanced’) growth strategy that encompasses agricultural staples and exportables as well as non-agricultural sectors. On the one hand, the explorations of Taffesse et al. (2007) imply that the emphasis of ADLI and PASDEP on agricultural growth is in principle warranted. On the other hand, the paper’s results also clearly show that exclusive focus on agriculture (or insufficient attention to non-agriculture) is counter-productive. It would at best lead to unsatisfactory outcomes in growth and poverty reduction. The greater comprehensiveness

of PASDEP suggests that policy-makers may have learnt that lesson. Still, the returns to an in-depth diagnostics are clearly substantial.

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Annex I – What is a Social Accounting Matrix?²¹

A Social Accounting Matrix (SAM) is designed as a means of characterising and understanding the structure of an economy. By construction, a SAM summarises the transactions (including transfers) among economic agents, and through them activities in an economic system within an accounting period, commonly a year (Pyatt and Round (1985), Round (2003)). First, the SAM represents a square matrix in which rows and columns denote, respectively, receipts (or incomings) and expenditures (outgoings) of the accounts that correspond to the various institutions, activities, factors and products considered. Transactions are shown in the cells, so the matrix explicitly displays the interconnections in the economy. As it is an accounting framework not only is the SAM square, but also its corresponding row and column sums must be equal. Second, a SAM is *comprehensive*, in that it spans all the economic activities of the system (consumption, production, accumulation and distribution) albeit to a varying extent of detail. Indeed, the third attractive feature of the SAM is its *flexibility*, in terms of both the degree of disaggregation and the emphasis given to different components of the economic system. In short, an appropriately constructed SAM can capture the structural features and interdependencies of an economy in an efficient and transparent manner. Moreover, such a SAM can be used as a modelling device in its own right or serve as a basis for other modelling strategies such as computable general equilibrium modelling.

²¹ This description of a SAM is taken from Taffesse, Fekadu, and Wamisho (Agust, 2006).

Rural Urban Linkage in Market-oriented Dairy Development in Ethiopia: Lessons from the Ada'a Dairy Cooperative

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Introduction

Urban populations are growing in many developing countries. According to FAO (2004), by the year 2030, the current percentage of urban population will swell from 75% to 83% in Latin America and Caribbean, from 37% to 53% in Asia and Pacific and from 38% to 55% in Africa. In 2000, 1.9 billion people lived in cities of the developing countries and this is projected to grow to 3.9 billion in 2030. Globally, at the moment there are over 20 cities that have human population of over 10 million. Currently, urban and sub-urban farmers are the major suppliers of food to over 700 million city dwellers.

Ethiopia has an estimated human population of 77 million and is projected to increase to 140 million in the coming 25 years. Similarly, the current urban population of 6 million is projected to reach 36 million by 2025, an increase of 350%. The major urban centers in the country include Addis Ababa, Dire Dawa, Harar, Bahir Dar, Mekelle, Awassa, Nazareth (Adama), Gondar, Dessie, Jimma, Asella, Debre Markos, Debre Berhan and Jijiga. The highlands of the country, dominated by crop livestock production system, cover about 40% of the total land area, and house 88 % of the human and 73% of the cattle populations. Addis Ababa, the capital city, has an estimated population of about 3 million with an annual growth rate of well over 5%. This population constitutes 4% of the country's total and about 28% the urban population. The daily food requirements of the city will increase substantially in the coming years. The projected human population and requirements for cereals, meat and milk up to the year 2030 are presented in Table 1.

Table 1. Projection of human population and major food requirements in Addis Ababa

Years	Population (000)	Cereals (tons)	Meat (tons)	Milk (liters)
2000	2,395	5,613,750	523,950	115,568,400
2010	3,328	7,488,000	698,880	154,152,960
2020	4,246	9,553,500	891,660	196,674,720
2030	5,080	11,445,750	1,068,270	235,629,840

Source: Wolday Amaha and Kifle Eshete, Food supply & distribution systems in Addis Ababa Feb.2002.

One of the major food requirements in Addis Ababa is milk and milk products. In Ethiopia, dairy production is mainly of subsistent type largely based on indigenous breeds of cattle.

Milk production from this system is low to support the demand for the continuously increasing human population, particularly in urban centers (Azage and Alemu, 1997). Market oriented urban and peri-urban dairy production systems, based on up-graded dairy stock and purchased conserved feeds (Staal and Shapiro, 1996) are emerging and dominating most urban centers. The systems involve the production, processing and marketing of milk and milk products that are channeled to consumers in urban centres (Rey et al., 1993; Staal and Shapiro, 1996), with a number of beneficiaries along the value chain.

There is a large demand supply variance for milk and milk products in Addis Ababa indicating the untapped potential for development of urban and peri-urban dairy production systems. Market-oriented urban and peri-urban dairy production systems have tremendous potential for development and play a significant role in minimizing the acute shortage of milk and dairy products in urban centres. There is also a strong rural-urban linkage in these systems in terms of supply of labour, feeds and water and also manure. Currently, due to increases in economic pressure, competition for limited resource, and market forces the level of intensification is increasing in these production systems. These urban and peri-urban dairy farms are currently facing new challenges associated with intensive production systems. Availability of land, management skills, labor force, feeding resources, genetic improvement, control of diseases and parasites, reproductive problems, waste management, quality control, processing and marketing and other socio-economic considerations are becoming important factors influencing and determining the survival of these production systems. Although these systems are critical in terms of milk supply to Addis Ababa, the attention given to them is not often adequate. These systems are not also homogenous and have different requirements and needs. Azage *et al.* (2000) identified about seven sub-systems, which are briefly described below.

Dairy Production Sub-systems in and Around Addis Ababa

Traditional crop/livestock farms in rural areas: These farms are located between 25 and 130 km of Addis Ababa. They are small farms with an average of four dairy cows, and provide very little or no specialized inputs to their dairy enterprise. They sell fresh milk on a daily basis to the government owned Dairy Development Enterprise (DDE). Excess milk is processed into butter and a local cottage cheese (locally called *ayib*) and sold in local markets.

Intensified dairy/crop livestock farms: These are smallholder farms located around Addis Ababa and exercise some form of intensive dairy production system. These farms have had experiences with dairy development projects under the Ministry of Agriculture. Projects such as the Selale dairy development project and the smallholder dairy development project have been operational in these areas and have influenced the production system. Improved

genotypes, artificial insemination, improved forages, concentrate feeding, housing, calf bucket feeding and early weaning are common practices by farmers. Compared to those traditional crop/livestock farmers, land holding is about half the size and milk production is about 15% higher, but the number of cows per household is the similar.

Crop/livestock farms with intensive cropping: These farms are located relatively closer to Addis Ababa city, between 25 and 60 km. The farms and herds are 25% larger than the traditional crop/livestock farmers. The cropping system is more intensive and often use fertilizers. They provide supplementary feeds to their animals. Fresh milk is sold to the DDE and they seldom practice making dairy products.

Specialized dairy farms: These are large farms located within 15 and 60 km from Addis Ababa. Their average holding is 8.9 ha and 17 cows and use specialized inputs such as improved genotypes, AI, forage production, improved housing, concentrate feeding, veterinary care, etc. They sell fresh milk in relatively large quantities of over 30 liters per day primarily to local informal markets or to the DDE. Most farm owners have additional off-farm activities often generating more income than livestock.

Peri-urban farms in secondary towns: These farms are located in and around secondary towns within 25 to 50 km from Addis Ababa. Cattle are grazed on owned or rented land. Special inputs are linked to the type of genotype and involve artificial insemination and supplementary feeds to grazing and stall-fed roughages. These farmers, on average, own five dairy cows. The primary outlet for milk is either the DDE or local informal markets.

Intra-urban dairy farms in Addis Ababa: These dairy farms are specialized and intensive production units based on zero grazing of crossbred and high grade cows. There is no or little grazing within the city and stall-feeding is based on purchased hay and concentrates. The level of exotic blood in the herd is highest and annual milk production per cows is high and milk is directly sold to the local market.

Urban dairy in secondary towns: These are specialized dairy farms found in most secondary towns within the milk shed. In these small towns, farmers have more access to grazing; stall-feeding is therefore less intensive. The level of exotic blood in the herd is high, but herd size is the smallest and averages about two cows per farm. Milk is sold fresh to local markets or the DDE, or processed into butter and *ayib* and sold. Most farm owners have off-farm activities representing about two-third.

Milk Supply to Addis Ababa

A recent study by Teferra Abreha (2006) from the Addis Ababa Urban Agriculture Department indicates that in the Addis Ababa milk shade there are about 66,766 cattle and 31,062 (46.5%) are estimated to be crossbred dairy animals. The main milk suppliers are urban dairy farmers in Addis Ababa and peri-urban dairy producers located around the city in Oromia and Amhara Regions. The estimated annual milk production from these two sources is 49,505 tons and 5,005 tons, respectively, totaling 54,510 tons. However, milk is supplied from various other sources in addition to the above two major suppliers. The total estimated milk supplied to Addis Ababa annually is presented in Table 2. Considering the total population of 3 million in Addis Ababa, the estimated per capita consumption has increased from about 16 liters in 1998 (Azage and Alemu, 1997) to about 22 liters. However, assuming an average consumption of 250 ml of milk per person per day, the total annual requirement will be 273,750,000 L, indicating a short-fall of 208,247,000 liters. The current supply therefore only fulfils about 24% of this assumed demand.

Table 2. Annual milk supply to Addis Ababa city

Source	Amount (L)
Addis Ababa Urban farmers	45,243,000
DDE	4,500,000
Sebeta Agro-Industry	8,760,000
Individual milk collectors	4,000,000
Others	2,000,000
Total	65,503,000

Source: Teferra Abreha, 2006.

The Ada'a Dairy Cooperative

The Ada'a dairy cooperative was established to respond to this huge demand-supply variance in milk and milk products in Addis Ababa is one of the major suppliers of milk and milk products to Addis Ababa city and represents two of the production sub-systems described above. These are composed of both the urban dairies in secondary towns and peri-urban dairy farms in secondary towns. The cooperative was established in September 1998 with 34 founding members who purchased a single share of 100 Birr each and an additional Birr 10 for registration fee. The initial capital of the cooperative was only 3,400 Birr (US400). The first two years were devoted to making organizational arrangements for the cooperative to be effectively operational. The main objectives of the cooperative during its formation were to minimize the high transaction cost for the sale of milk and reduce price fluctuations over season, particularly during fasting, reduce wastage of products due to poor handling procedures and lack of processing facilities, increase production and productivity of dairy farms and improve the overall incomes of member farmers, supply inputs such as feed, health services, etc. to member farmers at reasonable prices, provide training in dairy cattle

management, milk hygiene and milk handling and milk processing to member farmers, ensure urban-rural linkage for dairy development in the Woreda, assist farmers to form milk units and establish milk union at Woreda level, introduce saving and credit system to member farmers, and collaborate with other dairy cooperatives (nationally, regionally and internationally) to enhance dairy development. With the above objectives, milk collection and marketing activity started in January 2000. The cooperative, although informally established in 1998, got its legal certificate of Registration from the Oromia Regional State in September 2000. Some activities of the cooperative are presented in Figures 1 to 3.



Figure: 1. Founders having the first meeting under a tree and the first meeting of the Executive Committee



Figure: 2 Milk transportation and milk on delivery at a collection centre



Figure: 3 Training on dairy technology at the ILRI Debre Zeit Research Station

Current Status

Over the last few years, the cooperative has made a significant progress (Table 3). Currently there are a total of over 813 full members composed of 422 male and 391 (48%) female. The cooperative members now have over 3000 dairy animals and a capital of 1,654,216 Birr (USD 191,018). The number of milk collection sites has increased to 10 around Debre Zeit town. The cooperative has created job opportunity to 65 young regular staff (32 are female), with salary ranging from 60 to 300 Birr per month. Recently, an AI technician and a veterinarian have been employed. The annual milk collection has increased from 288,000 liters in 2000 to about 2.6 million liters in 2005.

The current milk collection has increased to about 8,000 liters per day and the cooperative has purchased 3 cooling tanks. A small processing plant has been established and production of butter, *ayib* and cheese is underway. The cooperative supplies grass hay and concentrate feed mix to members at reasonable prices. It has expanded activities and established rural-urban linkage and this will enhance the participation of subsistence farmers in market-oriented production system through formation of farmers' group. Project team, staff in Bureau of Agriculture and other stakeholders are studying the feasibility of formation of milk groups and the possibility of establishing low cost milk collection centers at village levels in rural communities. The cooperative has recently received about 800 square meters of land in Debre Zeit town and has completed the construction of an office, conference hall and a milk processing plant (Figure 4).

Table 3. Achievements of the Ada'a Dairy Cooperative

Items	1998	2005
Total No. of members	34	813
▪ Male	34	422
▪ Female	0	391
Share sales, Birr	3,400	7,487
Capital, Birr	3,400	1,654,216
No. of cows	560	3000
Milk collected, liters	288,000 ^a	2,568,200

^aMilk collected in 2000; 1 USD = 8.6 Birr;



Figure 4: The new cooperative office and milk processing plant under construction

Major inputs

Feeds

The key technical options to improve dairy production system are feeds, breeds, and disease control and prevention. In addition, policy and institutional support services are key issues that determine the success of dairy production systems. The major input in any dairy production system is feeds. Conserved hay, agro-industrial by-products and commercial concentrate rations are the major feed resources used by dairy farmers. Hay and straw (teff, wheat, barley) make up almost the entire basal diet. Agro-industrial by-products such as bran, middlings, oil cakes, and molasses are fed as supplement. They are purchased as complete ration, formulated by mixing two or more ingredients at home or using a single ingredient per se (Yoseph Mekasha et al., 1999). Non-conventional feed resources do play an important role in peri-urban dairy production system. These resources include hulls of pulse and other crops, traditional brewery and alcohol residues, poultry waste, vegetable and fruit wastes (Yoseph Mekasha et al., 1999). These feeds are cheap and have a far-reaching impact in complementing the daily dietary needs of animals in urban dairy farms. Traditional brewery and liquor residues and pulse hull particularly are available throughout the year.

According to Yoseph Mekasha et al. (1999), the estimated total daily dry matter intake is 10.20 kg and the supplement contributes about 6.48 kg. Mean total crude protein intake is 1.42 ± 0.46 kg. The estimated total energy intake is 81.62 ± 25.94 MJ. The ratio of the mean supplement to basal dry matter intake is 60:40. The overall mean daily milk yield was 8.63 ± 2.3 kg and the average lactation and 305-days milk yields are $2,612.1 \pm 869$ kg and $2,365.6 \pm 734$ kg, respectively. Fat and protein contents are 3.95 ± 0.87 g/kg and 2.91 ± 0.33 g/kg. Mean annual dry matter (kg), protein (kg) and energy (Mcal) intakes per cow are $3,467 \pm 256$ kg, 518 ± 62 kg and $29,794 \pm 711$ MJ, respectively, while the estimated mean annual dry matter, protein and energy requirements are $3,220 \pm 210$ kg, 506 ± 50 kg and $40,584 \pm 3928$ MJ, respectively. The mean annual dry matter intake is higher by 7% of the requirement and the mean annual protein intake is according to annual requirement, while the

annual energy intake had a shortfall of 26.5% of the requirement. Based on the above estimates of feed intake and milk yield, the key question is how much feed does it take to produce milk. The background physiological assumptions in calculating life-cycle needs of metabolizable energy for milk production is depicted in Figure 5 and the life cycle ME and feed needs for milk production is presented in Table 4.

Based on the above calculations for ME and feed requirements, the total annual feed requirements for members of the Ada'a dairy cooperative, currently collects about 8,000 liter of milk per day, can be estimated. The total number of registered dairy cows owned by members of the cooperative is about 3,500. There are also young calves, bulls, growing heifers and bred heifers that also require additional feed. Considering the above estimate of feed requirements for production of 8,000 liters of milk, the estimated amount would be:

Daily requirement:

- Forages - $2.9 \times 8,000 = 23,200$ kg
- Concentrate - $0.1 \times 8,000 = 800$ kg
- Total - $3.1 \times 8,000 = 24,800$ kg

Annual requirement would be:

- Forages - 2.92 million kg
- Concentrate - 292,000 kg

Water

Water is a major input into any dairy production system. In Ada'a dairy cooperative, most farmers use expensive municipal water to water their dairy animals and for other utilities. From the literature, generally large Western dairy breeds have higher water intake ((60 to 90 liters/day) than Zebu cows weighing on average 350 kg (25 liters/day) (King, 1983). For example, in Australia a lactating grazed cow consumes about 40 to 100 liters per day (Table 5), while in New Zealand average daily water consumption for a lactating dairy cow is estimated at 70 liters per day. FAO (1986) reported voluntary daily water intake of 14 to 39 liters per day for a 180 kg zebu cow in tropical environments depending on the season.

A rough estimate of average daily water intake of about 40 liters for high grade lactating dairy cow under Debre Zeit condition, a total of 3,000 cows would require about 43,800,000 liters of water per year. This estimate is excluding follower herds.

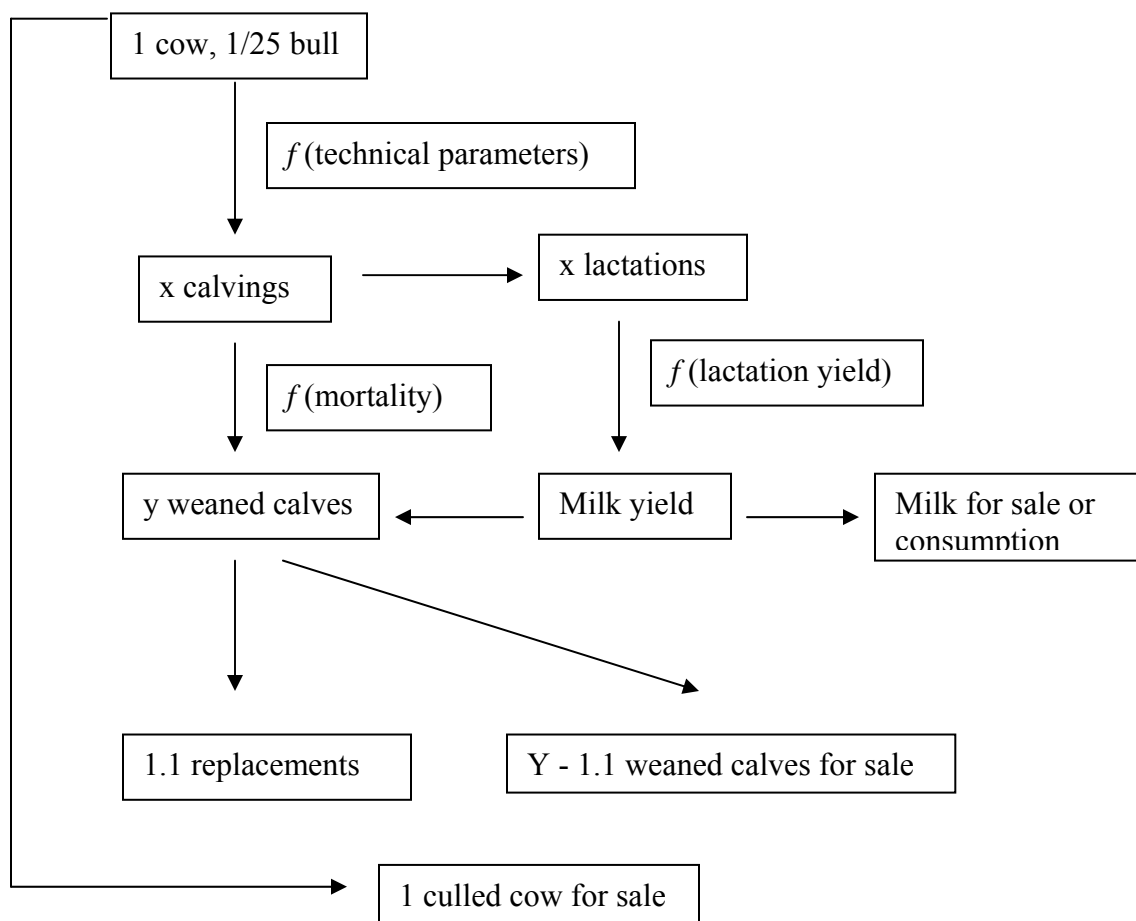


Figure 5: Life-cycle needs of metabolizable energy for milk production.

Table 4: Life cycle ME and feed needs for milk production

	Grazing zebu, no supplement	Grazing zebu, supplement	Dual purpose, supplement	Crossbred, supplement
Milk, kg	760	1290	14816	12859
MJ/Kg milk				
▪ From Forage	303.7	180.1	22.1	24.1
▪ From supplement	2.7	5.4	1.8	1.8
▪ Total	306.4	185.5	23.9	25.7
Feed/Kg milk				
▪ Forage	38.6	22.9	2.7	2.9
▪ Supplement	0.3	0.5	0.2	0.1
▪ Total	38.9	23.4	2.9	3.1

Table 5. Water requirement of livestock in tropical environments

Species	Mean body weight, kg	Voluntary daily water intake by season and temperature (liters/TLU)		
		Wet (15-21 ⁰ C)	Dry (27 ⁰ C)	Dry hot (27 ⁰ C)
Camel	410	9.4	21.9	31.3
Cattle	180	14.3	27.1	38.6
Sheep	25	20.0	40.0	50.0
Goat	25	20.0	40.0	50.0
Donkey	105	5.0	27.4	40

Source : King, 1983

Major outputs

Milk

According to Yoseph Mekasha *et al.* (1999) the overall mean daily milk yield was 8.63 ± 2.3 kg and the average lactation and 305-days milk yields are $2,612.1 \pm 869$ kg and $2,365.6 \pm 734$ kg, respectively. Fat and protein contents are 3.95 ± 0.87 g/kg and 2.91 ± 0.33 g/kg. Mean annual dry matter (kg), protein (kg) and energy (Mcal) intakes per cow are $3,467 \pm 256$ kg, 518 ± 62 kg and $29,794 \pm 711$ MJ, respectively, while the estimated mean annual dry matter, protein and energy requirements are $3,220 \pm 210$ kg, 506 ± 50 kg and $40,584 \pm 3928$ MJ, respectively. The mean annual dry matter intake is higher by 7% of the requirement and the mean annual protein intake was according to their annual requirement, while the annual energy intake had a shortfall of 26.5% of the requirement. Estimated requirements per cows and per annum based on calculated values below are presented in Table 6.

Annual requirement would be:

- Forages – 2.92 million kg
- Concentrate - 292,000 kg
- Total daily dry matter intake per cow = 10.20 kg.
- Total daily crude protein intake per cow = is 1.42 ± 0.46 kg.
- Total daily energy intake = 81.62 ± 25.94 MJ.

Table 6. Estimates of annual feed requirement and lactation milk and nutrient production

	Per cow	Total
Annual feed requirement		
Forages, kg of milk	2.9	292,000,000
Concentrate, kg of milk	0.1	292,000
Total annual DM intake	3723	13,030,500 kg
CP intake, kg	518.3	1,814,050 kg
Energy intake, MJ	29,791.3	104,755,000 MJ
Milk production	8,000/day	2,920,000
Fat content , 3.95 g/kg	31,6 kg	11534
Protein, 2.91g/kg	23.28 kg	8497.2 kg

Manure and urine

Assuming that members of the cooperative own crossbred or high grade dairy animals, the total amount of fresh feces and urine production could be computed. Tesfaye *et al.* (2006) estimated fresh cow dung and urine production of Boran and Boran x Friesian cows kept under indoor feeding conditions in Holetta. He also estimated dry matter and organic matter contents and also contents of nitrogen, phosphorus and potassium in both cow dung and urine. The results presented in Table 7 show significant breed difference in fresh dung and urine production and composition.

Based on the estimated fresh dung and urine output for Boran x Friesian crossbred cows, the annual manure and urine output from cows owned by cooperative members is estimated at 18.8 million kg and 9.96 million liters, respectively. It is also interesting to note that the total contents of nitrogen, phosphorous and potassium contained in the manure and urine amount to about 34,000, 29,000 and 32,000 kg, respectively (Table 8)

Table 7: Least squares means for daily fresh feces and urine production and dry matter (DM), organic matter (OM), nitrogen (N), phosphorus (P) and potassium (K) yield per cow per day of Boran (*Bos indicus*) and Boran x Friesian (*Bos indicus* x *Bos taurus*) cows kept under indoor feeding in Holetta (Ethiopia), 2000

Fresh dung	Weight (kg)	DM (kg)	OM (kg)	N (g)	P (g)	K (g)
Boran	9.5a	1.8a	1.5a	12.5a	16.2a	12.9a
Boran x Friesian	14.7b	2.4b	2.1b	18.6b	22.6b	15.1b
SED	0.50	0.07	0.06	0.00	0.00	0.00
Urine	Volume (l)	DM (g)	OM (g)	N (g)	P (g)	K (g)
Boran	6.1a	530.7a	319.5a	7.0a	0.16a	6.8a
Boran x Friesian	7.8b	694.2b	397.1b	8.0b	0.21a	9.9b
SED ¹	0.42	25.798	15.25	0.48	0.07	0.56

Source: Tesfaye Kumsa *et al.* (2006)

¹ SED – standard error of difference; Means within the same column and different letters are significantly (P < 0.01) different

Table 8: Estimates of daily and annual cow dung and urine production based on data in Table 9

Fresh dung	Weight (kg)	DM (kg)	OM (kg)	N (kg)	P (kg)	K (kg)
Total per day, Kg	51,450.0	8,400.0	7,350.0	65.1	79.1	52.9
Urine	Volume (l)					
Total per day	27,300.0	2429.7	1389.9	28.0	0.74	34.7
Grand Total per day		1082.97	8739.9	93.1	79.84	87.6
Total per year	18,779,250 kg					
	9,964,500 L	395,284.05	3,190,063.5	33,981.5	29,141.6	31,974.0

Impact on beneficiaries

The socio-economic benefits of the establishment and development of the Ada'a dairy cooperative is difficult to quantify in economic terms. Currently, the direct beneficiaries are about 800 households, with 45% women headed households and non-members who supply milk to the cooperative. The current members of the dairy cooperative include poor women, farmers, retired civil servants, retired military personnel, elderly people, young girls that are vulnerable to food insecurity and economic pressure. These households totally or mostly depend on their small-scale dairy production owning about 1 to 3 cows and solely depending on income generated from the sell of milk. Considering average members of a household to be five, this totals to over 4,250 people. A household with two improved milking cows generates an average gross income of about 200 USD per month and members are paid twice a month; ensuring continued cash flow. Employment opportunities have been also provided to 65 young (50% women) people. The rural--urban linkage is also stimulating a relatively large number of rural dairy farmers, particularly women, to participate in milk production and marketing. The cooperative is expanding its activities to reach more rural communities to stimulate and enhance dairy development and marketing in over 155,000 rural communities in the Ada'a Woreda alone. Moreover, efforts are being made for rural farmers to produce high value feeds such as alfalfa and Napier grass for direct supply to cooperative members.

In addition, the consumer community, particularly women and children, have benefited greatly from the availability of safe, hygienic and quality milk and dairy products in all seasons at reasonable prices. The market pull and income generation from dairy farming has also impacted on the environments in terms of improved animal management, product quality and waste management. The input services provided will also strengthen the benefits to members in terms of cost effectiveness and in efficiency of farm operation. The cooperative will contribute to training and developing the dairy sector among smallholder farmers and will impact on the livelihoods of smallholder farmers through contributions to securing assets, technology adoption, participation of the poor (both men and women) in markets and hence ensuring food security and economic development. In so doing, it will bring attitudinal and behavioral changes among the community. It will also serve as an

example in transforming subsistence mode of production into market-oriented system and will vividly demonstrate the agriculture-led industrialization process being implement. An example of how the value chain of milk production and marketing generates productive employment and economic benefit that could be accrued from organized milk production, processing and marketing is depicted in Table 9. The non-monetary benefits and contributions of the existence and development of the association in the development of livestock agriculture are difficult to quantify in economic terms.

Conclusion and Recommendation

Urban and peri-urban dairy production system is an important type of dairy production system buffering the large milk supply-demand variance in Ethiopia and in many other tropical and sub-tropical developing countries. Most of the producers have limited access to land and practice intensive production system using improved genotypes and purchased feed. The system uses diverse types of feed resources, which basically are supplied from rural areas in forms of roughages (mainly grass hay and crop residues) and concentrate feeds including household by-products (such as brewers grain) and wastes of vegetables and fruits. Water is a key resource in any dairy production systems and most often urban and peri-urban dairy producers depend on rather expensive municipal water resources.

Table 9. Possible areas of productive employment and economic benefit from organized milk production, processing and marketing

Production inputs	Dairy cooperative	Processors	Retailers
Land – owners, brokers, etc	Milk collectors	Assemblers	Whole sellers
Farmstead structures – contractors, laborers, construction supply shops, metal and wood workshops, etc	Quality controllers	Quality controllers	Retailers,
Feed – farmers, daily laborers, balers, transporters, drivers, factories, retailers, etc	Drivers, laborers (loading and unloading)	Drivers, Laborers	Drivers, Laborers
Water – donkey owners, laborers, etc	Electricians, phone operators, secretaries,	Processors, managers, accountants, etc	
Animal health – veterinarians, technicians, drug stores, etc	Accountants, processors, store keepers, guards,	Processing equipment suppliers, consumables suppliers, etc	
Other inputs – chains, ear tags, bails, buckets, feeders,	Mangers		
Farm laborers			

The production system is a major supplier of fluid milk to major urban centres. The production system produces large quantities of manure and urine, which may have significant environmental and public health implications unless otherwise utilized properly. Rural

communities around major urban centres also benefit from the high demand for milk and milk products in cities. In most cases in Ethiopia, the market opportunity for rural farmers is in the form of butter. Through linkages with dairy marketing cooperative, however, they can benefit from marketing fluid milk through organized collection centres. Rural communities also get job opportunities to work in urban and peri-urban dairy farms.

Although there is an existing strong rural-urban linkage in dairy production in Ethiopia, it has not been well recognized and is currently very much disorganized. Apart from some isolated and incomplete studies, there is no adequate knowledge on this subject. Despite their important role, dairy producers have been marginalized and isolated from support by the public sector. Research and education and recognition of the production system are important key concerns that need to be addressed in order to be able to develop intervention strategies to strengthen rural-urban linkage in dairy production to benefit producers and city dwellers that have high demand for safe and superior quality of milk and milk products. This will create a win-win situation benefiting all involved in the value chain and in developing the sector as a strong economic force for sustainable agricultural development with a significant contribution to the realization of agriculture-led industrialization in Ethiopia, and in other developing countries.

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A short note on migration and sustainable livelihoods

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Introduction

Migration and mobility are integral elements of livelihoods, especially in low and middle-income nations, and population movement has been one of the major factors shaping urbanization and settlement patterns throughout the world. Current patterns of migration and mobility are closely interrelated to processes of social, economic and environmental transformation. This briefing note summarises some of these processes with specific attention to sub-Saharan Africa. Migration is often intended as movement from rural to urban areas. However, this is only one direction of migration flows, and in many nations rural-rural movement, urban-urban movement and urban-rural movement are equally important. Factors that determine the direction of movement include the nation's level of urbanization (more urbanized nations tend to have more urban-urban movement; least urbanized nations tend to have more rural-rural movement) and its economic base (nations with a predominantly agricultural economic base tend to have more rural-rural migration; nations with an expanding manufacturing and services economic base tend to have high rates of rural-urban migration, since most non-farm activities are located in or around urban centres). Agriculture accounts for 46 percent of Ethiopia's GDP and employs over 80 percent of its population. Urbanization (the proportion of people living in areas defined as 'urban') is also among the lowest in the world: in the 1994 Census (the latest for which data are available), it was only about 14 percent. Both these factors contribute to keep the rates of rural-urban migration in Ethiopia low. These considerations should be kept in mind when reading this short paper.

Migration and livelihoods

The current significance of migration for the livelihoods of rural households and communities in African region can hardly be understated, although national level data are limited, especially with regard to circular movement. Recent research in Mali, Nigeria and Tanzania suggests that up to 50 percent of rural households have at least one migrant member, and as many as 80 percent in Sahelian areas (Bah, Cissé et al. 2003). The main aim of economic migration is to expand individuals' and households' options for income generating activities; it is thus part of a broader on-going process of occupational change and diversification of income sources that is transforming the livelihoods of rural populations in

most parts of the world. The estimated proportion of rural households' incomes derived from non-farm (often urban-based) activities is 50 percent in sub-Saharan Africa (and 90 percent in South Africa), 60 percent in Asia and 40 percent in Latin America (Ellis 1998).

Understanding migration within its broader context of social, economic (and occupational) transformation is important to understand the longer-term implications for policy. For example, there is now increasing evidence that improving the quality of life in home areas (through higher incomes, better access to services and communications, etc) does not stem migration (Beauchemin and Schoumaker 2005; Deshingkar 2005). Better conditions in home areas, however, can improve migrants' position in destination labour markets (for example, through better skills) and encourage the investment of remittances in activities that contribute to local economic development, including the creation of non-farm jobs. But supporting such 'virtuous circles' cannot be done through 'one size fits all' policies; rather, it requires careful synergies between international, national and local levels.

The economic, socio-cultural, environmental and political causes of migration

Migration in sub-Saharan Africa is in most cases a household strategy to reduce risk by diversifying income sources, especially where migrants retain strong links with relatives and kin in home areas. Low incomes from farming and the increased need for cash to cover the cost of health services, education and agricultural inputs since the implementation of structural adjustment policies in the past two decades are important economic reasons for moving. Mobility and migration become almost inevitable where local opportunities for non-farm employment are lacking or are severely limited (often because of low incomes within the region). This overlaps with spatial inequalities in the distribution of economic activities (and opportunities), which are concentrated in large urban centres and their surrounding regions, in many cases as the result of national growth strategies.

Economic factors are intertwined with socio-cultural motivations and transformations, which in turn affect the composition of migrant flows. For example, whilst men are still the majority of migrants in sub-Saharan Africa, a growing proportion of the flows is made up of women, often unmarried and moving independently. On the one hand, this is the result of increasingly gender-segmented labour markets, where the growing demand for service workers (for example for housemaids, carers, restaurant and bar workers and international tourist resort workers) is gender-specific. On the other hand, it is also the result of the desire for independence – financial and otherwise – by women, especially young unmarried ones, who are traditionally expected to work on the family farm or business but with little expectations of inheriting any of it. Significantly, the independent migration of women is increasingly accepted in even the most traditional rural setting, provided they contribute

financially to their parental household (Bah, Cissé et al. 2003). In contrast, young men are often expected to migrate at least on a temporary basis to ‘see the world’ and learn from new experiences. In Southeast Nigeria, young men who stay in the village risk being derided for being lazy (Okali, Okpara et al. 2001).

Wealth is also an important factor in determining migration decisions and directions. Overall, it is not the poorest groups who tend to migrate: given the financial and social resources required to move, poor people are more likely to engage in rural-rural movement, often on a seasonal basis to work as unskilled farm labour, whereas rural-urban and international movement are more likely to be undertaken by those with the necessary resources. Whilst the scope of migrant networks within and across borders has increased dramatically in recent decades, the cost of moving has also increased exponentially, either because of the increasingly tight controls over international migration (and the resulting growth in the operations of illegal smugglers) or because of the high cost of living in many African urban centres, especially the large cities. Migrant selectivity based on wealth has significant implications, as it can deepen the differences between households receiving remittances and those who do not. Particular attention needs to be given to how this affects access to resources such as land and water for the poorer and most vulnerable groups.

Environmental conditions are inextricably linked to migration and mobility: environmental factors influence migrations and migrants alter environments – and this has always been part of the human condition (Wood 2001). In the Sahel and in other African dry lands, migration (and diversification into non-farm income sources) is certainly linked to difficult environmental conditions, but it is a long-established practice (Black 2001; Tiffen 2003). This does not mean that the impact of environmental degradation, both global and local, should be underestimated. However, contributory factors often are as important as environmental change, and include government inaction, incapacity and corruption, as well as harmful policies. In Bangladesh, land ownership patterns, ethnic divisions, economic development projects such as dams, political conflicts and, above all, the action/inaction of the Bangladeshi government are important factors in population movement in response to environmental disasters (Castles 2002). The poor are invariably disproportionately affected by environmental disasters in both low and high-income nations, and carry the brunt of environmental burdens. A useful way to clarify the roles and responsibilities of different levels of government and other stakeholders in reducing these burdens is to understand their different scales (McGranahan 2005). Within settlements, especially urbanized or urbanizing ones, environmental burdens include the lack of provision of water and sanitation services; at the regional scale, it includes the ways in which urban centres use the ecosystem of their surrounding region; and at the global scale, it includes climate change and global footprints.

Hence, local and national governments have different responsibilities, but synergies between different levels of policies are equally necessary.

Some impacts of migration

In most sub-Saharan nations, migrants tend to retain strong links with their relatives and kin in home areas. As mentioned earlier, remittances are an often crucial component of rural households' income, and although their importance has increased, the actual amount sent has often decreased, mainly due to employment insecurity and high costs of living in destination areas, especially in African cities (Potts and Mutambirwa 1998; Bah, Cissé et al. 2003). For poorer migrants, retaining access to assets at home (land, livestock) is an important safety net in the face of insecurity at destination (Krüger 1998; Smit 1998). Overall, multi-local and multi-activity households are more likely to be able to accumulate assets and move out of poverty and vulnerability than households that do not engage in diversification (Baker 1995), although in many cases policies ignore or even hinder these strategies.

Remittances and income from non-farm activities (often involving some type of mobility) are however increasingly recognised as an essential element of agricultural intensification, especially for small-scale farmers. Recent work summarising 40 years of research in Africa's dry lands shows that, despite the decline in public credit facilities, smallholders have responded to increased demand from growing local urban markets (which absorb 80 percent of local agricultural production within West Africa) through a multitude of small investments financed primarily by relatives (Club du Sahel 2000; Tiffen 2003). Similarly, in Vietnam's Red River Delta, seasonal migration to work in the urban construction sector is an essential source of cash, which in turn is invested in the intensification of agricultural production in migrants' home villages (Hoang, Dang et al. 2005). With the expansion in the scope of movement, which increasingly includes international destinations, returning home for the farming season has become more difficult – for example, for migrants from northern Mali to Libya and the Gulf states. Family labour shortages and the demand for waged labour from better-off households has in some cases contributed to smallholders moving out of own farming and, at the same time, the arrival of seasonal in-migrants in areas of out-migration (GRAD (Groupe Recherche Actions pour le Développement) 2001; de Haas 2005).

Migrant's investment in non-farm activities is perhaps seen as the most important contribution to economic growth and poverty reduction in their home areas. However, the available evidence suggests that migrants do not invest in the poorest areas, even if they are their homes, but in areas with at least minimal infrastructure and services. They also prefer to invest where they are guaranteed security of tenure and property ownership, and where national and local governments are legitimate, accountable and capable. Appropriate regulatory frameworks implemented by competent, accountable and democratic local

authorities are also an important issue for land acquisition and housing construction, in many cases migrants' main investment in home areas or in neighbouring urban centres. On the one hand, such investments provide local employment in construction; on the other hand, however, in the absence of planning regulations and infrastructure provision (as is often the case in peri-urban areas and in small towns), new housing often encroaches on farmland, has no access to sanitation services and often no appropriate water supply. The cumulative impact of this tends to affect residents with more limited financial resources, especially non-migrants who may lose farmland, have their surface water sources polluted and may have to compete for limited domestic water supplies (Bah, Cissé et al. 2003). Where local governments have been transferred land management responsibilities, land allocation needs to be transparent and take into account both migrants' potential contribution to local development and the interests of non-migrants. This said, while remittances are mainly directed to migrants' relatives and used for household consumption and/or investment, migrant and hometown associations' contribution to community projects (schools, health centres, water supplies, etc) in some cases outstrips funding from local and national governments (Okali, Okpara et al. 2001).

Migration and mobility also have socio-cultural impacts. Traditional intra-household relations can be deeply transformed when younger generations move away from activities such as family farming where decision-making power is highly concentrated in the hands of older men. For young women too, migration can be a way to escape from family and community control, achieve financial independence and gain wider experiences. However, young women's vulnerability may also increase as a consequence of migration due to the nature of women's employment and to their financial commitments to home areas. These transformations are taking place at a very fast pace, and it is difficult to map out what their overall consequences will be. They do suggest, however, that the profound changes in African rural livelihoods require a radical re-thinking of the prevailing view of rural households as relatively homogenous units of production and consumption. They are indeed better described as multi-local, multi-activity units where members negotiate competing interests and cooperate to reduce risk.

Options for policy

Migration and mobility throughout the world are likely to increase in the future. It is estimated that remittances from international migrants far exceed official development assistance, and this without taking into account transfers from internal migrants (Munzele Maimbo and Ratha 2005). Remittances risk becoming the 'new development mantra' (Kapoor 2005). The role of remittances in the development of migrants' home areas needs to be placed in the context of the deep transformations that are ongoing in low-income African nations. For poor households, they are indeed a safety net, but within the context of the

erosion of traditional livelihood systems. For these groups, remittances are no guarantee of improved livelihoods. On the other hand, wealthier households are better placed to use remittances to expand and diversify their economic base. But remittances are only used in value-adding productive activities that can have a significant impact on local economic development when there is sufficient basic infrastructure and institutional support, including access to markets, to make it profitable. Keeping in mind that virtually any policy has an impact on migration patterns, maximising the benefits of migration for both migrants and non-migrants requires careful synergies between local and national governments, and the international community.

The role of local government

Given the wide variations in the conditions of home areas, and in their patterns of in-and out-migration, local governments are best placed to play a key role in maximising its benefits. In destination areas, often urban centres, they can improve urban management and the living conditions of migrants. In areas where migrants invest in land acquisition and housing construction, planning regulations that reflect the needs of both migrants and non-migrants can improve the local environment. Rural local governments can link up with migrant associations to maximise the community use of remittances by identifying the needs and priorities and acting on them. But to do this, decentralisation efforts need to address the underlying issues of local government capacity, accountability and revenue base. Most crucially, decentralisation cannot happen without support and clear political commitment to local decision-making from higher levels of government.

The role of national government

The role of national governments of sending nations can be summarised as protecting its citizens abroad and facilitate financial transfers from migrants. However, national governments also have an important role in promoting and implementing legislation that reduces its citizens' vulnerability, often an important cause of migration. Security of land tenure regardless of gender or migrant status is perhaps one of the key issues that need to be addressed.

As mobility and migration are likely to increase in the future and remain both consequences and causes of poverty and environmental degradation, policies for poverty reduction and environmental sustainability need to take population movement into better account. So far, very few Poverty Reduction Strategy Papers mention migration, and often in negative terms. Similarly, the National Adaptation Plans of Action for adaptation to climate change, initiated by the group of Least Developed Countries and funded by the Global Environment Facility, could benefit from integrating migration issues and involving migrant associations.

The role of international and donor agencies

There has been a huge increase in interest in migration from these institutions in the past few years. Much attention is given to improving mechanisms for financial transfers, and to the benefits of remittances to households. What seems to be missing, however, is the intermediate level – local governance and continued support to long-term decentralisation processes. This is important as only local development can really make a difference in expanding opportunities (so that migration is a choice and not the only option), attracting investment from migrants and improving migrants' skills and education so that they can have access to better jobs.

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Development Policies and their implications to Rural Urban Linkages in Ethiopia: Opportunities and Challenges

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Introduction

In terms of a country's growth process, the creation of one economic space in which its different parts are very well interconnected and interdependent is critical. This has not only economic justification but also underpins justice and equity among the different segments of the society. One economic space ensures resources are used in a complementary way. High and rapid growth in rural or urban areas will have serious implications on the whole economy of a country, and this in turn will either strengthen or weaken the solidarity and unity of the people in the different localities.

However, development strategies of developing countries are often based on the dichotomy between urban and rural areas, which seriously undermines the potential contribution of rural urban linkages for mutual development. As a result of the imbalance between the urban and rural development strategies a wide gap between rural and urban areas arises in terms of food security, access to health care, education, water, energy, means of communication, etc. Based on the argument that the majority of poor people lives in rural areas, the development strategies of developing countries have often been rural biased.

It is true that the rural sector is usually associated with declining soil fertility, land fragmentation, drought and landlessness. In addition, the rural population density is a threat to the environment and a constraint to increasing agriculture productivity. However, heavy emphasis on rural development alone has created significant disparities between rural and urban life. Providing employment, adequate food, and shelter for the rapidly increasing population in the urban areas have now become important challenges for the policy makers. Social exclusion and poverty as well as poor quality of life in urban centers are becoming matters of concern for policy makers.

Hence, it is nowadays argued that even in poor and underdeveloped countries rapid urbanization is equally necessary as rural development in order to limit the rural population growth and to reduce the deterioration of the cultivable soils and/or fast disappearance of natural resources. The urban and the rural areas need each other very much for their mutual development and, therefore, call for a well-defined and integrated urban and rural development strategy.

There is always a close and very complex linkage between urban and rural areas. The rapid population growth, the changes in the natural environment and the exposure to the global market have brought a rapid increase in the rural urban interactions. Urban areas require the flow of food, energy, labour and other resources from rural areas, which may eventually lead to overexploitation of natural resources. The declining natural resource availability will in turn affect the development of the urban centers as well as the rural areas themselves. Urban centers can help to spread innovations to rural areas and lead to economic and social transformations. The rural system, on the other hand, requires market for its produces, supply of inputs of various kinds and off farm employment opportunities from urban system. In addition, mobility of people, which can take different paths, is an important dimension of this linkage. Many households in poor countries also derive their livelihood from both agricultural and non agricultural sources. If the linkage between these two systems are not properly established it could easily create unbalanced situation and lead to extreme poverty and fast degradation of renewable natural resources.

Unfortunately, the main institutional players of development consider rural and urban issues as separate development agendas. Their inherent linkage with each others's development is not well appreciated in practice in many developing countries. The urban and rural areas usually evolve separately without any proper interaction. As a result of the unbalanced strategies, urban centers in developing countries are usually unable to produce the goods and services needed by the rural population while rural areas are not capable of producing raw materials and food in sufficient amount both for rural and urban consumers. Therefore, appropriate policies that could support the development of both urban and rural areas are needed to achieve a balanced urban rural growth.

Therefore, this paper attempts to briefly reflect on some of the recent policies and strategies in Ethiopia and their implications on rural-urban linkages. The paper is divided into five sections. The next section discusses the rural urban nexus. Some development strategies are reviewed and discussed in section three. Section four reviews some of the recent development strategies in Ethiopia and their implication for rural urban linkage. Finally section five concludes the paper.

The Rural-Urban Nexus

While many people acknowledge the wisdom in the strategic role of urban centers, a rapid urban growth has always frightened policy makers. The synergy between simultaneous urban and rural growth is not often well-recognized and maximized among development practitioners. The opposition to the urban growth comes from the fear that large cities that are very populous become unmanageable and create or increase poverty and are origins of insurmountable social difficulties. The relationships between urbanization, agricultural

productivity and security of food supply, or the relationships between the size of towns, the structure of their economy, and their productivity has been a subject of vigorous debate in the developing countries.

However, the argument with respect to rural urban linkages should not be which comes first or which should be given priority. Rather it should be the complementarity between rural and urban areas that should be achieved in practice for mutual development. The main issue should be, first whether urbanization contributes to agricultural development or not, and how. It would be important to know whether urban growth is an opportunity, an asset or a constraint for the economic development of an agrarian economy. Secondly, one should also see whether agriculture can fulfill the increasing population's demand in terms of food, employment and services. Thirdly, given the high population growth of developing countries, it would be important to examine the role of urban centers in accommodating migrants, providing the required incentives for agricultural development and demands for agricultural products. In other words, we should also assess whether the urban economy induces any changes in the agricultural economy and if so, to what extent. Therefore, addressing these questions and achieving a balanced urban and rural growth requires appropriate comprehensive national policies and institutions that could orient and support both the rural and the urban economy.

A comprehensive view about development will lead to the recognition of the linkages and interactions among the different sectors of the economy and the promotion of interdependent and complementary development process. For instance, a major determinant to agricultural transformation is the improvement of the extent of effective domestic demand for farm products. Low income of both the urban and rural population can potentially limit the possibility of higher production. For instance, a study by Xinshen Diao et al. (2004) observes that in Ethiopia higher livestock productivity is constrained by lack of domestic demand, and may require a strong export orientation.

Urbanization could be an important policy goal that could support agricultural development at least for two reasons. First, when urban economies grow, they impact in a positive way on the economies of rural areas by providing market for rural produce. Increasing urbanization creates a potential market for a variety of high-value agricultural products and raw materials from the rural areas. Secondly, urbanization will also create employment opportunities for people from rural areas who suffer from shortage of farm land. The movement of people from rural area will reduce the burden of population pressure on limited farm land thereby reducing landlessness, diminishing farm plots and associated land degradation and deforestation.

Urbanization should, therefore, be looked as a development strategy that complements rural development policies by bringing development factors from the demand side of the agricultural development equation into the function. Hence, rural and urban development should go hand in hand to bring about positive economic transformation. This approach ensures that the needs of all types of socio-economic groups of the society are properly addressed.

The argument in support of urbanization as an instrument for rural development is supported by history and the experience of many countries. Urban centers contribute significantly to a nation's wealth. Vigorous and dynamic urban centers have invariably meant unlimited markets for the rural sector. The functioning of an economy reveals that the driving role of the demand for essential goods and services, such as housing, food and transport, in the urban and rural economies is the increasing requirements of households, resulting from demographic growth and urbanization. Increasing urbanization creates also increased incomes of rural producers. Increased rural incomes and purchasing power, on the other hand, create strong demand for industrial products and urban based services as well as enhancing investment to increase agricultural production and productivity. This will have a positive spill over effect on overall economic growth in both urban and rural areas. Urbanization and growth in the non-farm sectors also provides cheap inputs and services needed by the farm sector.

In this regard, different authors (for instance, Berhanu, 2003; Shumeye, 2003; Magrin, 2003; and Cour, 2003), have expressed the view that the development of agriculture in Ethiopia is seriously constrained by the low level of urbanization. The study by Jean-Marie Cour (2003), which discussed the interrelationship between urbanization and rural development, questioned the validity of heavily relying on agriculture as the engine of growth for the whole Ethiopian economy. Thus, it can be safely concluded that urbanization is usually the main driving force behind the transformation of agriculture and the rural economy. The growth in demand per farmer requires and makes possible the increased productivity of farmers and encourages the intensification of agricultural production, leading to the transformation of the rural economy. Therefore, the rural sector cannot uplift itself apart from urban development. The rural-urban integration or interdependence is inherent and hence attention should be accorded to urban centers in order for them to be useful partners of rural development as a rural focus would not materialize without an urban focus.

The use of rural-urban migration as a method to combat over-population and rural poverty has not been appreciated in developing countries. The response made so far in these countries has been to seek control of population movements and avoid urbanization by whatever means. Often the relocation of poor people to less densely populated rural areas has been the main approach. While rural-rural migrations can lessen local pressures in the short term, they

in no way help to solve the problem posed by the overall excess of the primary population and its corollary, the persistent poverty in rural areas.

When we look at the rural urban linkages in Ethiopia, we find various forms of economic interactions that are poorly developed because of several problems (Tegegne, 2005). The rural urban linkages in Ethiopia are usually manifested through the flow of agricultural and industrial goods and services, capital and labour, and through the sectoral linkages. In addition to these economic linkages, there are several social and institutional linkages such as marriage linkage, iddirs and self help groups, trade networks, etc.

The flow of grain and livestock between rural and urban areas, which represent the major form of agricultural goods flow, is constrained by several factors including poor marketing infrastructure, subsistence production levels, poor transport infrastructure, poor market information, limited storage capacities, etc. The unbalanced spatial distribution of towns as well as their size, have also constrained the flow of industrial and manufactured goods from urban to rural areas. The flow of labour is also constrained because of low absorptive capacity of urban centers and poor transport infrastructure. The distribution of financial services as well as public services such as education and health are unevenly distributed between urban and rural areas. The backward and forward linkages between the agriculture and the manufacturing sectors are weak.

In summary, the essence of development should not be whether it should be rural focused or urban focused but rather whether there is a balanced development, which will intensify the rural urban linkages and thereby reduce the divide. Moreover, development means changing lifestyle from dependence on what nature offers to livelihood earned through purposive reasoned human action that alters and subjugates nature to its needs. In order to bring the change in the lifestyles of rural and urban people, consistent efforts should be made to improve the interaction of the rural and urban areas through a deliberate and conscious choice of appropriate development strategies.

The choice of a Development Strategy

The preceding discussion has shown that there is no controversy regarding the need for rapid agricultural growth for structural transformation and overall economic growth. There is also a consensus that developing countries should, by the end of the day, aim at industrialization which has a number of advantages. The debate obviously is on the means of achieving these goals.

As mentioned in the previous section, development is an outcome of human reasoned action in exploiting their surrounding environment to satisfy their needs and wants. Technology is

the means used by humans to utilize natural resources and fight natural hazards in maintaining and improving their livelihood. Given that technology constitutes ideas or blueprints which are themselves the outcome of human reasoning, development strategies ultimately becomes the instrument for the social and economic development of a nation. This basic but fundamental truth sheds light on the importance of recognizing the role of development strategies as the primary instruments of development.

The choice of a development strategy is still one of the most controversial issues in the development literature. More specifically, the contention is as to whether agriculture or industry should be given priority to bring about the maximum positive impact on overall economic growth and poverty reduction. Some have dismissed this dichotomy as false and call for a balanced growth strategy, where each sector gets a fair attention in the development process (Hwa, 1989). However, government policies in many developing countries are often aimed explicitly at boosting the output of particular sectors or they implicitly favor certain sectors that they think are instrumental in achieving their development goals (Gemmell et al, 1998).

Development is not just a matter of achieving growth, even though low-income countries find substantially accelerated growth is necessary before they can address other developmental concerns. But this does not mean that other concerns should not receive any attention. Standard modern growth theories, be it neoclassical or endogenous growth theories focus mainly on sources of overall economic growth and pay little attention on inter sectoral linkages. The development literature is not short of prescribing which sector should take center stage in the development process.

Before 1960, the development strategies gave priority to industry in order to promote the economic growth. According to the modernization theory, industrialization was regarded as the engine of social and economic development while rural development was believed to be achieved through trickle down effects of the urban centers. In other words, development was assimilated to industrialization. The transformation from a traditional to a modern system was to be realized through the diffusion of capital, technology, values, institutional arrangements and political tradition of the western countries (Tegegne, 2005). It was thought that the developing countries could shortcut stages in the historic development process, using modern production and exchange techniques of advanced countries. In parallel, it was recommended that developing countries should adopt demographic policy to restrain the demographic growth. Hence, the Big Push Theory has been advocated as the main development strategy at the time.

The Big Push theory argues that economic transformation can only be brought via industrialization although a massive investment is required. According to the theory, huge

investment should be directed towards the industrial sector, the development of which is characterized by complementarities and externalities, the requirement of huge investment is due to indivisibilities, high fixed cost, long gestation periods, and because large infrastructure development should accompany industrial development (Fei and Ranis, 1964).

A different hypothesis known as Balanced Growth theory, has been forwarded by other development economists. According to this theory, policy makers should direct public investment and provide incentives for private investment in mutually supporting investment over a range of industries. That is reasonable, equal attention should be paid to every sector and development, and should be pursued from different fronts.

The exact anti thesis of the Balanced Growth theory is the well-known Unbalanced Growth theory. According to this theory an attempt should be made to boost leading sectors which have strong backward and forward linkages rather than focusing on every sector in a given economy. Hence, focus should be made on those industries that create a shortage of inputs (backward linkage) or create excess supply (forward linkage) thereby providing incentives for the establishment of other industries.

Lewis (1954) has also immensely contributed to the debate in his famous work, which classifies the economy into traditional agricultural sector and the modern non-agricultural sector in which surplus labour or disguised unemployment is prevalent. At the initial stage of economic development, the agricultural sector is viewed as a generator of surplus but later, the role of the sector will eventually diminish partly due to weak sector linkages.

The major lesson from the literature are (i) there is no universal consensus as to whether agriculture and industry should be given priority (ii) there are countries which have succeeded in industrializing after achieving higher agricultural productivity but there are also countries which have not succeeded in translating faster agricultural growth into growth in other sectors. In addition there are countries in which the industrial sector prospered despite poor performance of the agricultural sector.

Development Strategies and Rural Urban Linkages in Ethiopia

In Ethiopia, as in many other African countries, the field of development has been shared between urban and rural issues. It has been indicated that urban and rural development is an implication of the economic development strategies of a country and not a consequence of it or an independent phenomenon. As mentioned earlier, the rural urban linkage in Ethiopia is extremely loose and weak. While there may be several factors that have contributed to the weak rural urban linkage in Ethiopia, the development policies have failed to integrate the two spatial units in a meaningful way. The development policies have often been either rural

or urban biased. This biased approach to development has seriously undermined the balanced development of the two spatial units.

As it is known Ethiopia is one of the least urbanized countries in the world with an urban population of about 15 percent. According to Yeraswork and Fantu (2003), Ethiopia has been 2.5 times less urbanized compared to the less developed regions of the world and 3 times less urbanized compared to the world average share of urban population in 2000. The average rate of migration in Ethiopia measured as a proportion of rural population during 1980 to 2001 has been about 0.25%.

Not only that the size of the urban population is insignificant, but also a significant proportion of the urban population lives below the poverty line. Increasing urbanization is therefore, unavoidable in Ethiopia because the rural areas' weak economic base cannot absorb the rapid population growth. There is no well-developed agro industrial sector in the country to compensate the slack in demand from urban households. Agriculture needs the support and development of other sectors for its own proper development. It is the development of the non-agricultural sector including urbanization that is necessary for the development of agriculture. Given the pressure on land, urban centers are the critical links in the intensification of agriculture by creating markets and providing opportunities for diversification and non farm employment (Shumeye Abuhay, 2003). A closer historical review of the performance of the agricultural sector also clearly shows that the sector has been dragging on the rest of the economy rather than contributing to the growth of other sectors.

The above discussion clearly indicates that without a well-developed urban system, linked to national and international markets, sustainable agricultural development is impossible. Ethiopia is certainly long overdue to engage its cities in the development process since it is still continuing to focus on rural development. A balanced territorial development is thus, critical and there should be a clear policy and strategies towards these.

In line with this approach, the paper attempts to review the different development strategies and policies of the current and past governments and their implications on rural urban linkages in this section. First the development strategies of the past two regimes will be briefly reviewed and then the development strategies of the current government will be highlighted.

The Development strategies of the Previous Regimes

For many reasons, urbanization did not catch the attention of Ethiopian policy makers in the frame of the development policies of the 1960s and 1970s. The key to national development was supposed to come from the land or from the rural areas. In addition, the planning

frameworks primarily focused on specific sectors and selected potential areas of development.

The Imperial regime has attempted to guide the development of the nation through a series of five years development plans. Consequently, the regime has drafted and implemented three successive five-year plans between 1957 and 1974. However, rural urban linkage has not been explicitly considered in any of the five-year plans formulated during the Imperial regime. The first five-year plan gave priority to the development of infrastructure and the manufacturing sector and gave little attention to the development of the agricultural and the rural sector. Hence, the performance of the agricultural sector has been extremely unsatisfactory.

Realizing the poor performance of the agricultural sector during the first five-year plan period, agricultural development was considered to be the main focus area during the second five-year plan period. The plan openly advocated that agriculture is the most favorable base for stimulating Ethiopia's economic growth. However, it was commercial agriculture that was given the highest priority within the agricultural sector. The result of the plan shows that the second five-year plan did not pay adequate attention to poor peasants and rural development as such.

The Third five-year plan also focused on the agricultural sector but this time with due considerations for the development of both commercial and small-scale agriculture. Less emphasis was given to urban and industrial development during the third five-year plan. The approach during this period was based on achieving faster growth by utilizing available potentials. All in all, all the three five year plans have failed to recognize the inherent interdependence between rural and urban development and focused entirely either on rural development or industrial development.

The Military regime adopted a centrally planned economic system in which the role of the market in creating interaction between rural and urban areas has been seriously undermined. The Derg regime was marked by a significant slow down of the process of urbanization by first creating a division of labour between producers and consumers of food and other raw materials and by undermining urban-based activities. In addition, the Military regime has effectively adopted direct controls on migration from rural areas to towns and from towns to towns. Through the villagization program and forced migrations as well as through the confiscation of private sector assets and activities the military regime effectively controlled the economy and downplayed the benefit of any rural urban interaction. In addition, labour mobility was restricted. Resettlement schemes and commercial farms were heavily supported to produce sufficient food and overcome hunger by bringing more land under cultivation in fertile areas, and thereby reduce migration.

The EPRDF Regime

Recent development policies and planning frameworks in Ethiopia still remain rurally centered with limited opportunity for the potential of urbanization to contribute to socio-economic development. The underlying paradigm of development that prevailed during the Derg regime has not been fundamentally changed during the EPRDF regime when it comes to the rural urban linkages. The state ownership and control of many industries, important services and land have been still effective during the EPRDF government. The main development strategy is based on the Agricultural Development Led Industrialization (ADLI). ADLI has been the overall development strategy of the country whereby the development of the agricultural sector serves as an engine of growth for industrialization. Based on this rationale, the government has invested significant human, financial resources, and political will in implementing the strategy for the past ten or more years.

Agricultural Development Led Industrialization (ADLI)

The main development strategy of Ethiopia in recent times is based on ADLI, which gives considerable priority to agriculture and almost completely neglects urban development. The Agriculture Development Led Industrialization strategy (ADLI) remains to a large extent rural-oriented, and the emphasis remains on production rather than exchange and trade, and on the supply side rather than on the demand side. According to the strategy, agriculture takes the center stage as the engine of growth while industrialization is considered as a natural corollary, which would follow from the promotion of agriculture in the development process. ADLI considers industrialization and along with it urbanization as a derivative process that naturally comes with the rapid development of the agricultural sector.

The strategy simply states that agricultural development contributes to the expansion of the non-agricultural sectors not only in rural areas but also in urban areas since the processing, marketing, financial and transport activities are carried out in urban areas. The strategy only states that urban centers should be organized to enable them attain rapid development, taking advantage of the benefits, which accrue from rural development.

The starting premise for ADLI is that resources should be directed to areas that provide the highest benefit to the largest number of people, which in the Ethiopian case is obviously the agricultural sector. In addition, the strategy is based on the economic argument based on static comparative advantage, which argues that developing countries should use resources that they have in abundance (labour) and less of their scarce resource (capital). Accordingly, the economic sector that uses more labour and less capital in Ethiopia is agriculture.

The strategy hopes to increase agricultural output and productivity by introducing green revolution type technologies such as fertilizers and improved seeds. In addition, to the

increased agricultural output, the strategy hopes to raise the income of small farmers and thereby lead to increased demand for manufactured goods leading to a demand led industrialization in the country.

Although the ADLI strategy has been adopted for several years, there is still no consensus as to the appropriateness of the strategy for the Ethiopian reality and its effectiveness so far. It is indeed fair to say that the strategy draws strong support but also faces fierce criticisms. Many argue that the Agricultural Development Led Industrialization (ADLI) policy is insufficient to address the growing impact of urbanization both in terms of risks/problems and opportunities.

Those who support ADLI, mention the fact that around 85 percent of the total population depends on agriculture for their livelihood, and agriculture accounts for more than 45 percent of the total GDP. Accordingly, raising agricultural productivity is the best option for overall economic growth and a significant reduction in poverty, which is mainly a rural phenomenon. Secondly, it is claimed that limited resources dictate that priority should be given to the sector that uses the most relatively abundant and cheap resource where the country has a comparative advantage. This is the sector that uses more labour and less capital when it comes to Ethiopian reality.

Third, it is argued that raising income in the agricultural sector not only generates surplus savings for investment in other sectors including manufacturing industries but would also provide a huge market for the remaining sectors thereby greatly contributing for the growth of the sectors and rapid structural transformation. Similarly, agriculture is the major source of raw materials for the manufacturing industries, and thus promoting agricultural productivity is indispensable for the growth in the manufacturing sector and to bring industrialization. Finally, the advocates of the strategy point out to the fact that around 80 percent of the total foreign earnings in Ethiopia comes from the agricultural sector while the existing manufacturing sector is heavily dependent on imported raw materials. Thus promoting agriculture offers the much needed foreign exchange for industrialization.

Despite these apparently strong arguments for ADLI, there are also equally forceful arguments forwarded against it. Although the intention of reducing rural poverty is indeed appropriate, many argue that the strategy has not brought the intended increase in output and improvement in land and labour productivity at the national level. Critics argue that institutional factors have not been properly accounted in the ADLI strategy. First, it is argued that raising income and productivity in the agricultural sector presupposes growth in the non-agricultural sector, as the latter is the market outlet for the former. In addition, the reliance on the international market as market outlet for domestic production of agricultural commodities is precarious because of price and non price barriers imposed by developed countries. This

necessitates the expansion of the domestic market for the agricultural sector to grow. Therefore, urbanization is a prerequisite for agricultural growth in order to absorb and sustain increasing production from the sector.

It is also pointed out that the major problem in the agricultural sector is low labour productivity. It is, therefore, claimed that higher labour productivity in the agricultural sector can only be achieved if the underemployed or the unemployed in the agricultural sector get employment opportunities in the non-agricultural sector. This in turn is only possible if the non-agricultural sector grows faster. Moreover, it has been argued that the agricultural sector would be greatly promoted in the presence of a vibrant manufacturing sector which does not only provide effective demands for agricultural inputs but also plays an important role in supplying farm inputs and equipments. The Ethiopian agricultural sector is characterized by smallholding rain fed subsistence farming. Hence, according to the critics, it is unrealistic to expect this sector to be the engine for growth either in terms of providing sustainable supply of raw materials, or generating sufficient demand for other sectors along with the provision of surplus for investment in other sectors.

The other critic on ADLI is related to its inability to achieve its long-term objectives. They argue that the strategy is purely a supply side strategy and gives little considerations to demand side considerations. Since the income of the rural population is extremely low, the main demand for the marketable surplus agricultural products should come mainly from the urban population. But the size of the urban population is too small and its income is too low to generate the requisite demand for agricultural products because a proper link between urbanization and rural development has not been established.

The various policies and strategies of the federal government have also implications for spatial development. For instance, some of the macro and fiscal policies of the EPRDF government are also dispersal by nature, which favors rural center development rather than the primate city. The federal budget allocation is based on level of development, population and income collection capacity of governments. Decentralization of the budget has diffused government's purchasing power across the country beyond the centralized system, which concentrates at Addis Ababa.

The Sustainable Development and Poverty Reduction Strategy (SDPRP)

According to the Poverty Reduction Strategy Paper (SDPRP), poverty reduction, especially in rural areas where most of the poor people live, food security and agriculture have remained among the highest priorities of the government during the PRSP period. It is clearly stated in the SDPRP document that the government gives overriding primacy to the welfare of rural people. In fact, the SDPRP document makes scarce reference to the urbanization in the context of poverty analysis and poverty reduction strategy. It is clearly stated that “the

effect of urban areas on rural poverty is not high owing to the low level of urbanizations” (MOFED, 2003: 17). The SDPRP strongly argues that since the existing demand base of the urban areas could not serve as a foundation for rapid and sustainable agricultural development, there is a need to explore and exploit the available opportunities in the international markets.

One of the responses to the problem of rural poverty that has been advocated in the SDPRP document was the development of the so-called off-farm activities. While diversification of activities in rural areas is an eminently desirable objective, prospects in this respect have been, unfortunately, limited, at least in the past few years, due to the weak development of services and industries upstream and downstream of primary production, the modest purchasing power of the rural population and the isolation that adversely affects the profitability of rural businesses. The needs of the non-farming communities mainly the pastorals, the rural traders, rural entrepreneurs, etc., has not been given due considerations. So, the effectiveness of this approach has also been dismal because of the weak linkage with the urban sector.

In general, while all the logical arguments that are included in the SDPRP document are indeed sensible, the challenges posed by the increasing overcrowding of rural areas, the limited size of the domestic market for rural products, the low pace of urbanization and the resulting absence of perspectives offered to the rural unpaid family workers as well as the weakness of urban-rural interactions have remained as major impediments. Similarly, the dynamic interaction between agriculture and industry and the interdependence between the urban and rural economies have not been well exploited.

Plan for Accelerated and Sustainable Development to End Poverty (PASDEP)

The policy makers in Ethiopia, however, have recently begun to show some concern to urban issues as expressed in some initiatives such as the second generation PRSP strategy. Concreted efforts have been made in recent times to provide Capacity Building Programs for Decentralized Service Delivery (CBSD) and set up Municipal Development Fund (MDF). Notable progress is also witnessed in improving the legal framework of urban governance. Measures have been taken recently to strengthen the legal identity of cities and towns as well as capacity building and human resource development for decentralized administrations, improved revenue collection and resource allocation through policy manuals, guidelines and procedures. In addition, an Urban Development Policy has been formulated and approved in 2005.

The most consolidated and recent policy framework for the five years starting from 2005 is the Plan for Accelerated and Sustainable Development to End Poverty (PASDEP). This plan will be the guiding strategic framework for poverty reduction up to the year 2010. The plan

has underscored the need to strengthen the urban agenda and the rural urban linkages since the pace of urbanization will inevitably increase in the coming few years. The plan, therefore, explicitly state that there is a need to expand the rural-urban linkages by promoting deeper linkages between agriculture and industry to curb the growing problem of urban development that is compounded by rising rural urban migration.

The new framework recognizes that many small towns represent tremendously important potential future growth poles. Hence, taking urban centers and small towns as growth poles through its new urban development policy is a strategy that the government is planning to implement under PASDEP. Without sacrificing the historical emphasis on the rural population, under PASDEP the government will intensify efforts in the urban sector. So, rural-urban linkages will be strengthened, to maximize the poverty impacts, and to take full advantage of the synergies, according to the document.

While the PASDEP document has emphasized the need to take urban development seriously, several pre-conditions have to be in place in order for the benefits that cities can provide to materialize, including the existence of well-functioning markets for land, labor and services, with efficient information flows. Hence, it is important to integrate markets, open up the flows of labor, and access to income-earning opportunities between towns and surrounding rural areas in order to exploit the synergies between urban and rural developments. Some of the specific instruments to achieve this include improved rural access roads, building up of small rural towns, improved telecommunication access, the continued spread of general education and technical-vocational training in peri-urban areas; development of small-scale credit markets; and the major program of rural electrification.

Conclusion

Policy making in Ethiopia has always been overwhelmed by current issues and problems with little consideration of emerging issues and developments. Urbanization and rural urban interaction have not received adequate attention in the development strategies of the country. There is a need, therefore, for the Ethiopian policy makers to consider an independent review of the development strategies and revitalize them in order for them to be effective. More specifically, it is important to consider the following interventions.

First, there is a need for an integrated rural-urban perspective when development strategies are prepared. A comprehensive view about development leads to the recognition of linkages among the different sectors of the economy and promotion of interdependent and complementary development processes and ensures that the needs of all types of socio-economic groups and the poor are addressed irrespective of their place of residence.

Secondly, it is high time to revisit the agricultural development strategy, which heavily emphasizes on the supply side intervention with minimal attention to the demand side problems. Efforts made to transform the Ethiopian agriculture will not have a significant and lasting effect without equal attention accorded to the interventions required to improve the demand side of the agricultural and non-agricultural sectors. It is only when the farmers get access to the low cost improved farm inputs that come from the manufacturing and service sectors that they will be more motivated to produce more products of higher quality. The process of urbanization, if carefully planned and exploited, will not only accelerate growth but is also likely to lead to improvement in social welfare of both urban and rural dwellers.

Third, in the past the Ethiopian governments have tried to reduce rural urban migration and the concentration of people in large cities by settlement schemes, administrative and industrial decentralization and rural development programs designed to enhance the attractiveness of living in rural areas. Such policies have met only limited success and rural urban migration has continued on a significant scale. Therefore, the positive contribution of encouraging mobility of labor and rural urban migration must also be appreciated. The emphasis should rather be on how to accelerate the growth of the urban economy and its absorptive capacity. Diversification in rural areas could be achieved through seasonal migration of a fraction of the working population from villages in search of jobs in the cities.

Fourth, the urbanization process in Ethiopia has been historically dominated by the prime city Addis Ababa and a few other secondary cities. If urbanization is to contribute to the development of the rural economy, the urbanization strategy should also consider the secondary cities and smaller rural towns to serve as growth centers for the surrounding areas. Since big centers could not be accessible for most of the rural population, small urban centers can serve as centers of services, facilities, information and technology for the majority of the rural population.

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Implications of Rural-Urban Linkage for Livelihood Diversification in Kafa Zone

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Background

Despite the fact that the mountainous regions are the source of 80% of the world's fresh water, 50% of the biodiversity, and 35% of the world's forests, the people and environment in mountains are particularly vulnerable to processes of globalization, urbanization and climate change due to their added disadvantages of poor infrastructure, education, support and remoteness to markets and political power. Lack of opportunities for improved livelihood is driving out-migration and affecting the maintenance of agricultural, rural and family infrastructure. These problems become more serious and affect the livelihood system of the people of the African countries in general and Ethiopia in particular and put them amongst the world's poorest and marginalized people.

To reverse the situations and to assist sustainable development and maintenance of mountainous regions in general and in Ethiopia in particular, mountain specific research on key issues that enable to provide more enabling policies and support the well being of the mountain people and their environment becomes crucial. Thus, the Rural-Urban Linkage (RUL) thematic research area has been initiated by GMP to fulfill the above-mentioned purpose and enhance sustainable development in mountainous/highland areas.

In this regard Addis Ababa¹ has been selected as a benchmark baseline study area in the program as it has been, and is, a center for many of the economic activities and political power in the country. As a result, the city demonstrates considerable RUL in Ethiopia affecting the livelihoods of millions of people. It gets its water supply from nearby upstream rural areas and discharges its used water and wastes to downstream rural areas. It also gets other natural resources and products from nearby and far off highland areas. It has been and is a major sink for major products and migrants from rural areas and is also a center for imported goods. Thus, the process in Addis Ababa directly or indirectly affects the livelihood situations of mountain/highland communities either positively or negatively.

Besides the metropolitan city, there are satellite towns selected. In this connection, it would be interesting to assess the extent the situation of distant towns tally with the RUL conceptual

¹ Moreover, the concept note prepared for this workshop indicates that Shashemene-Awasa, Jimma, Bahir Dar, and Mekele/Harar have been tentatively selected to be satellite cities for the baseline survey.

framework of the GMP. This paper assesses the livelihood systems and commodity flow system within and to/from Kafa zone since it is also affected by the RUL. The study was conducted in Kafa zone of the Southern Nations, Nationalities and Peoples (SNNP) region. Kafa zone is bordered by Oromia in the North, and Sheka zone in the west, Bench-Maji zone in the southwest, Dawuro in the southeast and south Omo in the south. The zone is divided into 10 administrative districts, namely Gimbo, Chena, Bitta, Decha, Gesha, Gewata, Manjiw, Tello, Saylem, Chetta and Bonga town. Bonga town is located in Gimbo district.

The zone is among those areas located in the SNNP at distant but linked with Addis Ababa. Bonga town, which is a capital of the zone, is linked in several ways to the surrounding rural areas and towns as well as towns outside Kafa zone.

Objectives

The paper aims at the following specific objectives.

1. To increase understanding of the nature, range and scale of interactions between Bonga town and rural areas affecting the livelihood systems of the society with a view of encouraging positive linkages between zonal capital and rural areas, whilst reducing or eliminating negative interactions.
2. To identify some deriving forces for the RUL affecting the livelihood mechanisms;
3. To demonstrate RUL in Kafa zone, as an example of far away towns linkage to Addis Ababa; and
4. To provide some suggestions for further research.

Methodology

The data needed for the study were collected from primary and secondary sources. Review of available documents and literature on rural-urban relations in Ethiopia were made to gather relevant information in relation to rural urban linkages and livelihood systems. Moreover, primary information of qualitative and quantitative nature was collected from different stakeholders (such as traders and other business people, farmers, experts, government and non-government organizations, cooperatives, etc.). Two types of data collection instruments were used. A survey was conducted on randomly selected 225 sample households both in Bonga town and the surrounding rural areas. The required data were collected using structured and semi-structured questionnaire and analyzed using SPSS software. Moreover, PRA tools were applied to define market chain and channel, product and resources flow between urban and rural areas.

Literature Review

Nature of Linkage

Rural-urban interaction is a contemporary issue involving the exchange of goods and services, people, information, and money (in terms of remittance, credit and finance, etc) (Solomon and Mansberger, 2003). Moreover, people also leave rural areas because of land shortage and low productivity, poverty, war and natural disasters, and migrate to urban areas in search of employment, education and "modern way of living" (Tostensen, 2004). Rural urban linkages are manifested in several ways: economic aspects, environmental aspects, and social relations that develop through kinship or exchange of goods and finance. These manifestations directly or indirectly influence means of livelihood of the rural and urban population.

Economic Linkages

The economic aspects of the linkage are associated with livelihoods diversification and production systems. These encompass various kinds of resources flow including labour, natural resources, agricultural commodities, and financial flows (Baker and Pedersen, 1992) and industrial goods and services flow. In this case, agricultural raw materials flow from rural to urban areas while industrial goods and services flow from urban areas to rural. Moreover, urban areas facilitate extractive processes in rural areas and rural areas facilitate manufacturing in urban areas, the processes necessary for enhancing livelihood diversification. Hence, selling of goods and services produced in one settlement to another marks the trading and commercial relationships between towns and the surrounding rural areas as towns provide access to markets and serve as means of livelihood for the rural communities (Tostensen, 2004).

Moreover, rural urban linkage enhances diversification of means of livelihood both in rural and urban settings. In this connection, Hazell and Haggblade (1990) found out that growth in rural non-farm income and employment are strongly linked with agricultural growth. Agricultural growth will lead to expansion of high value agricultural outputs such as livestock and horticultural production, which are labour intensive and can benefit the poor. Agriculture can influence non-farm activities at least in three ways: production, consumption and labour market linkages. Agricultural production requires increased use of inputs such as fertilizers, chemicals, sprayers, irrigation and farming equipments, etc., which are either produced or distributed through non-farm enterprises. Moreover, increased agricultural output stimulates forward production linkages by providing raw materials that require milling, processing, and distribution by non-farm firms. In the rural areas, rising agricultural wage will raise the opportunity costs of labour in the non-farm activities. This induces a shift

in the means of livelihood composition in terms of labor intensity, returns to investment, and skill requirements.

Consumption Linkage

Consumption linkages arise from improved livelihood systems which manifest themselves through income growth, which boosts demand for basic consumer goods. Demands typically increase over time as rises in per capita income induce diversification of consumption spending into nonfoods. The labour market interaction operates through agricultural wage mechanism and induces income generation, which further helps potential for increased consumption.

Social Linkages

Another means of livelihood in the tropics in general and in Ethiopia in particular is transfer of economic resources freely or through reciprocity. The social aspect of rural-urban linkage is expressed by the mutual relationship between the urban and rural dwellers. This linkage can be established based on the existing ties in terms of means of livelihood; kinship, friendship and marriage and some times it can be religious. Urban households typically send money or commodities to rural relatives or friends while rural households supply their urban relatives with foodstuff, firewood and building materials. In some instances urban household members may stay in rural areas for longer or shorter time and establish relationships. This involves children who stay with relatives, youngsters who stay in rural areas to guard crop land or herd livestock, or older or poor people moving to their origin when they are unable to work in town any more (Tostensen, 2004). On the other hand, many urban households are compelled to host and feed rural relatives and friends who need a place to stay when they are in towns. Such relationships form a reciprocal element of social capital and cannot be avoided.

Environmental Linkage

Livelihood system of the society is affected by the impacts of the RUL on the environment, which provides means of production, water supply, clean air, etc. that are needed for a healthy life. Environmentally, the rural-urban interface is characterized by urban areas polluting the rural landscape, water and air. Industrial, residential and institutional waste in urban areas is often dumped directly on to rural areas or emitted into air with an ultimate destination in rural areas (Abdel-Ati, 1992). The rural areas also pollute the urban environment by affecting sources of drinking water, or the atmosphere through the use of agricultural chemicals such as fertilizer and pesticide (Kamete, 2000).

Population Growth and Urbanization

Population growth is one of the major factors leading to migration to urban areas. If the land tenure system allows free mobility of land from those who cannot use it efficiently to those who can, a portion of a population will be released from land and move to urban areas seeking other means of livelihood (Desalegn, 1999). In Ethiopia, land is a public or state property. The impact of the land tenure system on population mobility is often debated (Solomon and Mansberger, 2003: 3). According to Tostensen (2004), shortage of land is the most important push factor precipitating migration. Hence, land ownership, however small, acts as a deterrent against massive exodus.

Ethiopia is least urbanized in the world. According to Solomon and Mansberger (2003), the ratio of urban/rural population between 1987 and 1997 was 2.1%. The population in both rural and urban settings is growing fast at a rate of 2.5% and 4.7% per annum respectively. The recent figure on urbanization reached 15% in 2004. The prevailing pace of urbanization appears to be too inadequate to let people move out of agriculture and thereby allow the smallholder dominated agrarian economy to transform. Thus, the rate of urbanization is insufficient and as a result, the inter-sectoral mobility of labour has been low.

In the long run, the population pressure on land is likely to increase the number of landless or near landless, whose land can only accommodate a house, not cropping. In this case, they have no alternative means of livelihood in the area but to seek formal employment in the urban area in the manufacturing, domestic or security service or join the ranks of operators in the informal economy (Tostensen, 2004). Moreover, Ellis (2005) indicates the need for a rapid rural-urban transition to reverse declining farm size, provide domestic markets with farm output, increase cash circulation in rural areas, and take pressure off over exploiting natural resources.

Many households pursue a circular migration strategy such that they are semi-permanently split in a rural and urban part by means of 'straddling' i.e. not relinquishing their roots on either side of the rural-urban divide (Murray, 1981). The system of 'straddling' persists as means of survival as long as neither the urban wage level nor the agricultural production on small plots suffices to support an average family. It has been argued that circular migration and 'straddling' may contribute to forging of constructive relationship between rural and urban areas although such relationships might also increase vulnerability of the household as a social unit. Rural-urban migration is fastest where economic growth is the highest as migrants tend to move where there are likely to find employment opportunities (Tacoli, 1998: as cited in Solomon and Mansberger, 2003).

Strategies and measures that encourage and perhaps empower farmers to search livelihood strategy outside agriculture should be vigorously pursued. It is exigent that urban centers are supported to become places of livelihoods including substantial non-farm income.

In this paper, the major variables and factors affecting livelihood systems through rural-urban relations stated above discussed under the context of Bonga town and rural Kafa using the data collected from primary and secondary sources.

Results of the Study

Urbanization and Commodity Flow in Kafa

The process of rural-urban transformation is getting roots in Kafa zone. There are clusters of villages emerging into towns. According to the 2004 data from the Finance and Economic Development Office of the Kafa zone, about 7.4% of the population of Kafa live in towns, whereas the rate of urbanization excluding Bonga town is about 4.4%. Urbanization is closely associated with commercial activities. Most of the business activities are performed in urban areas or by business people living in towns or emerging towns. In Kafa zone, there are 1913 licensed business entities of which about 56% are located in Bonga town. The different livelihood strategies that ties the rural-urban include petty trading and retailing of grain, spices, butchery, hides and skin, clothes, stationary, Pharmacia and grocery items, livestock trade, etc.

The wholesale business operators also involve diverse economic activities including small scale business such as marketing of coffee, grain, honey and wax, construction materials, spices, and hides and skin. However, these traded agricultural outputs originate from rural area and create symbiotic relationship between the urban traders and consumers and the farmers in the rural areas. Moreover, most of the industrial commodities come from Addis Ababa and the agricultural raw materials flow from Bonga and its surrounding areas to Addis Ababa and other major towns.

As it can be seen from the table except Gesha woreda all of the districts of the Kafa zone, in addition to the other towns described above, use Addis Ababa as a source of necessary industrial products.

Table 1: Major market channels of industrial products in Kafa zone

Major Sources	Destination Woreda									
	Chena	Saylem	Gewata	Bitta	Gimbo	Manjiwo	Decha	Tello	Cheta	Gesha
Bonga	→		→	→	→	→	→	→	→	→
Jimma	→	→	→	→	→	→	→	→	→	→
Addis Ababa	→	→	→	→	→	→	→	→	→	
Metu/Gore		→								→
Bedele										→
Tepi/Mizan	→		→	→					→	
Proportion supplied via Bonga town (%)	18	0	17	13	24	45	47	34	77	23

Source: Constructed based on PRA with different groups (February 2006).

Note: The shaded part indicates the presence of trade relationship between the sources and the destination while the arrow shows the direction of flow of the commodities and end of the arrow is the destination.

Livelihood Diversification

Agricultural production

Land resources provide important source of income generation through farming. Mixed agricultural production involving crop and livestock systems is practiced in the study area. Crop production is a major means of livelihood for the majority of farmers in Kafa zone accounting for about 88% of the income of the farming community. Coffee, maize, teff, enset (false banana), horse beans, field peas, sorghum, wheat and barely are commonly grown. . About 30% of the respondents reported that they produce coffee with an average size of 2000 bushes per farm household. Moreover, spices such as cardamon (*Aframomum korarima*) and timiz (*Teper capense*) are often harvested from the natural forests. The production of these crops is a founding block for the rural urban linkage through flow of commodities.

Production of vegetables and fruits such as papaya, avocado and banana is common in some districts such as Gimbo, while it is being adopted by few farmers in other districts. Though there is high potential in terms of ecology, the production of vegetables and fruits is not as such common in Kafa.

Livestock production is the second important component of the farming system in Kafa and contributes significantly to the livelihood of the farming community. On average, livestock production and agriculture account for about 12% of the annual income of the farmers. However, some districts such as Chena, Tello, Menjiwo and Gewata have comparative

advantage in the production of sheep and cattle. Their positive linkage with Bonga town also involves flow of livestock and livestock products.

Non-Farm Employment

Income portfolio of the rural community is highly diversified so as to minimize risk of production failure and reduce vulnerability. Kafa zone is characterized by mixed farming and use of natural resources such as non-timber forest products. Full time non-farm employment is limited in the rural area. The results show that 26% of the rural labour force is engaged in non-farm activities such as petty trade, handcrafts, local processing of agricultural commodities, etc. The proportion of the non-farm participants reaches 89% in Bonga town. On the other hand, 8% of the respondents from rural households and 71% from Bonga town do not earn any income from agricultural production and hence rely solely on non-farm activities.

The non-farm employment in the rural area is often part-time and seasonal and rarely permanent. Non-farm pursuits generate 86% of the household income in Bonga town and 14% of the income of the sample rural households. The correlation between total household income and non-farm income is positive and highly significant with correlation coefficient of 99%. On the other hand, there is insignificant and negative correlation between non-farm income and farm income indicating the shift of labour to non-farm income generation activities as a coping strategy, rather than using the income generated in agriculture for investment in non-farm sector. This type of resources allocation is also induced by low productivity of agricultural sector to induce growth in non-farm sector.

Driving Forces Affecting the Linkage

Factors Leading to Positive Interactions

The positive interactions between Bonga town and rural Kafa depend on service delivery by Bonga town and market forces as these forces affect the livelihood of the people in Bonga town as well as its surrounding. The flow of commodities between rural and urban areas signifies the importance of markets for complementary growth of Bonga town and the rural areas. The major positive deriving forces include:

- Commodities exchange since Bonga creates major market outlet from most of the districts to other towns and cities including Addis Ababa;
- Bonga town depends on the rural areas for agricultural and forest products supply;
- Income for the urban population is mostly derived from the demand created by the rural population since over 90% of the population of Kafa zone lives in rural area and most of the industrial products are supplied by the urban dwellers;

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- Factor exchanges in the form of labour and capital is found to be important positive linkage;
 - Social relationships as discussed above play crucial positive roles in rural-urban relations in the study area;
 - Bonga is anticipated by many of the respondents as center for getting specialized services in health, education, finance, industrial goods and other services. Above all, due to its status as a zone, it links the rural areas to local and regional governments.

Factors Leading to Negative Interaction

Expansion of Bonga town

Land is crucial resource of livelihood of the farming communities. Putting land out of production, therefore, has immediate and significant implications on the earning of the households. In the study area, farmers in the sub-urban area anticipate that the town will continue to expand and evict them. About 46% of the respondents around Bonga consider this as the major source of conflict for them. Hence, they see it as a threat to be left with small plot and jeopardize their livelihood. On the other hand, farmers feel that there is a large land size in Bonga town and not effectively used. Conflict on land could emerge due to lack of appropriate compensation policy; lack of transparency and participation in the process of land transfer. Moreover, alternative means of income generation for those giving up their land should be considered.

Natural resources degradation

Natural resources provide means of livelihood for the households in rural and urban areas. They are major means of livelihood system in the rural areas. There is conflicting interest on the use of natural resources mainly forest products. The government attempts to enforce natural resource conservation measures through formal institutions based in Bonga town. The employees of natural resources management and environmental protection will continue to prevent tree cutting to enforce the rules and regulation, confronting with the firewood collectors. For the rural poor, cutting and selling firewood is means of livelihood. Those collecting firewood are poor and will continue to sell woods unless they cannot find other means of generating income. The use of firewood and charcoal will continue if alternative energy source is not available. On the other hand, the urban population will continue to buy firewood, if alternative energy sources cannot be provided at reasonable prices.

Poverty

There is deep-rooted poverty in Bonga town. The study results indicate that the poor constitutes about 37% of the urban population. Some 40% of the urban dwellers make their livings from micro-and small-scale business activities with small income, which is not

sufficient for subsistence. The Bonga administration also recognizes poverty as major reason for lack of investment capital in the town, causing continued lack of improvement in the living condition of the people of Kafa.

On the other hand, there is no job for the young high school graduates. Tackling the problem of poverty is not an easy task. Government's plan to employ young graduates from technical colleges could not be effective due to lack of capacity in terms of finance, entrepreneur and business management skill. Small income would mean less demand for consumables, which again affects the agricultural producers. Creating income for urban dwellers would complement rural development through income effect translated into demand for agricultural commodities. Despite the plan made by the Bonga town administration to organize people to do business, it has been indicated that even the capacity to organize and mobilize the community is lacking. As a result, Bonga could not create jobs for the urban youth as well as incoming migratory labourers from rural areas.

Lack of enabling environment in Bonga

Poor social services such as health, sanitation, water supply, education and housing affect the quality and magnitude of services rendered at Bonga. Group discussions held with Bonga town administration and technical staff indicated the following major problems of Bonga town:

- Poor road network in Bonga and in the rural areas;
- Poor water supply;
- Limited capacity in providing social services. It has been indicated that Bonga hospital is not well staffed to give adequate services to the urban and rural people.
- Poor provision of residential houses discourages qualified staff to stay at Bonga;
- Shortage of education facility and classrooms mainly at high school level;
- Lack of recreation and entertainment centers including standard hotels.

These factors have been mentioned as major reasons for qualified staff turnover in Kafa in general and Bonga in particular. As a result, the expected technical and capacity building services from the zonal offices could not be realized negatively affecting the living conditions of the people of the zone. Patients are taken to distant hospitals including Jimma for treatment. The high school is overcrowded; staff overloaded and there are limited books for students affecting the quality of education. The negative effect is translated to low or lack of rural development due to lack of adequate technical support to enhance agricultural productivity and low investment to enhance input supply, processing of agricultural products and inducing employment and demand.

Market Imperfection

The competition among traders, use of inappropriate measurement scales and pricing are not governed by the principles of marketing in which demand and supply regulate price. There is discontent both in urban and rural areas regarding the way the traders influence prices and control the market with severe implications on their livelihood. Moreover, the discussions made with Bonga town administration and the experts in different fields identified the following major problems of Bonga in relation to business promotion, affecting both rural and urban communities negatively.

- Shortage of capital to invest is limiting the opportunity of backward and forward development;
- Lack of access to credit by the urban poor to engage in business activities;
- Low household income is affecting demand;
- Low capacity of the town administration to promote business;
- High transportation costs due to lack of road infrastructure;
- Lack of awareness of modern business concepts and lack of motivation to expand business operations.

These factors contribute to lack of competitive market mechanism in Bonga town and considered as a major cause of conflict between the rural and urban communities. It was also stated that price of industrial goods is the highest in Bonga compared to a more distant towns such as Shishinda and Mizan Teferi. Consumers and retail traders attribute this to monopolized goods handling in Bonga town. Most of the goods and services needed by the Kafa people are not flowing through Bonga town, indicating poor business operation. There is some monopoly/oligopoly in the distribution of some items and their prices are not set following the free market principle. There are few traders jointly fixing prices of agricultural outputs and industrial goods. Experiences of Coffee Farmers Cooperative Union in stimulating high coffee prices should be adopted for marketing of grain and industrial goods through farmers marketing cooperatives and consumers' cooperatives. The entrepreneur skill of businessmen should be built to encourage bigger investment so that more jobs are created and commodities flow smoothly. This situation negatively affected the promotion of processing of agricultural commodities.

Lack of processing plants

Processing plants help to add value to primary products and increase earnings. It is expected that processing plants and manufacturing industries are often found in towns. So far such services are lacking or inadequate. There is only one coffee pulper. It has been indicated that the pulper serves the Kafa Forest Coffee Farmers Cooperative Union. This made some

of the coffee traders to wait for long time until they get the service, which led to low marketing efficiency.

The rural communities expect Bonga as a place of employment generation for the youth and diversification of household income. On the other hand, the urban population emphasized that there is lack of employment opportunities and therefore, unemployment is alarmingly increasing.

Most of the respondents from the urban and rural communities recognize that the mutual relationship prevails over the negative linkages. The negative linkages are described as unfair trade system, which works against the rural community through low prices of agricultural outputs and high prices of inputs and industrial goods. The combined effect of the land tenure system, towns' plan of expansion, and compensation mechanisms for properties/assets on land is a potential source of conflict between Bonga town and its immediate rural areas.

Recommendation for Future Research

The following are some of the research areas needed to strengthen rural-urban linkages and improve livelihood systems of the society:

1. RUL in relation to administrative settings and proximity and impacts of these on livelihood is an important area of investigation. Administrative establishments in Ethiopia follow ethnic based regional administrative structuring. Information, knowledge, governance, etc. flow from regional cities to its sub-structures, which may not be easily accessible. On the other hand, goods and services flow based on following proximity. The impact of these interactions is a potential study area.
2. Land tenure, urbanization and social factors (means of reducing negative linkages) are crucial for a balanced economic growth and economic and social transformation. These issues are serious around Addis where the city grows fast to the surrounding. These problems are not yet well studied under Ethiopian condition.
3. Urban agriculture, technology use and livelihood are also key areas of research since there is no institution responsible for urban agriculture improvement.
4. Social and environmental impacts of RUL is also important area of research;
5. Product and labour markets and institutional factors in relation to RUL;
6. RUL and the Agricultural Products Value Chain;
7. Impacts of natural resources degradation, energy and RUL on the livelihood systems; and
8. Impacts of development policies on RUL should be researched.

Acknowledgements

The results from Kafa Zone were based on Research conducted in 2006 to include Bonga town in Kafa Development Program. The study was sponsored by SOS Sahel-UK. I thank SOS Sahel for giving me the opportunity to work on this important issue.

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Part III

Conclusions and Recommendations on the Way forward

Results of group works and plenary discussions

The purpose of the paper presentation session was to provide background information on the theme of the workshop and share information and experience as well as draw lessons to enrich the draft conceptual framework. A total of 13 papers (see Part II on papers presented) dealing with GMP and RUL thematic research area; lessons and experiences on RUL; flow analysis; and institutional and policy issues were presented and discussed. The papers highlight important issues and experiences related to RUL (global, regional and national experience) and suggest priority action areas to stimulate discussion and give background information for the group discussion and the plenary discussions afterwards.

Following the paper presentation and short plenary sessions the workshop participants were divided into four groups and discussed the different sub-thematic areas of the initiative. The major purpose of the group discussion was to enrich the proposed concept note and suggest future directions for the implementation of the initiative. Accordingly, the groups focused on one of the following four issues:

- Flow analysis (Group 1),
- Policies and institutional analysis (Group 2),
- Livelihood analysis (Group 3);
- Establishment of RUL platform and its major tasks (Group 4).

In order to guide the discussion, the following lead questions were provided to the groups depending on the nature of the issues they are set to address.

Groups one, two and three had to look into, i) the key elements that need to be incorporated under their respective sub-thematic area and sub-components (if any); ii) identify key gaps/challenges for each sub-component (knowledge and action gaps); iii) identify the key opportunities for improving each sub-component; iv) identify key priority research and development actions to improve RUL; v) and also identify key crosscutting issues for the improvement of sub-thematic areas.

Group four, which dealt with the establishment of the platform, had to discuss about, i) the importance of the platform; ii) key functions of the platform and level of establishment (national, regional, district and town), iii) identification of platform members and platform leader. The results of the group discussion with the plenary discussion are summarized below:

Group 1: Flow analysis

i). Improvement of the contents of the sub-thematic area and/or component:

A general agreement was reached to modify the sub-components of the sub-thematic area, where a knowledge and information flow sub-component is added to the three sub-components (Natural resource, product and labor) initially proposed in the draft concept paper (Figure 1).

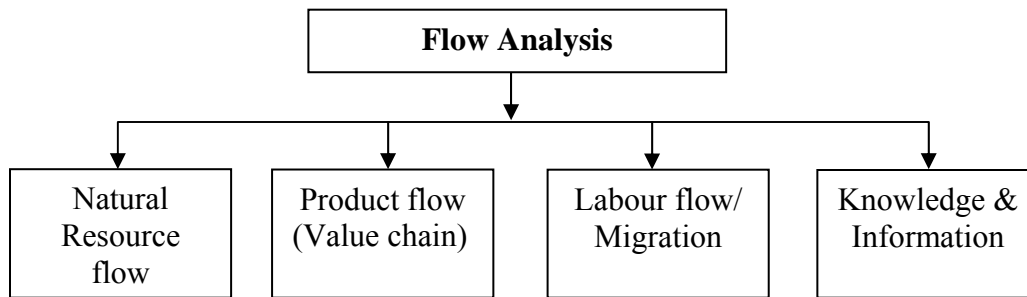


Figure 1: The modified content of flow analysis

ii). Challenges, opportunities, and priority action areas

Table 1 summarizes the challenges, opportunities, and priority action areas for flow analysis thematic area by sub-component. It is suggested that water, environmental services, minerals, sediments, nutrients and energy to be considered under the natural resource flow analysis. Under the product flow analysis, agricultural products (forest, grain, fruit, vegetables, livestock and livestock products), industrial products (manufactured goods, agricultural inputs, services and utilities), and waste and by-products with their respective specifics were recommended to be considered. Under labor flow analysis the characteristics of population in relation to the RUL is suggested to be considered, and for the knowledge and information flows, the consideration of local and non-local source of knowledge and information like schools, existing knowledge, archives, museums, infrastructure, gene bank, and local beliefs were recommended.

Although it was suggested to convert opportunities and challenges into priority action areas (both research and development), the group come up with some additional priority action areas for the different sub-components and they are presented on the following sections:

Natural resource flow analysis: the additional recommended research and development (RD) action areas include, enhancing communities' capacity; assess and deliver improved

land management practices to improve land productivity and quality of flows of natural resources to and out of urban/rural systems; investigate systematic ways for valuation of natural resources; devising efficient mechanisms on payment for environmental services (PES); and conduct detailed analysis of flows of water, energy, sediment and nutrient within the RUL continuum on the bench mark city and selected satellite cities and pinpoint potential constraints and solutions. Moreover, checking effects of climate variability on flow regimes and suggest mitigation measures; investigation and devising of efficient nutrient recycling mechanisms; investigation of cost effective energy generation and saving systems; and examining the extent of sedimentation impact on hydropower generation are recommended.

Product flow analyses: the additional recommended RD priority action areas include, evaluation of RD linkages; identifying problems and assess prospects of domestic value chain; assess alternatives of U&R services; investigate impacts of key socio-economic and biophysical challenges on value chain; evaluate and suggest stepwise agro processing techniques; investigate key areas of improvement on institutional capacity; investigate and devise efficient waste management systems and techniques and map point and non point pollutant sources.

Labor flow (migration) analysis – suggested RD priority action areas include, assessing the impacts of migration on rural and urban livelihood and environment; assess the relation between HIV/AIDS and migration; assess legal systems, skill and knowledge requirements; Map movement of labor – density and direction including timing, gender and age relations.

Knowledge and information flow analysis: suggested RD priority action areas for this sub-thematic area includes, assess and devise market information and networking systems; assess available infrastructure and requirements; document useful indigenous knowledge and develop retrieval systems.

Table 1: Challenges, opportunities, and priority action areas of the sub-thematic area- Flow analysis

Sub-thematic area	Objects	Stocks	Opportunities	Challenges	Priority action areas
Natural resource flow	Water	- Surface water - Subsurface water	- High water potential - Increasing demand	- Hydrological variability - Land degradation - Policy enforcement - Pollution of water bodies by different pollutants	Enhancing communities capacity Understanding & improving land management Valuation of natural resources Devise efficient systems for payment for environment services to enhance quality and quantity of flows of NR within the RUL continuum Detailed investigation of water, energy, sediment and nutrient flows within RUL continuum and suggest mitigation measures Checking impacts of climate variability on flow regimes and suggest mitigation measures Investigate efficient nutrient recycling mechanisms Investigate cost effective energy generation and saving systems Examine extent of the impacts of sedimentation on hydropower generation
	Environmental services	- Gene bank - Vegetation - Knowledge - Carbon stock - Wetlands - Biodiversity	- Ecotourism - Sustainable land management	- Local capacity - Low awareness - Poverty - Institutional setup	
	Minerals	- Reserves - Organic matter	- Unknown/ - Unexploited	- Poor management - Limited access	
	Sediments	- Soil depth	- Improve management	- Poor landscape management	
	Nutrients	- Reserves in the soil - OM	- Improved nutrient management - Imports	- Inherent soil fertility - Poor nutrient recycling and management	
	Energy	Huge hydropower and solar energy potential wind energy biomass energy	extensive global experiences existence of energy saving devices	limited capacity to develop hydropower and solar energy reduction of hydropower energy due to sedimentation limited involvement of private sector focus on urban systems shortage of biomass energy sources limited use of energy saving devices	

Sub-thematic area	Objects	Stocks	Opportunities	Challenges	Priority action areas
Product flow	Agric products: Forest Grain Fruit Vegetables Livestock product	Natural capital Knowledge Environment Livestock Infrastructure Institutions (Market)	Diverse agro ecology Potential to improve productivity Increasing demand Change in food habit towards horticultural products	Post harvest handling Weather unpredictability Poor land management Population demanding for more food Attitude and culture Poor infrastructure and market Very infant agro processing Quality & productivity	<ol style="list-style-type: none"> 1) investigate research and development linkages and introduce improvement options 2) Identify problems and assess prospects of domestic value chain including marketing and market infrastructures 3) Evaluating alternatives of urban and rural services 4) Investigate impacts of key socio-economic and biophysical challenges on value chain 5) Evaluate and devise stepwise agro processing techniques 6) Investigate key areas of improvement on institutional capacity 7) Investigate and devise efficient waste management systems and techniques 8) Map point and non point pollutant sources
	Industrial: Manufactured goods Agricultural inputs Services & utilities	Manufacturing capacity Capital (financial, social and natural capital)	Big local market Competitiveness Employment opportunity Plenty of options to choose quality	Limited access Product quality and quantity Limited technology options Limited financial capital Limited alternative energy Limited services Attitude towards local products	
	Waste and by-products	Industrial wastes Household wastes Un cycled horticultural and livestock byproducts	Experience on recycling of resources Possibility of pre-processing in rural areas Production of organic fertilizers Financial recirculation	Poor waste disposal Very weak awareness Very infant agro processing Institutional capacity	
Labor flow	Human beings	Population Knowledge and skill	Enhanced capacity and skills Labor mobility Improved income Flows of capital (remittance)	Health risks including HIV/AIDS Uncontrolled Population growth Limited knowledge about informal sector Natural hazards and poverty Weak legal system for labor mobility	<ol style="list-style-type: none"> 1) assess the impacts of migration on rural and urban livelihood and environment 2) assess the relation between HIV/AIDS and migration 3) assess legal systems, skill and knowledge requirements 4) Map movement of labor – density, direction including timing, gender and age relations

Sub-thematic area	Objects	Stocks	Opportunities	Challenges	Priority action areas
Knowledge and information	Local & non-local	Schools Existing knowledge Archives Museums Infrastructure Local beliefs	Increasing network Globalization Increased access and demand Awareness	Weak institutional capacity and memory Weak infrastructure and market information Quality of education and poor networking Biased attitude towards local knowledge Shortage of capital	<ol style="list-style-type: none"> 1) assess and devise market information and networking systems 2) assess available infrastructure and requirements 3) document useful indigenous knowledge and develop retrieval systems

Group 2: Policies and Institutions

i) Improvement of the contents of the sub-thematic area and/or component:

The group discussed first about the definition of institution in order to avoid confusion before going into the discussion about the contents of the sub-theme. Accordingly, institutions were defined as “Rules of the game under which economic actors in rural and urban areas do business and the organizations which enforce these rules”. It was also recommended that institutions like research, education/training, health, transportation, market, cooperatives, legal, CSO, NGO, CBO, infrastructure, networking and alliances needs to be considered in the analysis.

Following a thorough discussion, the group has recommended to modify the content of the sub-theme, where in addition to rural, urban and common policies to add international conventions and agreements under the policy sub-theme and to have two sub-components in the institution sub-theme i.e., urban institutions and rural institutions. It was also recommended to split the urban and rural institutions sub-theme further into three components, i.e., public, private and communal institutions (Figure 2).

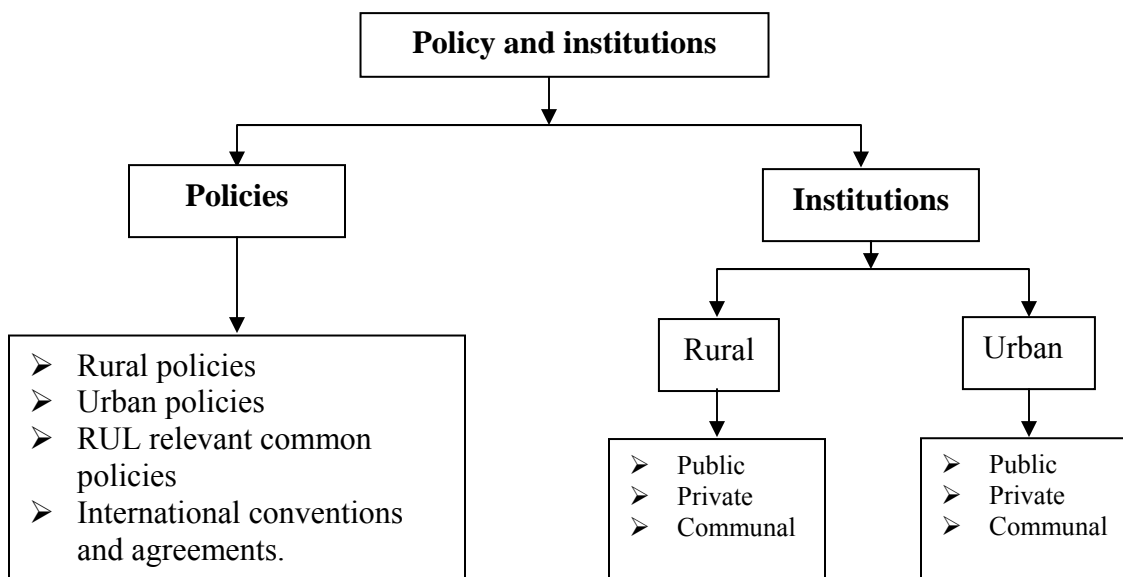


Figure2: The modified content of the policy and institutions sub-theme

ii). Challenges, opportunities, and priority R&D action areas

Figure 2 summarizes the challenges, gaps, opportunities and priority R&D activities for policies and institutions sub-theme. The challenges and gaps revolves around the need of

accommodating diversity, decentralization in policy making, institutional instability, lack of coordination and firm knowledge based policy formulation.

Table 2: Challenges, opportunities and priority R&D activities for the sub-theme Policies and Institutions

Challenges	Gaps	Opportunities	Priority action areas
<ul style="list-style-type: none"> • Accommodating diversity: <ul style="list-style-type: none"> – ecology – Socioeconomic – others • Decentralization • Adherence of the Federal Government to a particular policy and/or strategy • Governance (lack of accountability and transparency) • Globalization - growing international demand of resources – for e.g. land • Institutional instability 	<ul style="list-style-type: none"> • Top - bottom policy formulation • Lack of study before and during policy formulation • Limited knowledge about the impact of strategic and institutional interventions both in rural and urban areas • Implementation gaps <ul style="list-style-type: none"> – capacity and – ability • Lack of coordination and integration among the key stakeholders 	<ul style="list-style-type: none"> • Availability of key institutions • Capacity in higher learning institutions • Professional associations • Diversity – ecological and indigenous knowledge • Decentralization of political power (with capacity building) • Improvement in ITC • Provision of global public goods • Globalization – increasing demand for products 	<ul style="list-style-type: none"> • Participatory baseline study • Inventory of policies and institutions vis-à-vis RUL • Make participatory gap analysis of the above policies for (re)formulation • Participatory performance analysis of policies and institutions-longitudinal • Experience sharing – tours to the rest of the world.

iii). Crosscutting issues

The group has also identified crosscutting issues in analyzing policies and institutions related to RUL. Among the important crosscutting issues identified are the need for capacity building and utilization (human, physical, financial etc), establishment of market oriented incentives (e.g. preferential treatment of disadvantaged etc), gender, HIV/AIDS and environmental protection.

Group 3: Livelihood analysis

i). Improvement of the contents of the sub-thematic area and/or component:

The group recognized the close linkage, and at times overlap, between the livelihood analysis and flow analysis and suggested to clearly delineate the two for practical reasons. However,

it was agreed during the discussion that the livelihood analysis sub-theme be conceptually understood as an analysis that shall focus on the livelihood options within a given locality to be supplemented/augmented by the flow analysis in case of linkages with other localities.

ii). Challenges, opportunities, and priority action areas

Possible challenges in livelihood analysis are summarized under the different sub-components (Natural resource, production, and research):

Natural resource: under the current socioeconomic circumstances, there is a need to assess whether it is feasible for people to depend their livelihood on natural resource as fuel wood; the need to look into alternative energy sources; and the legal framework/ institutional challenges for marketing of woodlots.

Production: Existence of linkage problems between municipalities and agricultural offices to promote urban agriculture. Similarly, industry zones do not encompass agriculture but only factories. Limited value addition in rural areas due to lack of processing facilities, limited knowledge about the advantage of value addition, and the need to maintain quality and standard

Research

- Topics and areas focuses on policy and priority of the government
- Linkage of research and extension and/or development activities
- Value adding
- Consumer behavioral change

The group has identified as opportunities the untapped resources in different areas (far off and nearby areas), the population that can be used as resource, and the high standard genetic quality of livestock.

With regard to priority action areas, the following interventions were suggested under the livelihood sub-thematic area:

- Specialize in areas where production or framing is more appropriate (honey production etc)
- Policy instrument set-up
- Highlands should be prioritized as watershed and natural resources management
- Water shed protection (to avoid siltation, flooding and land sliding etc)

iii). Crosscutting issues

- Policy issues in improving livelihood e.g. institutional setup like UAO
- Gender issue- planning to decision making
- Capacity building to experts, framers, traders etc...
- Policy instruments (comparative advantage, institutional arrangement, scientific alternatives from research)
- HIV/AIDS

Group 4: Establishment of the platform

i). Importance of platform

The group first discussed about the importance of the platform and its naming. Recognizing the paramount importance of linking the research and development, it was agreed to establish a platform under the name “RUL Steering Group (SG)”.

ii). Key function of RUL-SG

The following were identified as key function:

- Facilitate/support the identification of research gaps, constraints and setting priorities
- Support the planning of research activities
- Oversee monitoring, evaluation and reporting activities
- Provide forums for dialogue to link research to development activities
- Support resource mobilization
- Work on advocacy activities and liaison with policy makers
- Facilitating stocktaking, (organizations and activities) documentation and formulation of databases
- Establish ad-hoc working groups as deemed necessary
- Organize a larger stakeholders platform for dialogue and discussion

iii). Structure of the RUL-SG and program

Taking into consideration the existence of benchmark city and satellite cities, it was agreed that to establish the SG at two levels: at the national level and at the level of the satellite towns. Furthermore, the participants suggested to start with the establishment of SG at national level with a mandate to establish SGs at lower levels

iv). Bylaws and internal administration

It was recommended that the SG develop its own TOR and working procedures. However, participants suggested for the SG to conduct a biannual meeting.

v). Membership

It was recommended to include members from relevant line ministries, higher learning institutions, research organizations, CSO & private sector. The GMP was proposed to be secretary for the SG.

Conclusion and Recommendations

In conclusion, it was agreed that the initiative is timely and appropriate as the interventions/policies so far available and implemented have focused on both rural and urban centres independently with limited emphasis to their linkages, resulting in limited economic synergy between the two. Therefore, it was anonymously underlined that RUL is one of the gaps in Ethiopia's development agendas in the past. The incorporation of RUL among the key strategic elements of PASDEP, however, is an opportunity and this initiative is timely and would bring about important information to help concrete actions to be taken on the ground.

Consequently, apart from the suggestions made under each sub-group the following key issues were recommended for consideration both on the operational and technical aspects of the project:

a) Recommended issues related to the operational aspects of the project

- The need to develop appropriate operational *modus operandi* and address the issue of linking the RUL platform (Steering Group) with the national R&D system and clearly set mode of collaboration/cooperation;
- The need to set criteria for selecting Steering Group members. It was agreed that it should include relevant government organs, civil societies, higher learning institutions, among others;
- The need to set the organizational structure of the initiative taking into consideration the importance of lower level RUL platform (Steering groups), differentiating development linkage and Research linkage, and the need to have the initiative to be a free standing organ without being accountable to government organ but rather to the platform (Steering Group);
- In addition, it was emphasized that for the success of the initiative there should be strong and close collaboration among the different stakeholders to create synergy;
- Selection of program sites: it was discussed that there is a need to set criteria for the selection of satellite cities. Moreover, it was recommended that the emerging urban areas like Assosa, Gambella and Asayita can have their own specifics in terms of RUL so it will be important to include such emerging urban areas among satellite cities;
- The need to have working definitions for the following terms:
 - Urban and Rural: there is a need to put forward criteria for determining urban and rural areas so that confusion like association of urban as non-agriculture and rural to agriculture can be eliminated

- Satellite city, city, town, countryside: this also need to be defined in relation to urban and rural dichotomy

b) Recommended issues related to technical aspects of the project: The following activities were suggested to be included among priorities of the initiative:

- Review and documentation of the gaps in terms of RUL in the existing development strategies;
- Review and document the tools and instruments of the agricultural development strategy and design the way how the emphasis given to a supply side intervention can equally be given to the demand side problems;
- Analysis of access to land in urban and peri-urban areas for agricultural production;
- Analysis of the challenges and opportunities of the safe re-use of urban nutrients for agriculture;
- Analyzing the possibilities of moving into non-conventional nutrient management frontiers;
- Maintaining & forming partnership for nutrient recycling and scale-up nutrient recycling experiences;
- Ex ante assessment of the social and environmental impact of RUL;
- Product and labor markets and institutional factors in relation to RUL;
- RUL and the Agricultural Products Value Chain analysis and ways of strengthening the chain;
- The challenges and opportunities of RUL in reducing Natural Resources Degradation and improving energy balance between urban and rural areas;
- The challenges and opportunities of urbanization in promoting RUL;
- The role of cooperatives in enhancing RUL;
- Institutionalization of urban agriculture in the context of RUL;
- Water resource management in the context of RUL:
 - High gradient watershed and hillside hydrology
 - Storm water management (What are the innovations to manage urban storm for productive use in urban and peri-urban areas?)
 - Pollutant transport (Which technical and policy options are feasible to reduce the risk of chemical and food contamination in industrialized and urban agriculture areas?)
 - Making assets out of waste water
 - Irrigation water quality (What are the extents of waste water and clean water usage in irrigation in urban and peri-urban areas?)

- Assessing the role of tourism industry in promoting RUL
- Incorporation of watershed/spatial planning approach with the sectoral planning practice.
- The need to conceptually distinguish issues to be addressed under flow analysis and livelihood analysis sub-thematic areas, as the two can overlap in terms of content and flow can be a function of livelihoods;
- The need to incorporate/consider under the flow analysis sub-thematic areas issues like capital flow, knowledge/skill flow, flow of services, and information flow;
- The importance of looking also to the mountain/highland - lowland area linkages in addition to rural-urban linkages. This is because of the fact that in Ethiopia highland-lowland is an important factor and have greater influence on the state of highland ecosystem and the RUL in general;
- To clearly understand the RUL issues and devise options for improvement, there is a need to see the rural-rural and urban-urban linkages;
- The need to consider other crosscutting issues like the importance of land tenure system, capacity building, and gender.

ANNEXES

Workshop schedule

August 29, 2006

Time	Topic	Presenter/responsible	Affiliation	Chair person
08:30-09:00	Registration	GMP		
09:00-09:05	Introduction and welcome	Dr. Gete Zeleke	GMP	Organizers
09:05-09:25	Welcome remarks	Dr. Peter Trutmann Dr. Tsedeke Abate	GMP EIAR	
09:25-09:30	Workshop opening	H.E. Dr. Abera Deressa	MoARD	
09:30-09:45	Keynote address	Dr. Tewolde Berhan G/Egziabeher	EPA	Facilitator
09:45-10:00	Introducing the GMP and the role of RUL thematic research area to support sustainable development in Africa	Dr. Peter Trutmann	GMP	
10:00-10:15	Draft conceptual framework of RUL thematic research area of GMP	Dr. Gete Zeleke	GMP	
10:15-10:30	Discussion			
10:30-11:00	Coffee/photograph	GMP		
11:00-11:15	Lessons from international experience on RUL: research and development	Dr. Cecilia Tacoli	iiED	Facilitator
11:15-11:30	RUL in Ethiopia: status, challenges and opportunities and future research directions	Dr. Tegegne G/Egziabiher	RLDS – AAU	
11:30-11:45	RUL and the role smaller urban centers in enhancing economic development in Ethiopia	Dr. Demes Chanyalew	DeMar Ethio-Afric	
11:45-12:00	Experiences of MERET in natural resources management and enhancement of productivity in Ethiopia - an opportunity for RUL	Mr. Volli Carucci/Dr. Yehenew Zewdie	WFP	
12:00-12:30	Discussion			
12:30-13:30	Lunch	GMP		

Time	Topic	Presenter/responsible	Affiliation	Chair person
13:30-13:45	Flow analysis: <ul style="list-style-type: none"> The role of Urban Agriculture in supporting urban food security (general) The role of Urban Agriculture in supporting urban food security (the case of AA) Nutrient flow within the RUL context and its impacts: R & D perspectives Importance and implications of strengthening RUL to enhance water flow: R & D perspectives 	Prof. Karanja Nancy	Urban Harvest	Facilitator
13:45-14:00		W/o Azeb Girmai	ENDA	
14:15-14:30		Dr. Tilahun Amede	AHI	
14:30-14:45		Dr. Seleshi Bekele	IWMI	
14:45-15:00	Discussion			
15:00-15:15	Flow analysis: <ul style="list-style-type: none"> Importance of strengthening RUL to enhance efficient Product Chain in Ethiopia (general): challenges, opportunities and the way forward (R&D perspectives) Looking Product Chain within the RUL context (case study): lessons from ADA dairy farm cooperatives HIV/AIDS, food security and migration within RUL context in Africa 	Dr. Alemayehu Seyoum	IFPRI	Facilitator
15:15-15:30		Dr. Azage Tegegne	IPMS-ILRI	
15:30-15:45		Dr. Bruce Frayne	RENEWAL-IFPRI	
15:45-16:00	Discussion			
16:00-16:30	Coffee	GMP		
16:30-16:45	Analysis of policies and institutions to strengthen RUL in Ethiopia: opportunities and challenges (R&D perspectives)	Dr. Assefa Admassie	EEPA	Facilitator
16:45-17:00	Importance of strengthening RUL to improve livelihood options: challenges, opportunities and the way forward (R & D perspectives)	Dr. Bezabeh Emama	Private Consultant	
17:00-17:30	Discussion			
17:30-17:40	Group formation and presenting group tasks	Dr. Gete Zeleke	GMP	
18:00-20:00	Reception	GMP		

August 30, 2006

Time	Topic	Presenter/responsible	Affiliation	Chair person
8:30-10:00	Group work	Groups		Group Leaders
10:00-10:15	Coffee	GMP		
10:15-12:30	Group work	Groups		Group Leaders
12:30-13:45	Lunch	GMP		
14:00-15:00	Group presentation (20 minutes each) <ul style="list-style-type: none"> • Group 1 • Group 2 • Group 3 	Group leaders		Facilitator
15:00-16:00	Plenary discussion	Participants		
16:00-16:20	Coffee	GMP		
16:20-16:35	Group presentation on RUL Platform (Group 4)	Group leader		Facilitator
16:35-17:00	Discussion and approval of Platform	Participants		
17:00-17:10	Words of thanks and synthesis remarks	Dr. Peter Trutmann	GMP	Dr. Seme Debela
17:10-17:20	Closing remark	Dr. Tewelde Berhan G/Egziabeher	EPA	

List of participants with group pictures

<i>NO</i>	<i>NAME</i>	<i>ORGANIZATION</i>	<i>POSITION</i>
1	Dr. Abera Deressa	MoARD	State Minister
2	Dr. Getachew Alemayehu	ARARI	DG
3	Dr. Salvador Fernandez	ILRI-SLP	Coordinator-SLP
4	Mr. G/Medhin W/Giorgis	EIAR	Devt. & Training Co
5	Mis. Ilona Grunwald	GTZ	Program Assistant
6	Dr. Berega Lemaga	PRAPACE - CIP	Coordinator
7	Dr. Solomon Mulugeta	AAU	Asso. Prof
8	Dr. Eleni G/Madehin	IFPRI	Programme Leader
9	Mr. Amare Worku	MOARD	Forestry Head
10	Mis. Lakeeth Mikael	WB	Rural Dev.
11	Mr. Kelsa Kena	SARI	NRR Director
12	Dr. Tewoldebirhan G/Egzi	EPA	Director General
13	Mr. Zerihun Alemayehu	ENDA	NR Expert
14	Mr. Solomon G/Selassie	ILRI	Researcher
15	Dr. Amare Hailesilassie	ILRI	Researcher
16	Mr. Girma Tesfahun	ILRI	PhD Fellow
17	Dr. Belay Demissie	USAID	Agri. Advisor
18	Dr. Bayu Chane	AAU	Dean FoT
19	Dr. Cicilia Tacoli	IIED	Senior Researcher
20	Dr. Tadelle Dessie	ILRI	Researcher
21	Mr. Metalign Ayehu	MOFFED	A/Team Leader
22	Mr. Yilma Gizachew	Private	Consultant On Urban Agri.
23	Dr. Woldeamlak Bewket	AAU	Head Geography Dept.
24	Dr. Ralph Roathout	CIAT/ILRI	Scientist
25	Mr. Tim Robertson	DFID	Programme Officer
26	Mr. Fikre Mulugeta	OBARD	Dept. Head
27	Mrs. Azeb Grimai	ENDA	Coordinator
28	Miss. Ekini Keskin	ILRI	PhD Fellow
29	Mrs. Miriam Steglich	UNDUREIT	
30	Mr. Ashenafi Mengstu	ILRI	Graduate Fellow
31	Mr. Asefa Hagos	FEDERAL UR/PI	Expert
32	Mr. Tilahun Fekade	FEDERAL UR/PG/MGT	Deputy Director
33	Mr. Admasu Molla	AMHARA EPLAUA	Dept Head
34	Mr. Negash Shiferaw	B/DEVELOPMENT	Head Researcher
35	Dr. Asefa Taa	OARI	Deputy Director

<i>NO</i>	<i>NAME</i>	<i>ORGANIZATION</i>	<i>POSITION</i>
36	Dr. Tilahun Amede	AHI	Senior Researcher
37	Dr. Mohamed Yusuf	EEPFE	Coordinator
38	Dr. Seleshi Bekele	IWMI	Regional Representative
39	Dr. Assefa Admassie	ECA	Director
40	Mr. Yitbarek Beferd	A.A. ADMIN	B/Head
41	Mr. Ketsela Mengestu	Min. of Water Resource	Expert
42	Dr. Solomon Abate	ENTRO	Regional Coordinator
43	Dr. Dawit Alemu	ESSP/IFPRI	Researcher
44	Dr. Kindie Getnet	ESSP/IFPRI	Researcher
45	Dr. Kidane Giorgis	EIAR	Researcher
46	Dr. Workneh Ayalew	ILRI	Researcher
47	Dr. Demessie Chanyalew	DEMAR/ETH/AFRIC	GM
48	Dr. Jan Low J.	CIP	Regional Leader
49	Dr. Birhanu G/Medhin	ILRI	Researcher
50	Mrs. Yeshi Chiche	EIAR	Gender Specialist
51	Dr. Alemayehu Seyoum	IFPRI	Scientist
52	Mr. Ephrem Hassen	EREDPC	Dept/Head
53	Dr. Seme Debella	EAAP	President
54	Mr. Hailesilassie Sebhatu	AA/EPA	Natural Resource Dept. Head
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About GMP

The Global Mountain Program (GMP) is a System Wide Program of the CGIAR system. It was established in response to international commitments made to Agenda 21 chapter 13: 'Managing Fragile Ecosystems: Sustainable Mountain Development' and Chapter 14: 'agriculture' and the Millennium Development Goals (MDGs) in mountains. GMP's mission is to harness the CGIAR research capacity for sustainable mountain development and to add value through better focus, integration of efforts, better linkages, and exchange of information, tools, research and support between Centers and mountains of different continents. In this manner, together with local knowledge of mountain people and alliances with partner institutions we aim to find solutions that foster sustainable mountain development and the Millennium Development Goals.

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