



Operationalizing Multi-scale INRM  
in Africa: Comparison of Regional  
Participatory Planning Processes in  
Ethiopia and Uganda

Emeline Hassenforder, Nils Ferrand,  
Jamie Pittock, Olivier Barreteau,  
Katherine Anne Daniell, Zelalem  
Lema, Moses Muhumuza, Thaddeo  
Tibasiima and Clovis Kabaseke

G-Eau



## G-Eau Working Paper/Rapport de Recherche No. 3

# Operationalizing multi-scale INRM in Africa: comparison of regional participatory planning processes in Ethiopia and Uganda

Emeline Hassenforder, Nils Ferrand, Jamie Pittock, Olivier Barreteau, Katherine Anne Daniell, Zelalem Lema, Moses Muhumuza, Thaddeo Tibasiima and Clovis Kabaseke

First published: January 2018

Hassenforder, E.; Ferrand, N.; Pittock, J.; Barreteau, O.; Anne Daniell, K.; Lema, Z.; Muhumuza, M.; Tibasiima, T. and Kabaseke, C. 2018. Operationalizing multi-scale INRM in Africa: comparison of regional participatory planning processes in Ethiopia and Uganda. G-Eau Working Papers No.3. Montpellier, France.

<http://www.g-eau.net/>

Copyright 2018, by G-Eau. All rights reserved. G-Eau encourages the use of its material provided that the organization is acknowledged and kept informed in all such instances.

## About the authors

### **Hassenforder, Emeline**

French National Research Institute of Science and Technology for Environment and Agriculture (IRSTEA); AgroParisTech; The Australian National University (ANU), Fenner School of Environment and Society, 48 Linnaeus Way, Acton ACT 2601, Australia; [emeline.hassenforder@anu.edu.au](mailto:emeline.hassenforder@anu.edu.au); Tel.: +61(0) 412 585 110

### **Ferrand, Nils**

French National Research Institute of Science and Technology for Environment and Agriculture (IRSTEA), Water Resource Management, Actors and Uses Joint Research Unit (UMR G-EAU), Montpellier, 361 *rue J.F. Breton* - BP 5095 34196 Montpellier Cedex 5, France; [nils.ferrand@irstea.fr](mailto:nils.ferrand@irstea.fr); Tel.: +33(0) 467 046 320

### **Pittock, Jamie**

The Australian National University (ANU), Fenner School of Environment and Society, 48 Linnaeus Way, Acton ACT 2601, Australia; [jamie.pittock@anu.edu.au](mailto:jamie.pittock@anu.edu.au); Tel.: +61(0) 261 255 563

### **Barreteau, Olivier**

French National Research Institute of Science and Technology for Environment and Agriculture (IRSTEA), Water Resource Management, Actors and Uses Joint Research Unit (UMR G-EAU), Montpellier, 361 *rue J.F. Breton* - BP 5095 34196 Montpellier Cedex 5, France; [olivier.barreteau@irstea.fr](mailto:olivier.barreteau@irstea.fr); Tel.: +33 (0) 467 166 439

### **Daniell, Katherine Anne**

The Australian National University (ANU), Centre for European Studies, #67C, 1 Liversidge St, Acton ACT 2601, Australia; [katherine.daniell@anu.edu.au](mailto:katherine.daniell@anu.edu.au); Tel.: +61(0) 261 258 100

### **Lema, Zelalem**

The International Livestock Research Institute (ILRI), P.O. Box 5689 Addis Ababa, Ethiopia; [z.Lema@cgiar.org](mailto:z.Lema@cgiar.org); Tel.: +251(0) 911 725 449

### **Muhumuza, Moses**

Mountains of the Moon University (MMU), P.O. Box 837 Kabundaire, Fort Portal, Uganda; [musacot@gmail.com](mailto:musacot@gmail.com); Tel.: +256 (0)772 565 565

### **Tibasiima, Thaddeo**

Sustainable Agriculture Trainers Network (SATNET), Plot 6A, Mugurusi Road, Fort Portal/P.O. Box 884 Mugurusi Rd, Fort Portal, Uganda; [tadsima2000@yahoo.com](mailto:tadsima2000@yahoo.com); Tel.: +256(0)782 313 068

### **Kabaseke, Clovis**

Mountains of the Moon University (MMU), P.O. Box 837 Kabundaire, Fort Portal, Uganda; [cloviskabaseke@gmail.com](mailto:cloviskabaseke@gmail.com); Tel.: +256 (0)752 529 538

## **Abstract**

In many countries, adaptive and Integrated Management of Natural Resources (INRM) is imperative but can be difficult to operationalize. This paper suggests the adoption of regional participatory planning processes as an approach to operationalize multi-scale INRM. It builds on the comparison of two cases, the Fogera woreda in Ethiopia and the Rwenzori region in Uganda, in which similar participatory planning approaches have been implemented, one at a single scale and one at multiple scales. The paper concludes by highlighting the triggering factors to encourage the extension of a natural resource management planning process to multiple scales. It also suggests that both the regional and the local scales be engaged simultaneously rather than using the regional scale as an entry point to the other scales. Finally, it suggests that for INRM operationalization, upscaling processes to the national scale may not always be relevant in the initial stages of the process and that instead, one or two key national players could be involved at the regional scale to enhance process legitimation.

## **Key words**

Adaptive planning; downscaling; Eastern Africa; participation; scale; upscaling

# 1 Introduction

---

Natural resources are under increasing pressure in many regions around the globe, making their management imperative. In Africa and other regions facing similar challenges, Natural Resource Management (NRM) can be particularly complex: it needs to balance the demands and needs of different sectors, stakeholders and scales in a context where governance is often under-resourced and uncoordinated (AfroMaison 2014).

Therefore, NRM, in these regions especially, must adopt an approach which is:

- Integrative: across sectors, scales of management, and encompasses both social and environmental systems, and
- Adaptive: in a context of uncertainty and complexity, it needs to be flexible and able to cope with constantly-emerging challenges.

Research on adaptive and Integrated NRM (INRM) has led to the identification a number of “good practices” or “lessons learnt” for successfully operationalizing INRM. These include, among others, participation of relevant stakeholders at various scales, and horizontal and vertical institutional coordination between various governance bodies (Campbell and Sayer 2003).

However, although these guidelines seem to offer a promising solution to existing NRM challenges, their translation into practical actions on the ground is not straightforward. Non-linearity of social-environmental systems, uncertainty and changing targets are some of the difficulties for operationalizing INRM, to name but a couple (Campbell and Sayer 2003). These challenges call for dedicated approaches to operationalize INRM.

Multi-scale participatory planning appears as one possible approach to tackle these challenges and operationalize INRM. “Participatory planning is a process usually designed to address a specific issue, opportunity or problem with the intent of resolving or exploiting it successfully through the collaborative efforts of the crucial stakeholders” (UN Habitat, 2001, p.20). We define “scale” as per the Oxford Dictionary’s definition as “the relative size or extent of something”. NRM occurs at multiple scales: from the national scale, where strategic priorities and policies are set, to the local scale, where the use of natural resources takes place. Multi-scale participatory planning therefore involves engaging stakeholders at various scales to develop multi-scalar action plans destined to address their social-environmental issues of concern.

There are a number of inter-linked reasons for considering multi-scale participatory planning as a relevant approach to operationalize INRM. First, engaging relevant stakeholders in environmental planning increases their ownership of the resulting plan and policies, along with their understanding of the social-ecological system (Gonsalves, 2000). It also increases trust and collaboration. Altogether, these outcomes lead to improved collaborative actions and decisions (Barreteau, Bots, and Daniell 2010). Second, planning is an integral part of the management process. Building participants’ planning skills therefore contributes to building stakeholders’ institutional capacity to manage their natural resources. Third, engaging multiple scales strengthens the coordination among government institutions and with other stakeholders at various scales, therefore fostering “institutional interplay” (Cash et al. 2006). Fourth, multi-scale participatory planning allows to gain an understanding of the dynamics and needs at global, regional, national and local scales and their interconnections, therefore allowing to overcome the cognitive processing of complexity-based challenges (see chapter 2). Overall, multi-scale participatory planning increases the potential of arriving at coherent and acceptable INRM plans and at their successful implementation (Daniell et al., 2010a).

However, engaging simultaneously multiple scales and stakeholders in a planning process may face a number of issues related to time, space, institutions, and environments (e.g. Gonsalves, 2000; Lovell et al., 2002). A step-by-step approach is therefore required. Many authors and practitioners working on

multi-scale participatory planning advocate for starting from the local scale and “going to scale” (e.g. Gonsalves, 2000; Ridder & Pahl-Wostl, 2005), in other words, up and outscaling from pilot processes to institutionalized processes across countries or continents. Yet in most cases, up and outscaling do not occur spontaneously (Hassenforder, Daniel, & Noury, 2012a; Sreedevi & Wani, 2009). Stakeholders who were not involved in the pilot process are often reluctant to implement plans which they have not contributed to. Moreover, scaling up and out requires detailed contextual investigations (Lovell et al., 2002) which are rarely undertaken.

In reaction, INRM researchers and practitioners have started investigating the potentiality of using the regional scale as an entry point to other scales (e.g. Gibbs & Healey, 1997). This approach involves starting to work at the regional scale before scaling up and down respectively to larger and smaller scales. The regional scale is understood here as a spatial intermediary dimension between local, or community scale, and national scale. This is the scale at which strategic plans and policies can be scaled down and successful local practices can be scaled up. It therefore appears to be an appropriate scale to start with in order to facilitate integration, both vertically (from local to national) and horizontally (across resources and sectors) (Allan 2004). It is also increasingly proposed as the appropriate scale to interface regional analyses with global analysis and practice (Glaser & Glaeser, 2014).

However, rigorous monitoring and evaluation (M&E) of multi-scale participatory planning processes, their contexts and their impacts is still often lacking to define how such processes can be effectively and efficiently designed, put in place and improved over time (Daniell et al., 2010a). In addition, research on these processes often rely on single case studies, preventing generalizations over the effectiveness of such approach across cases (Deyle and Slotterback 2009).

This paper aims at assessing the conditions and challenges for operationalizing multi-scale INRM through regional-scale participatory planning processes, in Africa and other regions facing similar challenges. It draws upon the comparative experience gained through the rigorous M&E of two case studies. This paper has three innovative aspects. First, it sheds light on two regions rarely cited in the literature: the Rwenzori region in Uganda and the Fogera woreda (district) in Ethiopia. Second, it builds on the rigorous M&E of two cases, based on a mixed methods approach (Johnson, Onwuegbuzie, and Turner 2007) and participatory intervention position (Midgley 2000). Third, it allows the comparison of two cases monitored and evaluated using a similar protocol. Both cases also used the same participatory planning approach, presented in the next section, but there was a major difference in the scale of implementation. In Uganda, the planning process was spontaneously extended at various scales starting from the regional scale, down to the local scale and up to the national scale. In Ethiopia, the process was only implemented at the regional scale but in parallel between a group of decision makers and a group of farmers. These two cases therefore provide us with a suitable ground for studying the drivers and strategies of scaling.

We start by outlining the participatory planning approach and the areas where it was applied. This is then followed by in-depth descriptions of the participatory planning implementation in each case (sections 7.3 and 7.4). In section 7.5, a comparative discussion reflects on the drivers of the uptake of the process from the regional scale to multiple scales, and draws lessons for downscaling and upscaling future processes. Questions for future reflection and research are then provided in the conclusion.

## **2 The suggested approach: regional participatory planning processes**

---

Based on the considerations highlighted in the introduction, a European Union funded research project called AfroMaison was launched in 2010. AfroMaison’s objective was to “contribute to put into practice the concept of INRM at the meso [regional] scale in Africa” (AfroMaison 2014). Part of this project was dedicated to the development and implementation of participatory planning processes for INRM at the regional scale. Five study areas were selected for the project: the Oum Zessar watershed in Tunisia, the Inner Niger Delta in Mali, the Fogera woreda (district) in Ethiopia, the Rwenzori region in Uganda and the

Drakensberg in South Africa. Seven criteria were taken into consideration for the selection of those areas: 1) multiple use landscapes; 2) strong competition of uses and degradation of natural resources; 3) high vulnerability to global change; 4) strong local partners; 5) established networks with stakeholders and authorities; 6) existing projects on ecosystem services, economic incentives, spatial, livelihood and vulnerability mapping, scenario-building or participatory planning; and 7) area size between 5,000 km<sup>2</sup> and 50,000 km<sup>2</sup> (AfroMaison 2014).

The participatory planning process, adapted from the AquaStress project (Ferrand et al. 2006), had six phases:

1. *Procedural agreement*: design and validation by facilitators and key stakeholders of the different steps of the process to match with the local context.
2. *Focal issue identification*: discussions among participants on a common long-term objective and elicitation of their perspectives, values and preferences.
3. *Action proposal*: brainstorming among participants on the potential actions likely to address the focal issue. Actions stemming from expert knowledge are suggested for approval by participants. A generic action template is provided to specify and discuss the needed resources and expected impacts.
4. *Selection and integration of actions*: selection and organization of actions in time, space and organizational scales using the CooPlan (COOperative PLANning) matrix. Discussion among participants on the feasibility, coherence and efficiency of the resulting plan based on resource needs and expected impacts.
5. *Test of the plan using a role-playing game*: exploration of the plan using a role-playing game (based on Wat-A-Game toolkit: Abrami et al., 2012; Ferrand et al., 2009) developed concomitantly by facilitators and researchers with multiple inputs from participants. The plan and game are readjusted “on the way”.
6. *Implementation plan*: agreement among the participants on the procedure to operationalize the plan: specification of the steps, resources and commitments needed using an implementation matrix.

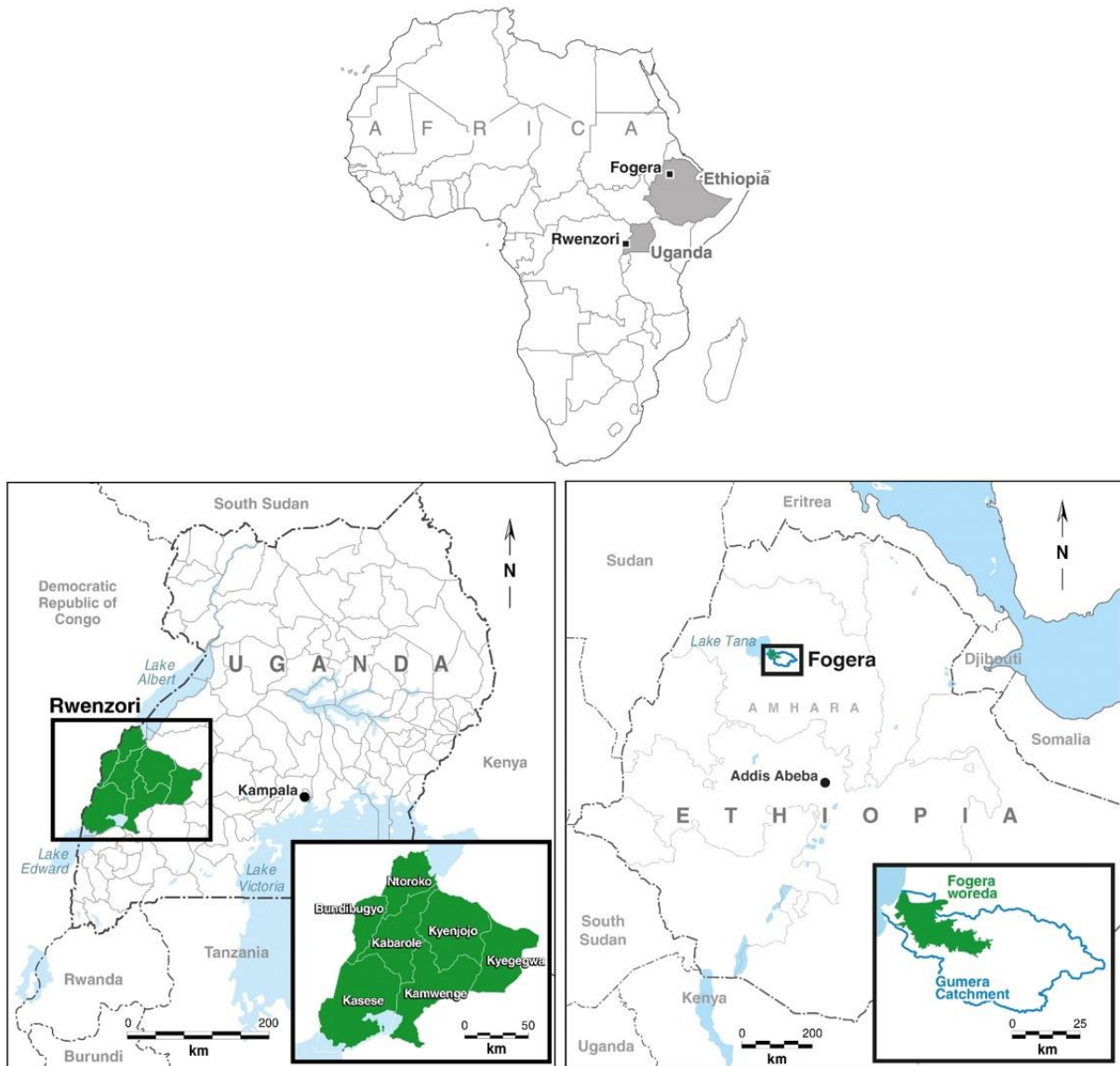
A M&E framework was also developed and implemented to monitor and evaluate the participatory planning process (see chapters 3 and 4). Evaluators included facilitators (local and international researchers) and key participants. A “logbook” (Etienne 2011) was filled in by evaluators on a daily basis recording all interactions, events and other external factors taking place in the area. Each workshop was monitored using attendance lists, participants’ expectations, pictures, videos, participant observation and questionnaires. Interviews were undertaken by evaluators at various stages of the process. Interviewees were facilitators, participants and non-participants. Selection of interviewees was made using purposive and snowball sampling techniques. The data collected with these M&E methods was transcribed and coded by evaluators immediately after collection following both an inductive and a deductive process (Fereday and Muir-Cochrane 2006)<sup>1</sup>.

Two of the five AfroMaison cases were selected for in-depth investigation due to their early uptake of planning processes and the interest of facilitators in such a reflection: the Fogera woreda in Ethiopia and the Rwenzori region in Uganda. Their localization is shown in Figure 1.

---

<sup>1</sup> For a complete description of the participatory planning process and M&E protocol, see Ducrot et al. (2014).

Figure 1. Maps of the two case study areas (Source: Google 2014, adapted by Clive Hilliker)





# 1 The Fogera case, Ethiopia

---

## 1.0 Context

The study area in Ethiopia is the Fogera woreda, in the Amhara region, which is part of the largest Gumera catchment bordering Lake Tana, 625 km north of Addis Ababa. Lake Tana is part of the headwaters of the Blue Nile (see Figure 1). The size of the area is 1,030 km<sup>2</sup><sup>2</sup> with a population of about 230,000 (Migongo-Bake, Catacutan, and Namirembe 2012). The region has temperatures of 16 to 20°C on average and a mono-modal rainfall pattern, with rains occurring from June to September (Migongo-Bake et al., 2012).

The majority of the land is dedicated to crop production with mixed crop-livestock systems. Irrigated crops include a large amount of rice, as well as vegetables, maize and legumes. Rainfed crops comprise millet, teff, barley and wheat (Migongo-Bake et al., 2012). Livelihoods of the local population are highly dependent on natural resources through the sale of crops, other agricultural products, sand, stone, livestock and timber. Poor management practices and intensification of agriculture have led to rapid soil degradation, siltation of the lower plains and deforestation, which have led to increasing food insecurity and poverty. State ownership of the land has led to problems. Amhara is the only region in Ethiopia which has undergone land redistribution (Benin and Pender 2001). When this occurred in 1997, many farmers lost portions of their farmland, which resulted in high tenure insecurity, decreasing incentives for farmers to invest in land improvements and land-related political tensions.

NRM in the area is marked by the strong will of the Ethiopian government to increase food security by intensifying agricultural productivity while reducing soil degradation. This is translated in action by mass awareness-raising and training campaigns at the national scale. Since 2011, the campaigns have attempted to engage all farming communities for 30 days during the dry season to construct physical soil and water conservation structures. The campaigns have unfolded through the four-tier decentralized system (regions/zones/woredas/kebeles or peasant associations) and the development agents (DAs). These agents work closely with the “one-to-five system”, one model farmer family out of every five households working hand-in-hand with the government, and the “gott” or “development teams”, which each gather about 30 households together. Since Fogera woreda is near a town, many NGOs are intervening and organizing workshops in the area, leading to a certain stakeholder “fatigue”.

## 1.1 Facilitators

Facilitators designing, implementing and managing the participatory process in Ethiopia were eleven researchers from international research institutes based in Addis Ababa and in France. The past involvement of facilitators with the stakeholders in the study area, including through an innovation platform and a participatory video, was valuable both in terms of knowledge of the area and good relationships with the participants. Workshops were conducted in Amharic.

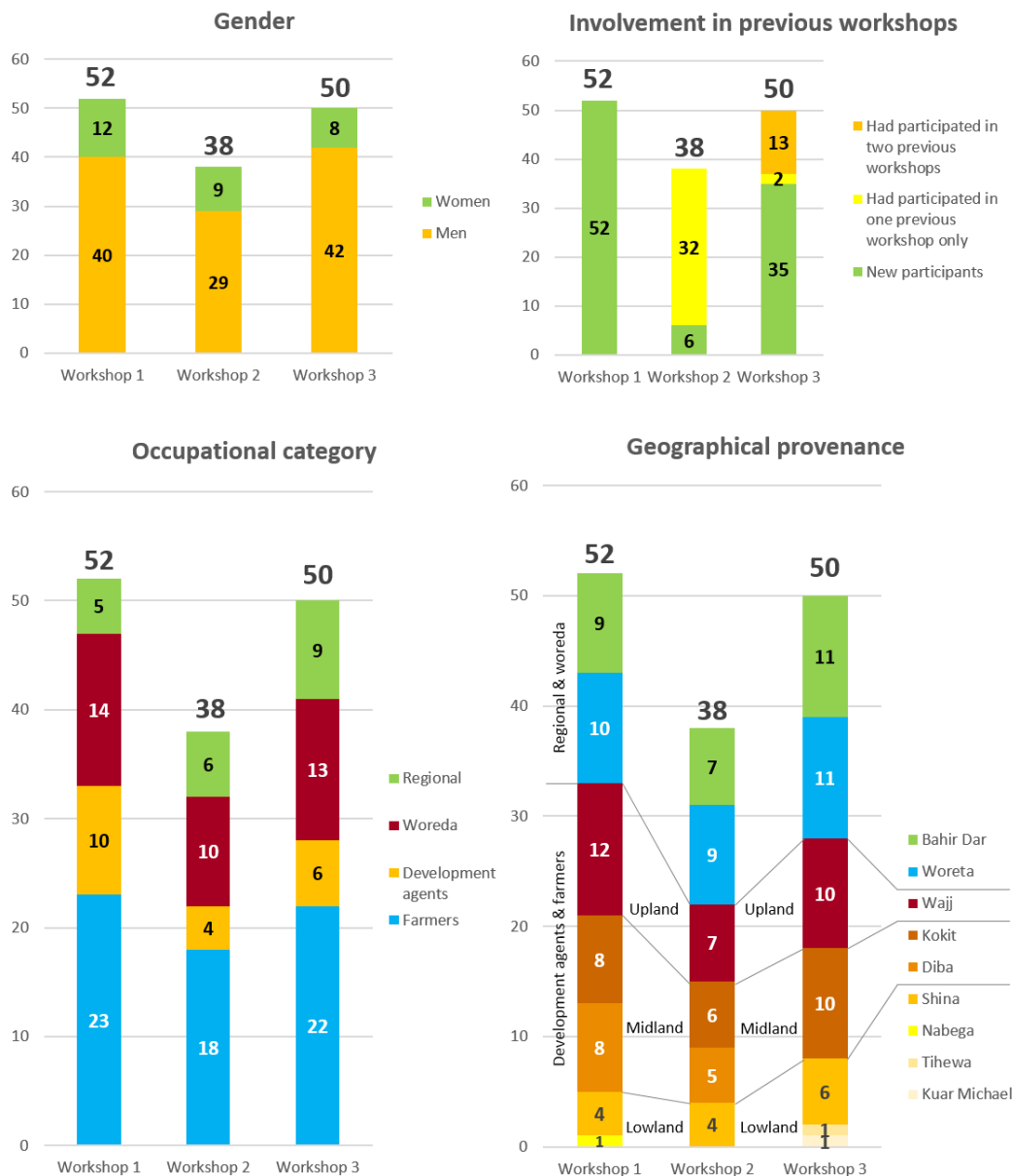
---

<sup>2</sup> The original area selected was the entire headwaters of the Blue Nile (172,254 km<sup>2</sup>) but was then restricted to the Fogera district only.

## 1.2 Participants

There were 38 to 52 participants taking part in each of the three workshops that occurred in the process (see section 7.3.4. for descriptions of these workshops). Figure 2 shows the representativeness of the participants in terms of gender, occupational categories and geographical provenance across the various workshops. Except for regional participants who were invited by facilitators, selection of the participants was made by the Fogera woreda administration and development agents (DAs) based on facilitators' requirements for participant selection.

Figure 1. Participants in the Fogera process<sup>3</sup>



<sup>3</sup> Farmers include religious leaders and kebele chairmen. Regional participants include staff from the regional government, research institutes, universities and NGOs.

### 1.3 Process

The participatory planning process was implemented with participants through a series of three one-to-three days' workshops over ten months, from December 2012 to September 2013. The specificity of the Fogera process was that it was implemented in parallel between two groups: decision makers in one room and farmers in the other. At key moments, participants were brought together to discuss their respective outcomes. The objective of such setting was to bring in power and representation issues and to bridge the gap in respective understandings between the two groups (Daniell et al., 2010a).

Phase 1, procedural agreement, was agreed upon by facilitators prior to the first workshop. This phase also included the development by facilitators of the Fogera regional role-playing game.

The *first workshop*, in December 2012, focused on phases 2 to 4 of the operational framework (see section 7.2). The Fogera game was first used by each group to broaden participants' understanding of their system and foster discussions and brainstorming on issues of concern and existing practices. Focal issues were then identified and prioritized (Phase 2). Decision makers listed six categories of focal issues, among which four "very important" issues including land use problems, free grazing, awareness raising and lack of planning and implementation. Farmers identified three categories of focal issues. The biophysical category was prioritized as "very important" and included five specific issues: soil fertility decline, water availability, unrestricted grazing, deforestation and soil erosion. This was followed by a brainstorming on potential actions to address these focal issues using action templates (Phase 3). The actions were then organized in time, space and organizational scales using the CooPlan matrix and the game board (Phase 4). Participants discussed the feasibility and efficiency of their plan after allocating the resource needs for each action, including money, labour and knowledge, using the game pebbles. The first workshop ended with a presentation of the farmers' plan to decision makers and vice-versa. This led to thought-provoking discussions on the different perspectives of each group on the timing, prioritization and choice of actions as well as on the rationale and constraints behind those. Decision makers especially, who usually perceive themselves as "experts" and farmers as unable to plan, changed their attitude towards farmers when they discovered farmers' plan.

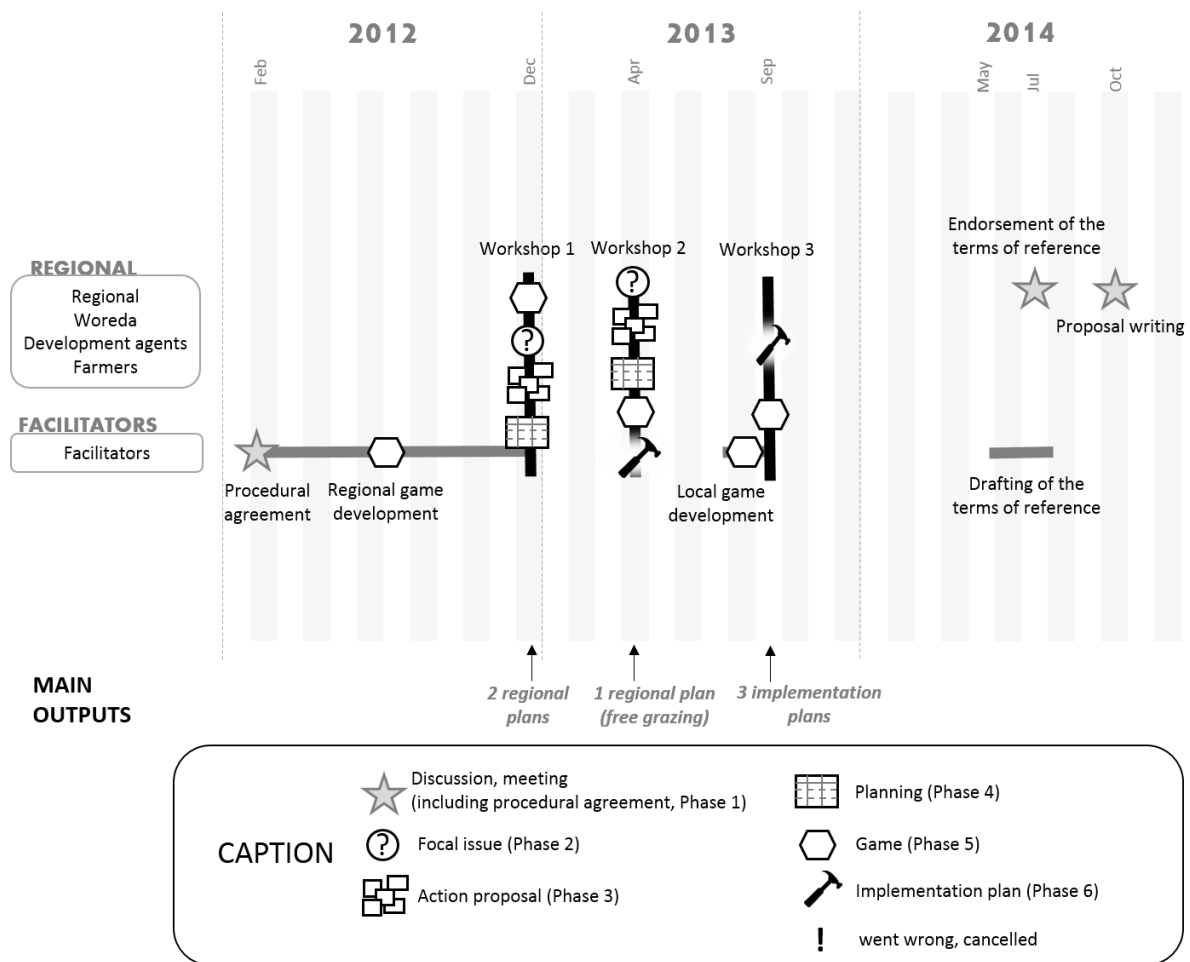
The *second workshop* was dedicated to the refocusing and merging of the two plans into one. This was triggered by facilitators who feared that the plans made during the first workshop would neither be feasible nor effective as they were too broad and not tailored to the landscape. The participants started all together by debating on a refocused priority issue. After a vote with a show of hands, they agreed on free grazing (Phase 2). The next step involved agreeing on a common time frame for the implementation of the plan. Another vote settled the arrangement to a three-year time frame (one year per short/mid/long term starting in September). Decision makers and farmers were then separated again in order to refocus the plan to the newly agreed focal issue while reducing the number of actions to priority ones (Phase 3). The result was two regional plans including only about 18 actions each. The two plans were then merged into one in a plenary using a CooPlan Matrix (Phase 4). The second day of the workshop was dedicated to playing the game to reflect on potential barriers and constraints to implementation (adaptation of Phase 5). The end of the workshop was dedicated to detailing actions included in the plan, potential barriers and solutions (beginning of Phase 6). For this exercise, participants were split into three groups depending on their geographical provenance (upland/midland/lowland). Before closing, these matrices were presented to other groups by each facilitator.

The *third workshop* took place in September 2013. Its primary aim was to discuss in-depth the implementation of the plan and constraints of the respective stakeholders (Phase 6). Discussions around constraints and incentives for farmers were triggered by a story-telling about a farmer opposed to controlled grazing, followed by a local game focusing on three households, and a plenary session with both groups present. Decision makers could then discuss their own constraints and incentives through group discussions (regional/woreda/DAs/farmers) based on a story-telling about a DA. The groups were then able to exchange their respective perspectives through a "world café" session (Brown, 2005). Implementation plans were then developed, based on considerations previously discussed. Actions were

placed in a matrix displaying who would do what, and when. The three implementation matrices for upland, midland and lowland areas were presented the next morning in a plenary session by a representative of each group. The workshop ended by discussing the way forward. A task force was created at three levels, region, zone and woreda, with self-appointed members to overview plan implementation. Regional members agreed to write proposals, with the support of facilitators, to seek funds to implement the plans in three pilot villages. Terms of reference were drafted in early 2014 by facilitators. They were endorsed by the task force on the 3<sup>rd</sup> of July 2014 and a workshop for writing the proposal was planned.

Figure 3 illustrates the Fogera process.

Figure 2. The Fogera process



## 2 The Rwenzori case, Uganda

### 2.1 Context

The study area in Uganda is the Rwenzori mountain range located in western Uganda, at the border with the Democratic Republic of Congo (see Figure 1). The Rwenzori region covers 14,000 km<sup>2</sup> (AfroMaison 2014) over seven districts and has a population of about 2,4 million. The region, which is part of the White Nile basin, hosts several river systems, lakes, wetlands and crater lakes, as well as four national parks. These features constitute major tourist attractions to the region. The tropical climate, bimodal annual rainfall system (NEMA 2004), as well as the past volcanic activity have made soils fertile (Migongo-Bake

and Catactutan 2012). The Rwenzori region is predominantly inhabited by smallholder farmers who engage in subsistence farming. Major crops grown include coffee, cotton, banana, cassava, beans, maize, groundnuts, sweet potatoes and Irish potatoes. Some farmers keep livestock such as poultry, goats and cattle. Some large-scale farmers are engaged in commercial farming, especially tea plantations.

Poor land use practices such as bush burning, fuel wood harvesting and unsustainable timber harvesting have led to deforestation, soil erosion, landslides and floods (Plumptre 2002). Land degradation, amid climate change and high population growth rates, has also led to food shortages and disease outbreaks (Migongo-Bake and Catactutan 2012). This makes the region economically vulnerable given that the majority of the people are below the poverty line (UBOS and ILRI 2007).

Uganda has a fairly comprehensive list of NRM legislation and policies. From 1992, NRM was devolved to the local governments (Onyach-Olaa 2003), shaped by a five-tier structure (district/county/subcounty/parish/village). Environment committees and officers are responsible for community engagement and implementation of NRM laws. However, lack of governmental funds, heavy workloads and corruption impede adequate implementation of this legal framework. Other important issues in the region include tribal conflicts, rebel attacks and problems of land tenure due to the reinstatement of the kingdoms in 1993. Few international donors are still active in the region. Since 2003, regional civil society organizations, later joined by other stakeholders, have gathered under a coalition called the Rwenzori Regional Development Framework (RRDF) (RRDF 2011). For a detailed description of the Rwenzori case context, see section 5.4.

## 2.2 Facilitators

Facilitators in Uganda were six local researchers from Mountains of the Moon community University (MMU) in Fort Portal, supplemented by French researchers of the AfroMaison project. Local facilitators originate from the area and are involved in NRM in the region. Regional workshops were held in English, which is the official language in Uganda. At the end of 2012, facilitators decided to extend the process to the local scale. A partnership was created with the Sustainable Agricultural Trainers Network (SATNET). SATNET works through a network of community process facilitators (CPFs) originating from and based in about 50 communities. Five “rapporteurs” were hired to monitor the process in the communities.

## 2.3 Participants

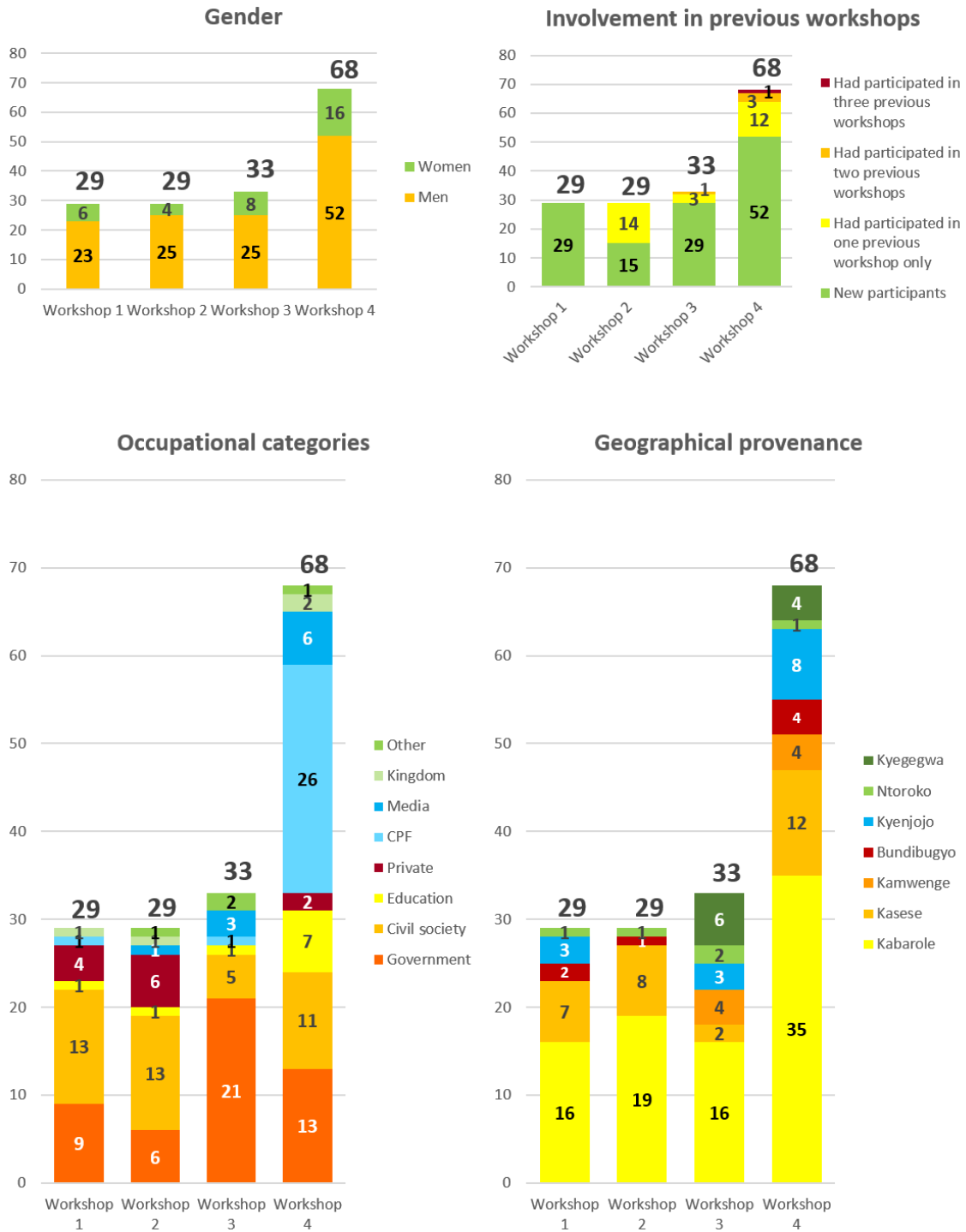
There were 29 to 68 participants<sup>4</sup> involved in the four workshops of the regional process (see section 7.4.4 for a description of the workshops). Figure 4 shows the representativeness of the participants in terms of gender, occupational categories and geographical provenance across the workshops. It also indicates the involvement of the participants in the various workshops. Selection of participants was made by facilitators based on criteria discussed during the procedural agreement.

Concerning the local-scale process, 35 communities were involved with an average of 17 participants per group. Among local participants, 46% were women, 38% were men and 17% were children. The vast majority were farmers and pastoralists. These local groups were scattered throughout the Rwenzori region.

---

<sup>4</sup> *Government* participants include mainly representatives of the subcounty, district and Ministry of Water and Environment. *Private* participants include mainly small-businesses owners. Major tea companies were not represented.

Figure 1. Participants in the Rwenzori process



### 2.4 The regional process

The participatory planning process was implemented with the regional group of participants through a series of four two-to-three days workshops over 16 months, from April 2012 to July 2013. The specificity of the Rwenzori process was that it was implemented at multiple scales. It started with a group from the regional scale, extended later on to the local scale while in parallel trying to engage stakeholders from the national scale. This choice to up and downscale the process resulted partly from the will of Ugandan facilitators to involve local communities and national stakeholders, their enthusiasm towards the process,

and the game in particular, as well as from an opportune partnership with SATNET, as will be discussed in section 7.5.

Similar to Ethiopia, the *first workshop* focused on phases 2, 3 and 4 of the operational framework (see section 7.2). Phase 1 had been agreed upon prior to the workshop. The main difference from the Ethiopian process was that participants were divided into three mixed-groups, and not two groups of farmers/decision makers. Each group started by identifying a focal issue through a scenario-building exercise (Phase 2). Three focal issues were identified: sustainable development through NRM, poverty and sustainable land use management. The participants then decided to merge these three issues into one, “sustainable NRM for socio-economic development”. Unlike in Ethiopia, an additional phase took place during which participants reflected on indicators that could be used to assess successful progress in their focal issue area. Phases 3 and 4 were then developed similarly to the Ethiopian process, although without using game elements as a support.

The *second workshop* was dedicated to feedback on and testing of the three plans previously established (Phase 5). Participants reflected on the three plans as a whole group and in smaller settings. They played two rounds of the Ugandan-specific role-playing game representing their current situation. The objective was to foster reflection on existing social and environmental issues in the region. The next day, participants tested the plans using the game. The workshop ended with a debriefing about the game’s and plans’ improvement as well as a discussion on and commitments towards the follow up of the process (preparation of Phase 6).

The *third workshop*, in January 2013, involved regional decision makers in the process. The chairman, speaker, ministry in charge of production, and environment officer of each of the seven districts of the Rwenzori were invited. Facilitators believed that their attendance in the two previous workshops was insufficient in view of their role in plan implementation. The workshop lasted only one day, during which they were briefed on the previous workshop achievements, played the game and discussed about their future involvement in the process.

## 2.5 The local process and final multi-scale workshop

In January 2013, the process started at the *local scale*. Some 32 CPFs, working with SATNET, were trained on the participatory planning process, game facilitation and M&E from November 2012 to April 2013. Between January and June 2013, each CPF organized one to seven game-playing workshops with community members. These game sessions, followed by long debriefings, were used to foster discussion and suggest innovative actions among local communities to improve their livelihoods and better manage their natural resources. M&E showed that the workshops significantly raised participants’ awareness about their social-environmental systems. In June 2013, one workshop per group was dedicated to the development of a local plan using the knowledge gained with the game.

The *fourth and final workshop* was held in July 2013. Participants included the regional group of stakeholders, 26 CPFs and 13 district leaders. The objective of the workshop was to merge the three regional plans and the 27 local plans (some communities stopped the process or could not draft their plan in time) into one “Rwenzori regional INRM plan” and to discuss its implementation (Phases 5 and 6). Participants were divided into five mixed-groups of 10 to 15 people. The five groups were: upland, midland, lowland, cross-regional scale and one of decision makers who had never played the game. Each group, except the decision makers, prepared a plan for its dedicated spatial scale by selecting actions from existing local and regional plans. This was followed by a discussion within and across groups on the feasibility and efficiency of these four merged plans (Phase 5). Facilitators then compiled and digitized the four plans into one including the four spatial areas: upland, midland, lowland, cross-regional. Next, in small groups, the participants discussed the implementation of the regional plan by filling-in “action implementation templates” specifying the how each action would be implemented, with what resources and by whom. These sheets were then placed in an implementation matrix (Phase 6).

After this, *one last workshop was held in each community* between July and December 2013 to make their own local implementation plan and provide their feedback on the “Rwenzori regional INRM plan”. One local “Mpanga club” was created, with participation on a voluntary basis, and others are planned. These clubs aim to display environmental information, create environmental datasets, provide a forum for people to be involved in NRM, and to link up with the RRDF coalition.

At the regional scale, a “*high-level policy meeting*” was attempted in July 2013 organized by facilitators but convened by Kabarole district. The objective was to increase ownership and commitment of regional decision makers towards the plan implementation. However, partly due to short-notice, attendance to this meeting was low. Participants suggested a follow-up process, yet by that time the AfroMaison project had finished and no commitment was made by the Kabarole district to fund a further meeting.

Discussions were also held between facilitators and the RRDF coalition to discuss the implementation of the plan. RRDF endorsed the plan in May 2014, after the end of AfroMaison project activities. The coalition took over the coordination and monitoring of plan implementation. Members of the RRDF agreed to implement parts of the plan depending on their scope of work, such as agriculture, water or education. Proposals for funding are to be submitted by the overall network.

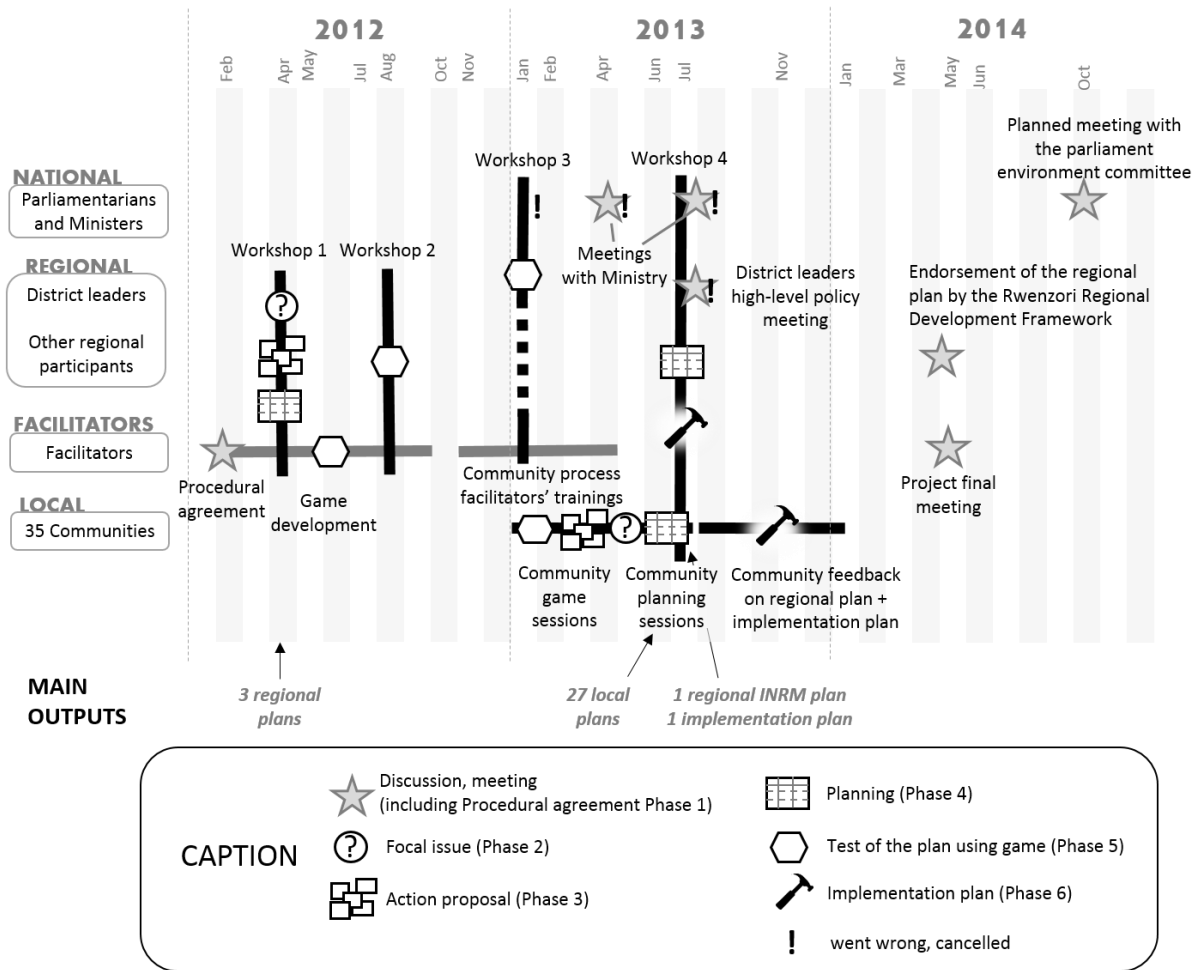
## **2.6 The national-scale involvement**

Two meetings planned with the Minister of Water and Environment in 2013 were cancelled by the Minister. The three members of the national parliament representing the Rwenzori region were invited at both district leaders meeting, in January and July 2013, and one attended. He later joined facilitators at the final AfroMaison event in Brussels in May 2014 and reiterated his commitment to implementing the plan. At that occasion, he committed to convene a meeting with the parliament environment committee.

Figure 5 illustrates the Rwenzori process at the multiple scales.



Figure 2. The Rwenzori process



### 3 Case comparison and discussion

AfroMaison sought to uncover means of operationalizing multi-scale INRM in Africa through integrative and adaptive planning involving relevant stakeholders and starting from the regional scale. The comparison between the Rwenzori case, in which the participatory planning process was extended at multiple scales, and the Fogera case, in which there was no such extension, allows us to reflect on the conditions under which the suggested approach can support the operationalization of multi-scale INRM in Africa.

Table 7.1 summarizes the main differences between the two cases.

Table 3.1. Main differences between the two cases

	FOGERA, ETHIOPIA	RWENZORI, UGANDA
<b>Size and population</b>	1,030 km <sup>2</sup>	14,000 km <sup>2</sup>
	230,000 people	2,4 million people
<b>Participants</b>	Regional: 38 to 52 per workshop	Regional: 29 to 68 per workshop
		Local: 597
		National: 1
<b>Number of workshops</b>	Regional: 3	Regional: 4
		Local: 3 to 9
<b>Facilitators</b>	Researchers from Addis Ababa	Community university from the region
<b>Focal issue</b>	Free grazing	Land degradation, poverty, water pollution, deforestation, population increase
	Soil erosion	
<b>Scale</b>	Regional group split into	<b>Multiple scales:</b> local/regional/national
	<b>two subgroups in parallel:</b> decision makers/farmers	
<b>Role-Playing Games</b>	<b>Regional game</b> used as a basis for planning	<b>Regional game</b> used to test plan and as a basis for planning
	<b>Local game</b> used to discuss constraints	

Figure 6 provides pictures of the six phases of the Fogera and Rwenzori processes.

Figure 1. Pictures of the six phases of the Fogera and Rwenzori processes

### Fogera (Ethiopia)

### Rwenzori (Uganda)



Procedural agreement



Focal issue



Actions identification



Planning



Role-playing game



Implementation plan



### 3.1 Drivers of the uptake of the process from the regional scale to multiple scales

We first discuss the factors that triggered the downscaling and upscaling of the process in Uganda. They allow us to understand what specific aspects of the process prompted the uptake, or attempted uptake, at other scales. From our analyses of the process, these factors are:

- *The will of Ugandan facilitators to involve local communities in the process.* As MMU is a community university, it has the mandate and skills to reach out to the Rwenzori communities. This highlights the importance of the composition of the facilitating team, its role and responsibilities, its capacity to mobilize resources such as people, skills and budget as well as its network.
- MMU's local network provided the opportunity to agree on *a partnership with a well-established network of agricultural organizations (SATNET)*. It allowed rapid downscaling of the process and integration into existing structures, therefore strengthening the chances of a continuation of the activities after the end of AfroMaison project.
- The will of facilitators and of SATNET staff to downscale the process resulted from *enthusiasm generated by the game*. As it was a fun and innovative tool which stakeholders in the region had not encountered, it was attractive to new players in an area where stakeholder fatigue is prevalent. In the Ethiopian case, dissimilarly, the game was quite complex and even though all the 11 participants interviewed after the second workshop considered that the game was a good tool for planning, five mentioned that it was difficult to understand, especially for farmers. This shows that an effective contextualization of tools is essential as it can foster or hinder the up and downscaling of the process (see also Castella, Kam, Quang, Verburg, & Hoanh, 2007).

We suggest that these aspects be emphasized when attempting to extend a regional NRM planning process to multiple scales.

### 3.2 Lessons for downscaling: engaging both the regional and local scales simultaneously?

Taking a closer look at the follow up of the activities after the end of AfroMaison in both cases leads us to wonder whether the regional and local scales should not be engaged simultaneously from the onset rather than using the regional scale as an entry to other scales. In both cases, the need to downscale the process was recognized. The main difference is that in the Rwenzori, the local process began in parallel to the regional work while in Fogera, it will have to follow it. Indeed, in Ethiopia, discussions led to the recognition that pilot communities were needed to serve as a model on how to translate the regional plan at the local scale. In decentralized African countries like Uganda and Ethiopia, local stakeholders such as farmers and other community members are often considered as the main implementers of NRM plans. Since most local stakeholders were not involved in the regional process in Ethiopia, it was agreed by workshop participants that it was up to the model farmers and DAs involved to serve as intermediaries, or "brokers" (Leach et al. 2012), of the regional plan in their communities. However, during the interviews, participants emphasized that local stakeholders not involved in the process would be reluctant to implement the plan unless convinced of its benefits through a pilot demonstration.

The Rwenzori case study demonstrates that engaging the local-process in parallel to the regional process increases ownership, relevance and consistency of the regional plan by all and therefore eases its implementation. The farmers and DAs who will play the role of brokers in local communities in Fogera could well benefit from such a well-established local network and preliminary development of local plans. Engaging early in a local process may also prompt the regional process. In Uganda, even though the local process started after the regional one, local participants started much earlier to implement actions of their plan at their local scale. These actions included picking polythene bags out of rubbish pits, creating a pit for the local abattoir or moving the car washing bay away from the river bank. CPFs proudly presented these actions at the fourth workshop, making some regional participants realize that they had adopted a wait-and-see dogma, partly legitimated by their lack of resources. Some regional participants started in turn to implement actions after that workshop, for example, the opening of a bee-keeping training centre.

Finally, engaging with local stakeholders can trigger greater involvement of regional politicians representing these electorates. This argument was used by Ugandan facilitators to invite decision makers to the workshop in January 2013. The widespread dissemination of the game, supported by media coverage, had reached their attention. In interviews, a number of politicians said that as representatives of the citizens, they had to be aware of such social phenomena.

However, practitioners need to be aware that in engaging several scales in parallel some difficulties can arise. Several have been identified in the Rwenzori case. Firstly, it is resource intensive in terms of budget, time and personnel. Secondly, adoption of tools, such as role-playing games, at various scales simultaneously requires the establishment of a “semi-control”, or standardized process, associated with a minimal monitoring, in order for the tools not to be misused (Botta et al. 2009). Thirdly, managing a great number of participants can be challenging as more marked power and equity issues may surface. Fourthly, there is a risk of losing specific innovations and diversity by generating broad plans. Finally, it may generate temporal mismatches between the different categories of stakeholders, politicians and farmers who, for instance, have different visions of what time frames are important.

Despite these challenges, working at multiple scales simultaneously also has advantages. First of all, it increases local participants’ ownership of the regional plan. Secondly, it fosters the understanding of multi-stake and multi-scale representations. Thirdly, it creates social bridges across scales. Fourthly, it is a useful mechanism for ensuring effective implementation of and links to national NRM policies. Lastly, it generates innovative ideas for action, by fostering exchanges among local participants and with experts.

### **3.3 Lessons for upscaling: engaging national stakeholders to provide process legitimation?**

In Uganda, facilitators put efforts into upscaling the process to the national scale, as detailed in section 7.4.6. Yet, these attempts were largely unsuccessful. In decentralized African countries, national NRM policies are often meant to be implemented by sub-national institutions. Even though national stakeholders may retain certain roles, such as allocating funding, managing specific natural resources (forestry and wildlife in Uganda for instance), or configuring environmental management tasks, implementation is officially in the hands of sub-national institutions (Larson and Soto 2008; Oosterveer and Van Vliet 2010).

We suggest that for INRM operationalization, upscaling processes to the national scale may not be relevant in the initial stages of the process. Instead, one or two key national stakeholders can be involved to help provide national-level legitimation of the regional and local processes. Attempts to upscale the process to the national scale can be very resource intensive: it incurs frequent journeys to the capital which can be long and costly. Instead, a few key national stakeholders can be identified and solicited. These may be members of parliament or ministry staff who have an influential position and feel committed because they originate from the region or are concerned by NRM. Their participation in key workshops may favour attendance by regional decision makers and legitimate the process. In Ethiopia, a similar strategy was applied through innovation platforms developed at three scales, including a national one (CGIAR 2015). It is then likely that gradually, development of the regional and local-scales processes, as well as involvement of a few key national players, could foster wider involvement and change at higher scales (Folke et al. 2005).

## **4 Conclusion**

---

This paper has highlighted that the increasing pressures and complexities present in the African context, and in other regions facing similar NRM challenges, require an adaptive and integrated NRM. One, among other possible ways, to operationalize INRM in these regions is through multi-scale participatory planning processes. However, engaging simultaneously multiple scales and stakeholders in a planning process is not straightforward and requires a step-by-step approach. This paper investigated the potentiality of

using the regional scale as an entry point to other scales. This paper aimed at drawing upon the comparative experience gained through the rigorous M&E of two case studies to make a start at assessing the conditions and challenges for operationalizing multi-scale INRM through regional-scale participatory planning processes.

Three main conclusions were drawn from this comparison. These conclusions contribute to research and practice on participatory processes. Firstly, it was found that three main factors triggered the extension of the Rwenzori process to multiple scales: the will of Ugandan facilitators to involve local communities in the process, a partnership with a well-established network of agricultural organizations and enthusiasm generated by the role-playing game. It was suggested that these aspects could be used as triggering factors when willing to upscale or downscale a process. Secondly, the comparison led us to suggest engaging simultaneously the regional and the local scales from the onset rather than using the regional scale as an entry to the other scales. A third and final key lesson was that for INRM operationalization, upscaling processes to the national scale may not be relevant in the initial stages of the process and that instead, one or two key national players could be involved to support legitimation of the process and to drive change at the national level linked to regional and local NRM insights. One comment must be made on the time, budget and effort required to upscale or downscale participatory processes. In Africa, decision makers face very stark trade-offs in how much is to spend in the context of NRM. The choice to operationalize INRM through upscaling or downscaling participatory processes can be relevant in countries seeking to apply decentralization policies. However, applying the guidelines suggested in this paper require resources which may not always be available or could be allocated elsewhere. We acknowledge that making these trade-offs can be an issue and that following the suggested guidelines may not always be relevant, depending on NRM objectives, agenda and on resources available.

This paper has presented just two case studies of the use of such regional approaches and we see that there is much further research and operationalization that could occur in Africa and further afield based on these insights. One additional challenge highlighted earlier in our paper but not treated due to the limited nature and time frame of our case-study analyses, is the “outscaling” of regional processes. Specifically, how might one regional process in-country lead to the multiplication of such regional processes across a country or countries? The policy experiment and innovation uptake literature suggests that uptake could come top-down from the national level or bottom-up by other regions also wanting to implement such processes on their own. But, in the African context and in other regions facing similar NRM challenges, this requires much further work in order to promote widespread INRM that will underpin communities’ livelihoods, prosperity and sustainability over the long term.

## 5 References

---

- Abrami, G., N. Ferrand, S. Morardet, C. Murgue, A. Popova, H. De Fooij, S. Farolfi, D. Du Toit, and W. Aquae-Gaudi. 2012. "Wat-A-Game, a Toolkit for Building Role-Playing Games about Integrated Water Management." In *iEMSS Sixth Biennial Meeting*, edited by R. Seppelt, A.A. Voinov, S. Lange, and D. Bankamp. Leipzig, Germany. <http://www.iemss.org/society/index.php/iemss-2012-proceedings>.
- AfroMaison. 2014. "AfroMaison Website." [www.afromaison.net](http://www.afromaison.net).
- Allan, C. 2004. "Improving the Outcomes of Adaptive Management at the Regional Scale." Charles Sturt University, Albury, NSW.
- Barreteau, O, P.W. Bots, and K.A. Daniell. 2010. "A Framework for Clarifying 'Participation' in Participatory Research to Prevent Its Rejection for the Wrong Reasons." *Ecology and Society* 15 (2): 1. <http://www.ecologyandsociety.org/vol15/iss2/art1/>.
- Benin, S., and J. Pender. 2001. "Impacts of Land Redistribution on Land Management and Productivity in the Ethiopian Highlands." *Land Degradation & Development* 12 (6): 555–68.
- Botta, A., W. Daré, M. Antona, and G. Leclerc. 2009. "Integration of Multi-Scale Stakes in Governance by Applying Companion Modelling to Land Use Foresight." In *18th World IMACS Congress and MODSIM09 International Congress on Modelling and Simulation*, edited by R.S. Anderssen, R.D. Braddock, and L.T.H. Newham, 4395–4401. Cairns, QLD: Modelling and Simulation Society of Australia and New Zealand and International Association for Mathematics and Computers in Simulation. [www.mssanz.org.au/modsim09/Z1/botta.pdf](http://www.mssanz.org.au/modsim09/Z1/botta.pdf).
- Brown, J. 2005. *The World Cafe': Shaping Our Futures Through Conversations That Matter*. San Francisco, CA: Berrett-Koehler.
- Campbell, B.M., and J. Sayer. 2003. *Integrated Natural Resource Management : Linking Productivity, the Environment and Development*. Wallingford, England: CABI Publishing.
- Cash, D.W., W.N. Adger, F. Berkes, P. Garden, L. Lebel, P. Olsson, L. Pritchard, and O. Young. 2006. "Scale and Cross-Scale Dynamics: Governance and Information in a Multilevel World." *Ecology and Society* 11 (2). Citeseer: 8.
- Castella, J-C., S.P. Kam, D.D. Quang, P.H. Verburg, and C.T. Hoanh. 2007. "Combining Top-down and Bottom-up Modelling Approaches of Land Use /cover Change to Support Public Policies: Application to Sustainable Management of Natural Resources in Northern Vietnam." *Land Use Policy* 24 (3): 531–45.
- CGIAR. 2015. "Nile Basin Development Challenge Wikispace - Innovation Platforms." <http://nilebdc.wikispaces.com/innovationplatforms>.
- Daniell, K.A., M.A. Mániez Costa, N. Ferrand, A.B. Kingsborough, P. Coad, and I.S. Ribarova. 2010. "Aiding Multi-Level Decision-Making Processes for Climate Change Mitigation and Adaptation." *Regional Environmental Change* 11 (2): 243–58. doi:10.1007/s10113-010-0162-0.
- Deyle, R., and C.S. Slotterback. 2009. "Group Learning in Participatory Planning Processes: An Exploratory Quasiexperimental Analysis of Local Mitigation Planning in Florida." *Journal of Planning Education and Research* 29 (1): 23–38.
- Ducrot, R., S. Morardet, E. Hassenforder, G. Abrami, R. Johnston, T. D'Hayer, F. Van Weert, and N. Ferrand. 2014. *A Process Oriented Approach to Craft Operational Strategies for INRM at Meso-Scale - Operational Strategies for Adaptation and Vulnerability Reduction to Global Change D7.1. Draft Version*. Brussels, Belgium.
- Etienne, M. 2011. *Companion Modelling A Participatory Approach to Support Sustainable Development*. Edited by M. Etienne. Versailles, France: Editions Quae.

- Fereday, J., and E. Muir-Cochrane. 2006. "Demonstrating Rigor Using Thematic Analysis: A Hybrid Approach of Inductive and Deductive Coding and Theme Development." *International Journal of Qualitative Methods* 5 (1): 80–92.
- Ferrand, N., S. Farolfi, G. Abrami, and D. Du Toit. 2009. "WAT-A-GAME: Sharing Water and Policies in Your Own Basin." In *Learn to Game, Game to Learn*, ISAGA 40th Annual Conference. Singapore.
- Ferrand, N., M. Hare, and J-E. Rougier. 2006. *Iskar Test Site Option Description Living with Flood and Drought. Methodological Document to the Iskar Test Site, AquaStress IP, FP6, Europe*. Brussels, Belgium.
- Folke, C., T. Hahn, P. Olsson, and J. Norberg. 2005. "Adaptive Governance of Social-Ecological Systems." *Annual Review of Environment and Resources* 30 (1). Annual Reviews: 441–73. doi:10.1146/annurev.energy.30.050504.144511.
- Gibbs, D., and M. Healey. 1997. "Industrial Geography and the Environment." *Applied Geography* 17 (3): 193–201. doi:10.1016/S0143-6228(97)00004-0.
- Glaser, M., and B. Glaeser. 2014. "Towards a Framework for Cross-Scale and Multi-Level Analysis of Coastal and Marine Social-Ecological Systems Dynamics." *Regional Environmental Change* 14 (1): 2039–52.
- Gonsalves, J. 2000. "Going to Scale: Can We Bring More Benefits to More People More Quickly?" In *IIRR Workshop Highlights 10-14 April*. Silang, Philippines: IIRR.
- Hassenforder, E., P. Daniel, and B. Noury. 2012. *New Perspectives for the Management of Water Projects, Models and Applications from Eight Transboundary Projects*. Tourcoing, France: La Guilde des Createurs de Mondes.
- Johnson, R. B., A. J. Onwuegbuzie, and L. A. Turner. 2007. "Toward a Definition of Mixed Methods Research." *Journal of Mixed Methods Research* 1 (2): 112–33. doi:10.1177/1558689806298224.
- Larson, A.M., and F. Soto. 2008. "Decentralization of Natural Resource Governance Regimes." *Annual Review of Environment and Resources* 33 (1): 213–39.
- Leach, M., J. Rockström, P. Raskin, I. Scoones, A. C. Stirling, A. Smith, J. Thompson, E. Millstone, A. Ely, E. Arond, C. Folke, and P. Olsson. 2012. "Transforming Innovation for Sustainability." *Ecology and Society* 17 (2): 11.
- Lovell, C., A. Mandondo, and P. Moriarty. 2002. "The Question of Scale in Integrated Natural Resource Management." *Ecology and Society* 5 (2): 25.
- Midgley, G. 2000. *Systemic Intervention: Philosophy, Methodology, and Practice*. New York, NY: Kluwer Academic / Plenum.
- Migongo-Bake, C., and D. Catacutan. 2012. *AfroMaison WP2 Report Chapter 6 Context Analysis of Rwenzori Mountains / Albertine Rift, Uganda*. Nairobi, Kenya.
- Migongo-Bake, C., D. Catacutan, and S. Namirembe. 2012. *AfroMaison WP2 Report Chapter 5 Assessment of the Headwaters of the Blue Nile in Ethiopia*. 149. Nairobi, Kenya. <http://dx.doi.org/10.5716/WP12160.PDF>.
- NEMA. 2004. *District State of Environment Report: Kabarole District*. Kampala, Uganda.
- Onyach-Olaa, M. 2003. "The Challenges of Implementing Decentralisation: Recent Experiences in Uganda." *Public Administration and Development* 23 (1): 105–13.
- Oosterveer, P., and B. Van Vliet. 2010. "Environmental Systems and Local Actors: Decentralizing Environmental Policy in Uganda." *Environmental Management* 45 (2): 284–95.
- Plumptre, A.J. 2002. *Extent and Status of the Forests in the Ugandan Albertine Rift, Unpublished Report to UNDP/GEF*. Kampala, Uganda.



<http://albertinerift.org/DesktopModules/Bring2mind/DMX/Download.aspx?EntryId=11636&PortalId=49&DownloadMethod=attachment>.

Ridder, D., and C. Pahl-Wostl. 2005. "Participatory Integrated Assessment in Local Level Planning." *Regional Environmental Change* 5 (4): 188–96.

RRDF. 2011. *Rwenzori Regional Development Framework 2012-2016*. Fort Portal, Uganda. <http://www.krcuganda.org/wp-content/uploads/2012/08/Rwenzori-Regional-Framework.pdf>.

Sreedevi, T.K., and S.P. Wani. 2009. "Integrated Farm Management Practices and Upscaling the Impact for Increased Productivity of Rainfed Systems." In *Rainfed Agriculture: Unlocking the Potential*, edited by S.P. Wani, J. Rockström, and T.Y. Oweis, 222–57. Wallingford, England: CABI.

UBOS, and ILRI. 2007. *Nature, Distribution and Evolution of Poverty and Inequality in Uganda 1992-2002*. Nairobi, Kenya. [http://www.ubos.org/onlinefiles/uploads/ubos/pdf\\_documents/ILRI\\_Poverty\\_Report\\_2007.pdf](http://www.ubos.org/onlinefiles/uploads/ubos/pdf_documents/ILRI_Poverty_Report_2007.pdf).

UN Habitat. 2001. *Building Bridges between Citizens and Local Governments to Work More Effectively Together through Participatory Planning Part I - Concepts and Strategies*.