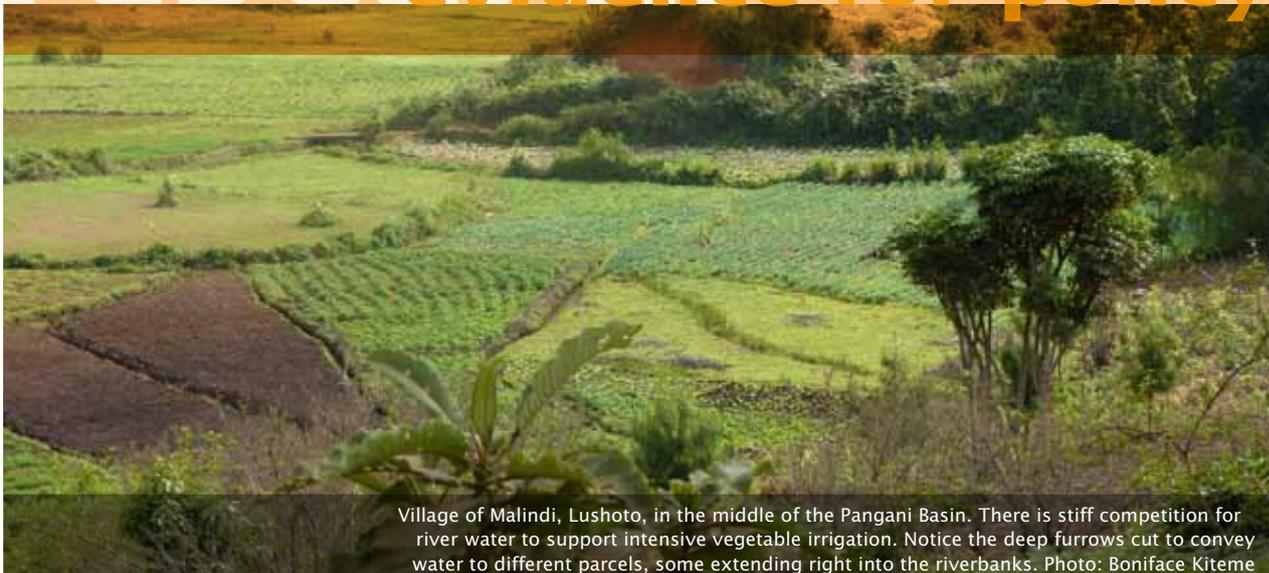


research evidence for policy



Village of Malindi, Lushoto, in the middle of the Pangani Basin. There is stiff competition for river water to support intensive vegetable irrigation. Notice the deep furrows cut to convey water to different parcels, some extending right into the riverbanks. Photo: Boniface Kiteme

Overcoming bottlenecks in water management in the Pangani Basin

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Case studies featured here were conducted in: Tanzania

Policy message

- Multiple stakeholders have competing interests in the use and management of water resources in the Pangani river basin. Representative platforms for dialogue and negotiation are required to reconcile these interests equitably.
- Statutory and customary rules governing water are currently incompatible, and having too many bodies managing water causes complications.
- Effective user participation is vital to reduce the number of water-management bodies and to integrate statutory and customary governance.
- Introducing water user associations could harmonise competing interests and reconcile statutory and customary rules.

- Managing water resources in the Pangani Basin in northern Tanzania in a coordinated, effective, and equitable way is vital both for the livelihood strategies of the communities living in the basin and for Tanzania's economic growth. But the competing interests of multiple stakeholders and disharmony between customary and statutory regulations increase the likelihood of conflicts over water use. Although Tanzania has adopted a river basin management approach, effective participatory forums have not been adequately developed. Water user associations could be promoted as proactive, multi-stakeholder platforms to harmonise customary and statutory regulations and to reconcile interests among different stakeholders at the grassroots level.

Regulating water resources

- Water figures highly in Tanzania's development strategy. The government advocates irrigation to boost agricultural production. It promotes a development programme for the water sector to improve domestic availability. And the country is heavily dependent on hydroelectricity. These and other interests need to be coordinated to improve the management of the country's water resources.

2002 and Water Resources Management Act of 2009 resulted in the formation of a basin water board and office to manage the basin as a whole, along with various types of entities at lower levels. These formal organisations compete with the functions of customary water-management systems. Confusion results: people who follow the customary rules are reluctant to switch to the formal governance system, and those governed by formal rules disregard the customary water regulations.

In addition, coordination is often poor among the various formal water-management entities, particularly at the grassroots level. The use of

- River basin management has been advocated as the best approach for managing water resources worldwide. Tanzania's government has also adopted this approach. In the Pangani Basin, the National Water Policy of

Featured case studies

Institutional framework in the management of water resources

Water resources in the Pangani Basin attract many stakeholders with varying interests and needs. The resources were long governed by customary rules. In the last decade, the river basin management approach has been introduced along with the formalisation of water-management arrangements. Most of the new regulations are incompatible with customary rules – which are more effective. This has resulted in conflicting arrangements in managing the resources, and the need for participatory management through water user associations (Msuya 2010).

Water-related ecosystem services and options for their sustainable use

What are the water-related ecosystem services in the Pangani Basin, and how would maximising one ecosystem service affect the other services? Understanding these questions can help in planning the sustainable use of these services. An appropriate platform is required to coordinate the use of various water-related ecosystem services (Notter 2010).

River water user associations for effective water management in Kenya

In Mount Kenya, river water user associations are important grassroots institutions that can offer home-grown solutions to problems of sustainable water use and management (Kiteme 2006).

- irrigation water is regulated by
- irrigators' associations, cooperative societies, and other types of water user groups, while village water committees and water trustees
- govern the use of domestic water.
- Coordination and integration are also lacking between formal entities that regulate water
- upstream and downstream in the same system. Such difficulties
- form major bottlenecks to effective management of water resources in the basin.

Many stakeholders

- Numerous stakeholders have an interest in the Pangani Basin's water resources.

They include:

- **Domestic users.** These encompass everyone in the basin, including regulators.
- **Industrial users.** These comprise hydropower plants, agro-industries such as sugar refineries, sisal processors, coffee and tea factories, water bottlers, soft drink and beer makers, textile industries, and various forestry industries.
- **Farming.** These encompass smallholders and large-scale water users, water regulators and facilitators such as NGOs, community organisations, and donor agencies.

- **Pastoralists.** These need water for their livestock.

These groups are governed by either customary or statutory institutions (see Figure 1). The interests of these stakeholders compete and are poorly coordinated, resulting in an imbalance of power and predisposing the basin to conflict over water. The statutorily governed stakeholders are more favoured by water laws than those who are subject to customary governance. Although the Water Resources Management Act recognises the role of customary institutions in water management, it is not clearly spelled out how customary arrangements can either coexist or be blended with the statutory arrangements. This means that the statutorily governed stakeholders are more powerful than those who are subject to customary governance.

Water user associations

The National Water Policy and the Water Resources Management Act have provisions for stakeholders to participate in managing water resources through representative forums. Water user associations are such forums: they have potential for coordinating the many grassroots stakeholders and organisations. But the Pangani Basin Water Office has not been effective in using the Act's provisions to form water user associations. Instead, stakeholders have established various entities to fulfil their needs. As a result, the number of local water-related



Effectively functioning water user associations could improve water resource governance and reduce conflicts. Members of Faru Water Furrow, upstream Moshi on the slopes of Mt. Kilimanjaro, monitor their furrow to ensure compliance. Photo: Boniface Kiteme

organisations has mushroomed, further complicating the tasks of managing the resource.

Introducing water user associations would improve the management of water resources in the Pangani Basin. Members of water user associations are all the customary- and statutory-governed water user stakeholders at the grassroots level. The water user associations are formal institutions governed by water laws through the Water Resources Management Act. Strong awareness creation and sensitisation is essential to avoid a win-lose scenario – for example, where one group of upstream stakeholders emerges as winners at the expense of a downstream set of stakeholders. If properly formed, water user associations could act as grassroots platforms for dialoguing and negotiating water-related interests and conflicts. They could harmonise the interests and needs of competing stakeholders, improve the coordination of statutory and customary rules, and enhance the integration of upstream and downstream water management.

However, the formation of water user associations would not be straightforward, given the multiplicity of competing interests and the incompatibility of customary and statutory regimes. Strong training, awareness creation, and advocacy are essential.

Definitions

Ecosystem services

The benefits people obtain from ecosystems, such as the provision of clean water, the decomposition of wastes, and the provision of food.

River basin management

The co-coordinated management of land and water resources within a basin, with the objectives of controlling or conserving the water resources, minimising land degradation, and achieving specified and agreed land and water management and socio-economic objectives.

Water user association

A non-profit organisation initiated and managed by the water users in one or more hydrological subsystems (such as a river catchment area or irrigation scheme). It may include various types of users, including farmers, pastoralists, domestic users, and commercial interests.

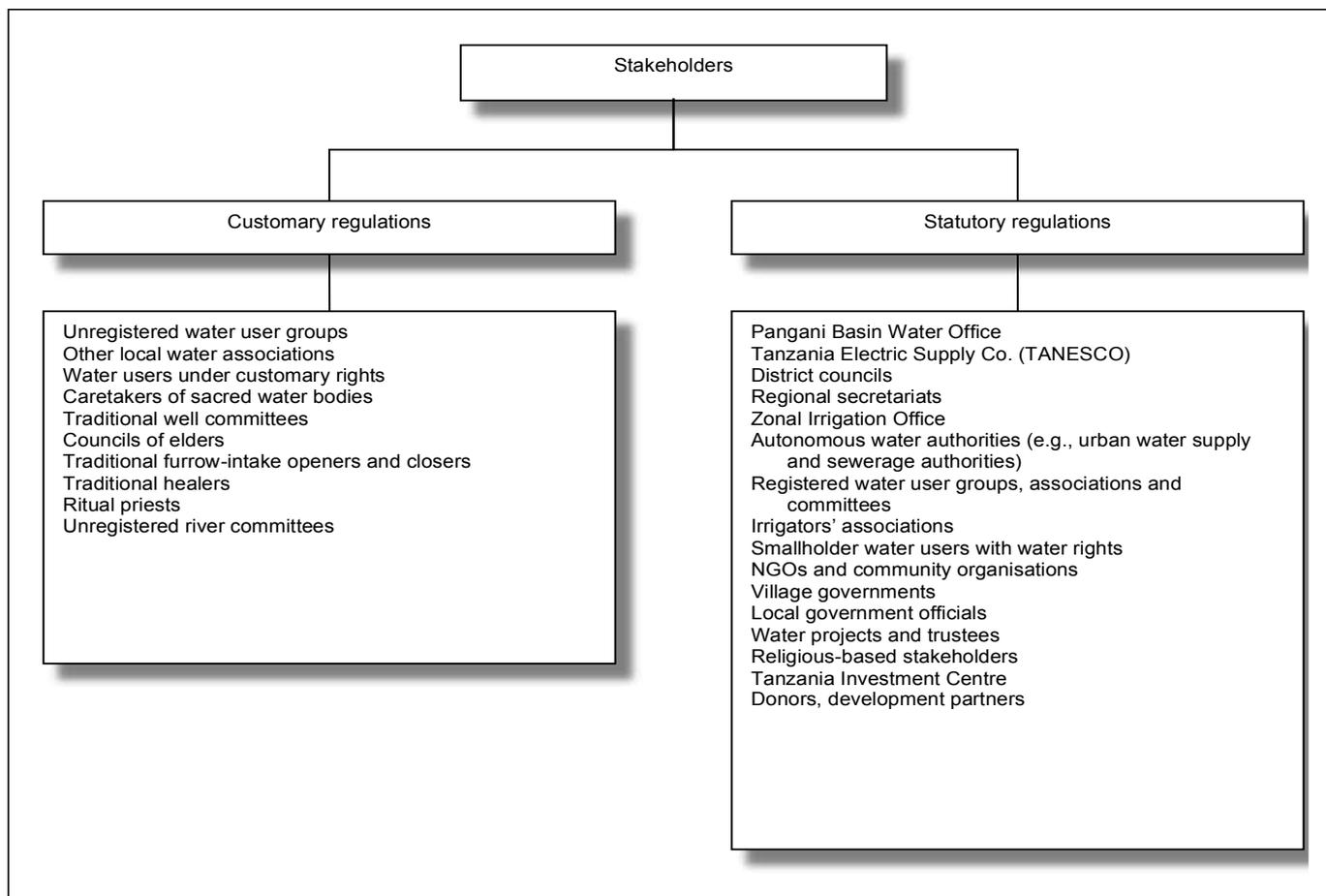


Figure 1. Stakeholders interested in water resources in the Pangani basin are subject to both customary and statutory arrangements.



Tuli Msuya, PhD

Senior Researcher, Tanzania Forestry Research Institute (TAFORI), and Head of TAFORI Kibaha Lowland Afforestation Research Centre
 tulikibi@gmail.com



Boniface Kiteme, PhD

Regional Coordinator East Africa NCCR North-South
 Director CETRAD, Kenya
 b.kiteme@africaonline.co.ke

Policy implications of NCCR North-South research

Statutory and customary management arrangements are frequently at odds with one another, but both are important to different sets of users. So ways need to be found for them to coexist and to enable coordination and integration.

Creating water user associations at the grassroots level offers a way to do this. The Water Resources Management Act provides for the formation and registration of water user associations through basin water boards. The Pangani Basin Water Office should stimulate and facilitate the process of forming and registering such associations. Other stakeholders with interests in using and managing water resources (NGOs, civil-society organisations, district councils, etc.) could also collaborate in the process of forming water user associations through awareness creation, training, sensitisation, and advocacy. The associations should be formed by all water users and their customary and statutory organisations in upstream-downstream arrangements.

Such associations would offer a platform for all local stakeholders to discuss competing needs, negotiate solutions, reconcile customary and statutory regulations, and improve the management of water resources. Introducing such associations in the Pangani Basin promises to benefit all, including those stakeholders who are governed by customary arrangements.

Further reading

Msuya TS. 2010. *Developing integrated institutional framework for sustainable watershed management in Pangani River Basin, Tanzania* [PhD thesis]. Morogoro, Tanzania: Sokoine University of Agriculture.

Kiteme BP. 2006. *Multidimensional approaches to more sustainable natural resources management in highly dynamic contexts in East Africa* [PhD thesis]. Bern, Switzerland: University of Bern.

Notter B. 2010. *Water-related ecosystem services and options for their sustainable use in Pangani Basin, East Africa* [PhD thesis]. Bern, Switzerland: University of Bern.

The National Centre of Competence in Research (NCCR) North-South is a worldwide research network including six partner institutions in Switzerland and some 140 universities, research institutions, and development organisations in Africa, Asia, Latin America, and Europe. Approximately 350 researchers worldwide contribute to the activities of the NCCR North-South.

Regional Coordination Office

Boniface Kiteme, PhD
 CETRAD
 P.O. Box 144-10400
 Nanyuki, Kenya
 b.kiteme@africaonline.co.ke

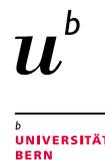
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