

Innovation Platforms for Agricultural Development

Evaluating the mature innovation
platforms landscape

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7 Innovation platforms for improved natural resource management and sustainable intensification in the Ethiopian Highlands

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System trade-offs call for IPs

The Ethiopian Highlands are a land degradation hotspot. The burgeoning human population has led to expansion of arable land to meet growing food demands. Much of this expansion is on steep and marginal land covered with fragile soils. The result has been extensive soil loss, sedimentation of water-courses and general land degradation that has affected production and the productivity of smallholder farmers. Addressing this problem requires both upstream and downstream land users, together with other kinds of people interested in the issues to work together and introduce interventions such as soil and water conservation structures. However, for farmers to invest in such structures, they need to provide financial benefits. Therefore, improved crop and livestock productivity, and marketing, need to feature. This led to the setting up of IPs to stimulate ongoing discussions among different kinds of people interested in the issues around natural resource management.

Three IPs¹ were set up under the Nile Basin Development Challenge (NBDC) to focus on implementing improved rainwater management practices to enhance the natural resource base for existing farming systems. These platforms focused on system integration in contrast to most other platforms that focus on a single commodity. They have proved to be effective in eliciting the kind of collective action at community and cross-sectoral level that is needed to positively stimulate sustainable intensification.

Initiation of the three platforms

Farming systems in the Ethiopian Highlands are characterized by mixed crop–livestock farming with complex problems that smallholder farmers and local development partners face. A large proportion of production is subsistence-



Figure 7.1 Jeldu District facing serious soil erosion

Photos: ILRI/Z. Lema

oriented which leaves farmers with limited capital to invest in interventions aimed at long-term improvements in productivity, such as soil and water conservation structures. One route to reversing land degradation is to intensify existing production of staple food crops, cash crops, livestock and trees. This will reduce the need to expand into land that is unsuitable for cultivation and at the same time generate the capital and financial incentives for farmers to invest in the land. Such intensification requires an integrated approach that takes into account the synergies and trade-offs between different farm enterprises. IPs provided the forum to discuss and experiment with intensification of multiple commodities and the approach has shown some early promise.

Evidence generated by Ludi *et al.* (2013) in the same districts stressed the need for multi-stakeholder processes to deal with rainwater management issues. The research showed that local stakeholders were expected to deliver on top-down targets and that difficulties were experienced in engaging farmers in planning and implementation. Farmers are more concerned about short-term incentives that increase the availability of food for their families and livestock feed in order to invest in land. That is why the current government of Ethiopia has struggled to build the required level of involvement from farmers. Farmers are facing constraints to feed their hungry livestock and most of them use free grazing which jeopardizes the sustainability of the local government initiatives on soil and water conservation structures. One of the approaches to implement integrated natural resource management (NRM) is through setting up IPs to provide space for relevant actors to jointly identify constraints and solutions to NRM issues at the local level (Nederlof and Pyburn, 2012).

ILRI Researchers working under the NBDC supported the establishment of three local IPs at the district (woreda²) level early in 2011. Platforms were established in three woredas, namely Jeldu, Fogera and Diga. After three years, two out of three platforms were adopted by the Humidtropics programme in 2014. The platforms have gone through a series of processes and stages that address the key constraints that farmers in the Ethiopian highlands face.



Figure 7.2 Diga woreda IP members

Photo: IWMI/D. Tadesse

Function of the platforms

At the initial stage, local stakeholders were identified as platform members based on their direct or indirect role in planning and implementation of NRM activities in each woreda. The majority of members are from the local government offices at woreda level and others include non-governmental organizations (NGOs), research centres, farmers and community leaders. Each platform has up to 30 members who have agreed to meet three to four times a year at the woreda headquarters to co-learn and coordinate joint activities.

In 2011, the platforms passed through a series of engagement activities to accommodate the various interests of its members. These activities included, but were not limited to: community engagement exercises and regular platform meetings organized to exchange knowledge to help members of the platform make informed decisions. After constructive dialogues among platform members, consensus was reached in identifying three key site-specific natural resource management issues:

- soil erosion for Jeldu;
- land degradation for Diga;
- free grazing for Fogera woreda.

These issues were highlighted by members as the key constraints to NRM that they wanted to address jointly as a priority. The members narrowed down on a specific intervention: improved and multipurpose livestock feed, which could be rolled out and tested in farmer's fields across all three locations. This intervention of improving livestock feed had great potential not only to address the problem of feed shortage, but also to boost soil and water conservation, thereby leading to more efficient natural resource management overall.

During the planning meeting, each platform developed its own working modalities to support the implementation of the interventions on livestock feed. They agreed to evaluate their interventions each year through actively participating in their regular meetings and visits to sites during farmer field days. For technical backstopping they selected members to form a technical group (TG) that represented key stakeholders to facilitate the meetings, implement the interventions and organize field days and exchange visits. Out of the 30 members, eight were selected based on the criteria that members had set, i.e. required multi-disciplinarity in the group and representativeness of organizations that have potential to implement the pilot interventions at scale. The TG members are similar across the three platforms and include technical staff from key organizations that have the potential to run the implementation. The members also agreed to follow up the progress of implementation through presentations of activities by TG members during their regular meetings. ILRI supported these TG members in each platform through backstopping and building of local capacity on forage interventions, and as much as possible devolved the leadership role to them.

Innovation fund to support fodder development

In 2012 and 2013 an innovation fund was established by ILRI as ‘seed’ money to support each platform’s action on fodder development. The seed money was provided on the basis of proposals developed jointly by members, to enable piloting of their new approaches with participating farmers. The criteria for providing the seed money were that proposals had to be cross-sectoral, participatory, targeted at addressing local community concerns and scalable. The seed money was planned and used only to buy inputs, transport them to farmers’ fields and support the trainings for farmers three times a year. The practical trainings were provided to participating farmers on their field during planting, management and utilization. Attention was given to developing farmers’ capacity to harvest seed and seedlings and to expand plantation of the new fodder varieties with model farmers.

Farmers’ interest in participating in improved livestock feed development arose because of its potential to address their pressing need of feed to feed their hungry livestock. Community engagement in problem identification, planning and implementation up to demonstration were central to the fodder intervention. Field-level trainings for farmers helped them to be able to plant, manage and utilize the feed resources efficiently. The trained farmers have the technical skills to collect seeds and seedlings before harvesting *Rhodes* grass and transplanting *Desho* grass seedlings and the practice is expanding to other farmers.

The role of different actors in scaling up

There is interest at district level to take innovations that work for farmers to scale. The key potential organizations to aid this are represented in each platform and engaged in the process of innovation generation, testing implementation and monitoring so that they prove what works well among farmers. The evidence makes it easier for projects and government experts to expand the interventions at scale. Government projects and NGOs working on soil and water conservation have the financial capacity but lack inputs and technical capacity to fill some of their gaps including forage seed shortages. Involvement of district administrators in the regular learning meetings and farmers’ field days (to see the feed interventions first hand) was found to be a good approach as it enabled them to realize that shortage of forage seed can be resolved if they worked closely with the participating farmers. Recently, local government and NGO projects have started working closely with the model farmers who served as community seed producers for livestock feed in order to maximize impact. During the field visits, local government and NGOs were impressed by the achievements and organized another farmers’ field that brought together a large number of farmers to learn from the farmers participating in the platforms.

Platform members realized the importance of working together both at cross-sectoral and farmers’ level. Local universities and NGOs also created a good

network mainly around integrating their activities and resources. For instance Wollega University technically supported the platform interventions and also provided seed for Rhodes grass from its livestock feed demonstration research site. NGOs started supporting and working with local government staff by providing transport for inputs. More importantly, farmer-to-farmer linkages were created to disseminate the introduced livestock forage seeds and seedlings through selling and buying, with advice on how to plant and manage the seeds.

The work of the IPs in Diga and Jeldu on integrating the natural resource activities with livestock feed also attracted other CGIAR centres working on the Humidtropics programme (one of the CGIAR Research Programs) in Ethiopia. The International Water Management Institute (IWMI), the International Potato Center (CIP) and the World Agroforestry Center (ICRAF), joined the IPs to continue supporting the platform members to address the main crop production and market problems, develop the livestock feed market and to continue working on natural resource management.

Outcomes and impact of the intervention

The total number of model farmers who directly participated in the IP interventions during the NBDC project period in the three sites was 259. The model farmers were able to showcase the ability to feed their livestock during dry spells while maintaining their soils and natural resources.

After NBDC was phased out the Humidtropics programme continued working in the Jeldu and Diga sites with the IPs and started building on feed interventions and addressing other problems that farmers were facing. The work focused more heavily on increasing production and productivity of the main crops (maize, teff, barley and wheat) through improved management practices and improved seeds, integrated with livestock feed and natural resource conservation initiatives. An improved variety of sweet potato was also introduced in Diga. CGIAR centres including IWMI, CIP and ILRI have been working on the integrated approach in 2014 with 135 farmers.

Three years after implementation of the NBDC project, a qualitative study was undertaken by ILRI between March and June 2014 to assess the impact of the IPs. The study captured perceptions of changes that key categories of actors had made over the project period using indicators of change in knowledge, attitudes, skills and practices (KASP) with regard to soil and water management. The indicators were developed by NBDC partners as part of a project 'outcome logic model' (OLM) (Figure 7.3).

Farmers adopt forages and increase their skill set leading to livelihood and environmental benefits

As a result of the IPs, all 20 male and female farmers interviewed have gained knowledge and skills in the use of multipurpose soil and water conservation

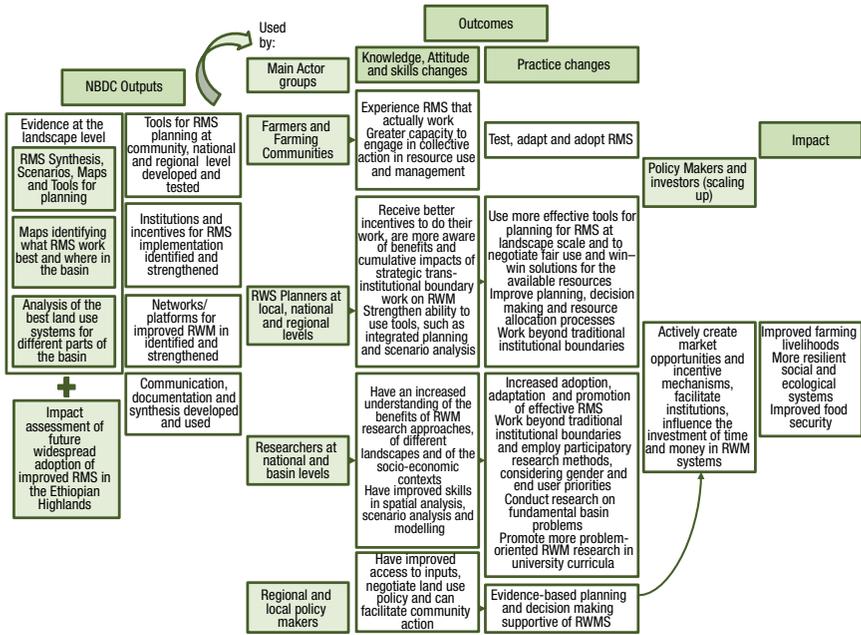


Figure 7.3 The NBDC programme outcome logic model

Source: Authors' research

(SWC) practices. These farmers have also applied the new practices introduced by the project, i.e. fodder development (using Sesbania, Chomo grass, Rhodes grass, Elephant grass and Desho grass), area closure, tree-planting and planting legumes (such as peas) to prevent soil erosion but also to provide feed for livestock (Figure 7.4). Although both male and female farmers apply similar SWC strategies, there are gendered preferences. Women mentioned planting grasses and legumes more frequently while men mentioned tree planting, terraces and bund construction more often. This could be attributed to the intensity of labour required for different practices and also the gendered farm practices where women are more associated with planting legumes such as peas and feeding animals kept at home while men are associated with the heavier tasks such as constructing dams and soil bunds.

Eleven male and seven female farmers across the three sites cited growing animal fodder and legumes, area closure and terrace construction as the most successful methods. Seventeen farmers (14 men and three women) identified forage development as the method that worked most effectively. They validated this by the benefits they have obtained in cash and in kind such as increased availability of alternative animal feed sources particularly during dry spells, increased crop productivity, regeneration of vegetation on previously degraded land, mitigation of termite damage, reduction in soil erosion and increase in milk yield and quality.



Figure 7.4 Farmers harvesting Desho grass and feeding their hungry animals
Photos: Tsehay Regassa (ILRI) (top), Zelalem Lema (ILRI) (bottom)

The five researchers, 24 planners and five policy makers interviewed also mentioned measurable benefits to farmers that have accrued from the adoption of the NRM practicable benefits to farmers that have accrued from the adoption of the NRM practices such as reduction in soil erosion, less termite infestation and increased income from the sale of fodder. One unanticipated outcome was that farmers were able to sell seeds and thus gain income from the feed intervention. One kilogram of Rhodes grass seed goes for 150 Ethiopian Birr (ETB) (approx. 7 USD). In Fogera, for example, 9 tons of fodder were harvested from communal grazing land management (closed area), enabling 11 cattle to be fattened for market. In Diga more than 60 kg of Rhodes grass seeds were sold to government and NGO projects for scaling up. One male farmer named Leta in Diga planted Rhodes grass on one hectare of his private land for his fattening business. He bought four oxen for 4,000 ETB (approx.



Figure 7.5 Farmers in Jeldu harvest and feed Desho grasses planted on soil bunds
Photo: Desalegn Tadese (IWMI)

USD200) each and fed them Rhodes grass using the cut and carry system together with other complementary feeds for four months and sold each for 8,000 ETB (approx. USD400) (see Figure 7.5).

The farmers attributed the success of the practices to prior training by the NBDC/ILRI staff and other implementing partners, access to inputs, increased collaboration among stakeholders and cooperation at community and household level. A 40-year-old female farmer in Diga noted:

Awareness has been created through the IP, follow-up and technical support by experts; farmers felt the need of forage development (which has multiple benefits for rehabilitating degraded land and managing termites) to supply livestock feed, and the potential source of income this brings adds to the reasons behind its success. Access to planting materials, fertilizer, technical backstopping, and farmers' commitment are also other major contributing factors.

In Diga most of the respondents have adopted fodder development, compost manure application and multipurpose tree species, while in Fogera terrace construction, area closure, fodder development and legumes are the methods most frequently adopted by farmers. Farmers in Jeldu have adopted all the SWC strategies that have complemented the government interventions. From the introduced fodder varieties, Desho grass (in Jeldu) and Rhodes and Chomo grass (in Diga) were chosen and taken up by a number of farmers while in Fogera



Figure 7.6 Farmers are demonstrating the different grasses during farmers' field day
Photos: IWMI/D. Tadesse (top) and ILRI/Z. Lema (bottom)

grazing land management has shown significant improvement to harvesting good biomass of natural grasses combined with legume fodder varieties. The number of farmers participating in fodder development has risen. In Jeldu for instance 96 farmers participated in the project intervention in 2012. This number rose to 141 in 2013.

Due to the knowledge and skills acquired, all the male and female farmers interviewed have made changes to the way they farm and have improved their farming practices from what they did three to five years back (Figure 7.6). This was at individual farm level as well as at the community level. For instance a

female farmer in Diga explained that she has improved her skills in how to cultivate and manage improved forage over the last two years, and that her farm management skills have improved over the last year. She has learned how to make compost manure to use instead of fertilizer, which is too expensive. A 48-year-old man in Fogera previously used fertilizer under obligation but now he is happy to use fertilizer and other chemicals.

Increased collaboration among stakeholders

Farmers in all the sites felt that participation in the NBDC programme has increased their level of cooperation which has led to more effective management of soil and water in their areas. The project has developed farmers' capacity to carry out SWC activities better: two female and one male farmer in Fogera recounted that:

Some three years back we were working separately on our private fields and directed erosion downstream, which was the cause of land degradation; but starting from 2012 we planned and implemented soil and water management practices with full participation of the community. The change has come because of the information given ahead of implementation.

Increased cooperation between husband and wife was also noted due to a change in constraining norms, negative attitudes and perceptions about women and their involvement in NRM. Indeed, farmers attributed the change in attitude and practices to the project, stating:

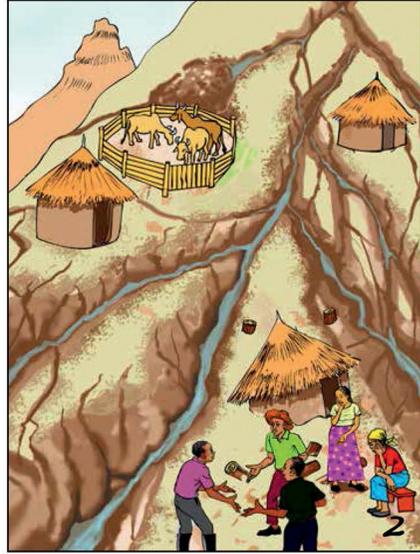
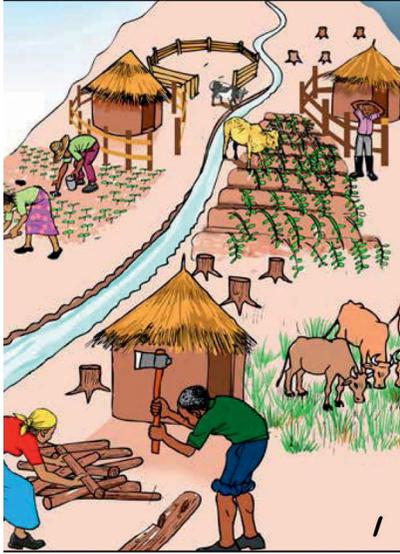
Thanks to awareness creation by ILRI, women's involvement in NRM – particularly planting grasses – has increased. This is due to the awareness creation for both women and men by the government and ILRI that urged the necessity of collective work on NRM. As a result women and men's collaboration on soil and water management practices has increased.

(Jeldu farmer, male)

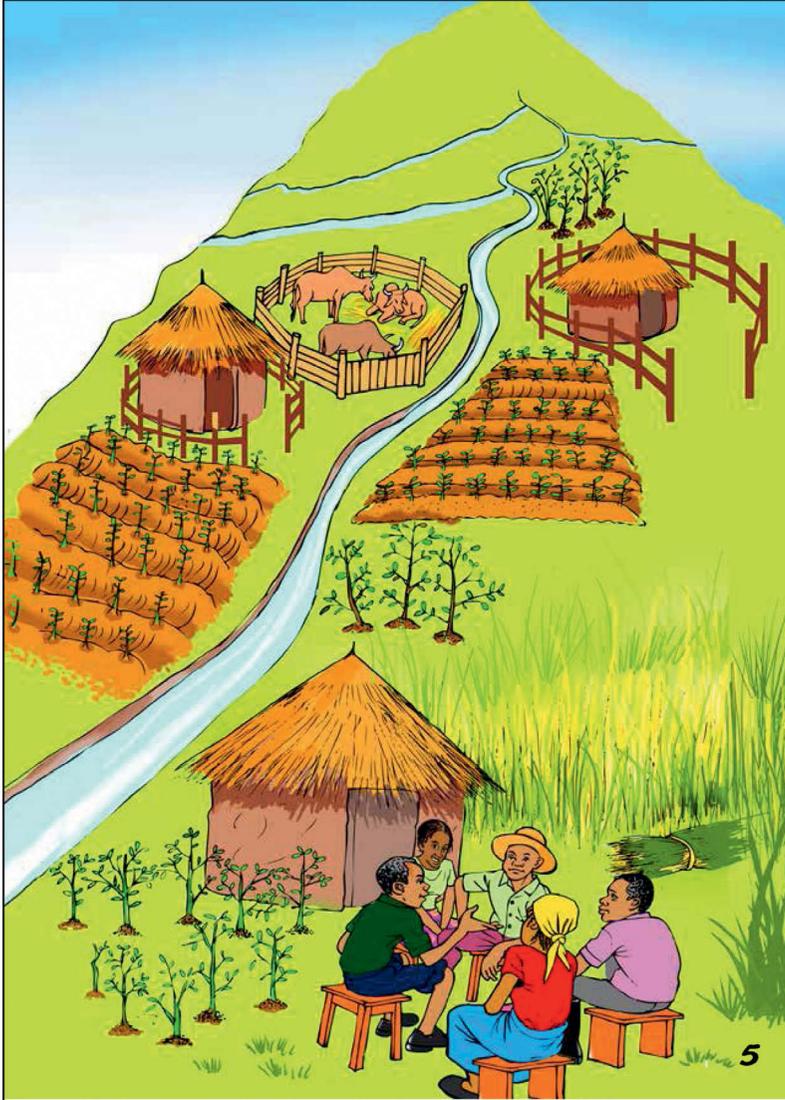
Increase in collaboration was felt not only by farmers but also by planners, researchers and policy makers who now collaborate more strongly with other stakeholders than they did before the NBDC. Back then, institutions worked independently; where institutions did have partners, their level of engagement increased after being involved in the project. One policy maker recalled: 'Before, all institutions were working independently but now even government insists that we work with different institutions. It's a government policy even within Oromia region. This policy encourages working with farmers.'

As a result of exposure to integrated participatory planning tools, planners and researchers changed their approach of engaging with other stakeholders to

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include not only experts but development agents as well as farmers. The actual problem-solving approach is based on listening to the voices of the voiceless, the local people using participatory and integrated planning tools. Soil and water management was based on community members identifying their problems and seeing themselves as part of the solution. Although integrated planning tools were used in the NBDC programme, their practical use and integration within the ongoing government NRM interventions was hindered by budgetary constraints and the stringent top-down government planning procedure.

Lessons learned

The key challenges faced during the implementation of improved fodder through IPs were time, incentives and not being able to realize outcomes in a short period of time. One of the time-consuming activities was prioritizing site-specific constraints which took one year because of differing interests among IP members. The platform was represented by the majority of public government line ministries that have their own targets to achieve and dominate/override the community's interest. It required strong facilitation skills to mediate and that is why ILRI's research team undertook community engagement exercises to get community members' interests in front of the platform for consideration. The other challenges were high staff turnover and lack of consistent participation of IP members (a problem for building the local research capacity to innovate). Since all the stakeholders have other assignments, bringing them together and getting them to commit their time to IP activities on a voluntary basis is a big challenge.

Conclusion

The case of NBDC IPs nested into the Humidtropics programme highlights several important lessons. Setting up IPs significantly raised the knowledge of farmers involved in soil and water conservation practices, and farmers applied this knowledge effectively in their own practice. IPs also raised a collective sense of belonging, collaboration and collective action, across all the stakeholder groups involved (including farmers, planners, researchers and policy makers). Furthermore, the multi-stakeholder, multi-meeting, multi-year nature of IPs seems to have highlighted a much richer set of interlinked issues (e.g. soil erosion, climate change adaptation, termite degradation etc.) than the original focus (e.g. improving soil erosion and land degradation through feeds and forages). This helped all actors involved focus on the bigger picture and deal with it more systemically, while creating opportunities for further initiatives and interactions to deal with new issues coming up.

Another crucial lesson emerged for IPs that focus on natural resource management, where gains are typically obtained in the longer term. For such platforms, early economic wins (e.g. cattle fattening leading to more money)

seem to be essential incentives, and arguably the main reason why farmers were happy to invest in better NRM – however, other incentives (recognition, capacity development) could also be important incentives in the medium to longer run. Despite these positive lessons, we must remember that aligning visions and agendas to identify the most crucial challenges collectively took a year. This raises questions about the ease of replicating IPs as a development approach.

Moving ahead

This case study sets out some important elements for consideration by other IPs dealing with NRM. The next frontier for this set of IPs, and with general research on IPs, relates to sustainability and scaling up. There are a few key questions to ponder in this regard. First, in the lifetime of a project using IPs, how can one foster collective capacity to innovate with limited inputs, time span and high turnover of personnel? What supplementary measures, aside from the specific work done at the platform meetings, can really enhance that capacity to innovate? Second, in a government-dominated state with top-down decision-making processes, what are the best options to institutionalize the participation, co-creation and innovation dynamics that IPs tend to bring about? And lastly, if state agencies are taken by the idea of bottom-up decision making, how can we ensure that IPs are not used for ‘token participation’, as is too often the case? We are hopeful that the small scale but successful NBDC platforms that are now addressing the Humidtropics challenge will unravel some of these puzzles soon.

Acknowledgements

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Notes

- 1 <http://nilebdc.org/2011/06/30/local-innovation-platforms-for-the-nile-bdc/> – accessed 8 January 2015.
- 2 Woreda is the third level of administrative divisions in Ethiopia and it is the basic decentralized administrative unit managed by local governments.

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