

# The IFAD adaptive approach to participatory mapping

Design and delivery of participatory mapping projects



Enabling poor rural people to overcome poverty

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**Cover:**

The mayor of Bourem showing a sketch map used for community planning, Mali

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# Acronyms

CTA	Technical Centre for Agricultural and Rural Cooperation ACP-EU
FPIC	free, prior and informed consent
GIS	geographic information system
GPS	global positioning system
ILC	International Land Coalition
NRM	natural resource management
PLA	participatory learning and action
PMU	project management unit
PRA	participatory rural appraisal
RRA	rapid rural appraisal

# Foreword

The International Fund for Agricultural Development (IFAD) is an international financial institution and a specialized United Nations agency dedicated to eradicating poverty and hunger in the rural areas of developing countries. Working with poor rural people, governments, donors, NGOs and many other partners, IFAD focuses on country-specific solutions to empower poor rural women and men to achieve higher incomes and improved food security. One challenge IFAD continues to face in agricultural and rural development work is identifying effective ways to involve poor communities, particularly the poorest and most vulnerable, in planning, managing and making decisions about their natural resources.

This is especially important in dealing with pastoralists, indigenous peoples and forest dwellers, who find themselves and their livelihoods disproportionately threatened by climate change, environmental degradation and conflict related to access to land and natural resources. Because a key asset for these groups is their knowledge of the local environment, an approach is needed to ensure that this collective wisdom will inform their capacity to plan and manage their natural resources.

To address these concerns, since October 2006 IFAD has implemented the project Development of Decision Tools for Participatory Mapping in Specific Livelihoods Systems (Pastoralists, Indigenous Peoples, Forest Dwellers), in collaboration with the International Land Coalition (ILC). While participatory mapping is not new to IFAD, within the institution knowledge is limited as to how these processes can contribute to addressing conflict-related issues and improving community ownership in sustainable natural resource management for enhanced rural poverty reduction. Thus an overall framework for the implementation of participatory mapping processes within IFAD-supported projects becomes critical to ensuring that the potential of this methodology is fully explored.

The present report provides a comprehensive overview of such a framework. It was prepared by Jon Corbett (University of British Columbia O'Kanagan) with inputs and support from the project Consultative Group,<sup>1</sup> which also includes a representative from the Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA). *The IFAD adaptive approach to participatory mapping* outlines the actions needed at each step of the project cycle for the implementation of participatory mapping processes in IFAD programmes and projects. The approach builds on an initial review that identified core principles of good participatory mapping processes, and on knowledge captured from visits to ILC and IFAD projects (IFAD 2009).

This report on the adaptive approach should be regarded as evolving; its contents will be reviewed and updated as practical experience is generated through its implementation in IFAD-supported projects. It is only through the consistent application of the approach in IFAD operations that learning will be ensured and knowledge generated on a continuous basis.

By empowering local communities to sustainably manage their natural resources, we believe that the adaptive approach can be instrumental in supporting the achievement of the Millennium Development Goals (MDGs), in particular MDG 1 (eradicate extreme poverty and hunger) and MDG 7 (ensure environmental sustainability).

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# 1. Introduction

This document reports on an adaptive approach to designing and implementing participatory mapping initiatives within IFAD-supported projects. The adaptive approach was developed under the project Development of Decision Tools for Participatory Mapping in Specific Livelihoods Systems (Pastoralists, Indigenous Peoples, Forest Dwellers). The report builds on the findings of the review *Good practices in participatory mapping* (IFAD, 2009) and draws on materials and experiences gathered during a participatory mapping workshop<sup>2</sup> organized by the International Land Coalition (ILC) in Albania, field visits to three IFAD projects, and a multistakeholder workshop<sup>3</sup> on participatory mapping organized by IFAD, as well as input from various experts.

The document is divided into two sections. The first describes a number of core principles for guiding the implementation and evaluation of a mapping project.<sup>4</sup> The second lays out an adaptive step-by-step process to aid in the design and delivery of participatory mapping initiatives. Because the step-by-step section is designed specifically for implementation in an IFAD environment, it differs in approach from other participatory mapping guides. Nonetheless, it holds true to the broadly accepted principles inherent in participatory mapping practice.

The report is designed to be specifically of relevance when undertaking mapping initiatives with pastoralists, indigenous peoples and forest dwellers – in other words, representatives of the world's more powerless and marginal groups. Often, because the

geographical spaces that these groups inhabit tend to be physically remote, a close relationship has developed between these peoples and their territory, thus making these lands of particular importance to their cultural, material and spiritual survival. If used in a responsible and measured manner, participatory mapping can become an essential tool in enabling these marginal groups to better represent and communicate this relationship to the land – in order to support relevant and sustainable development and to increase their potential to secure rights to their resources and lands.

## What is participatory mapping?

Participatory mapping emerged from participatory rural appraisal (PRA) methodologies, which spread widely throughout the development community in the 1980s. PRA emphasizes transparency and inclusiveness of all community members in an event, most often related to a development initiative or some form of community-based decision-making process.

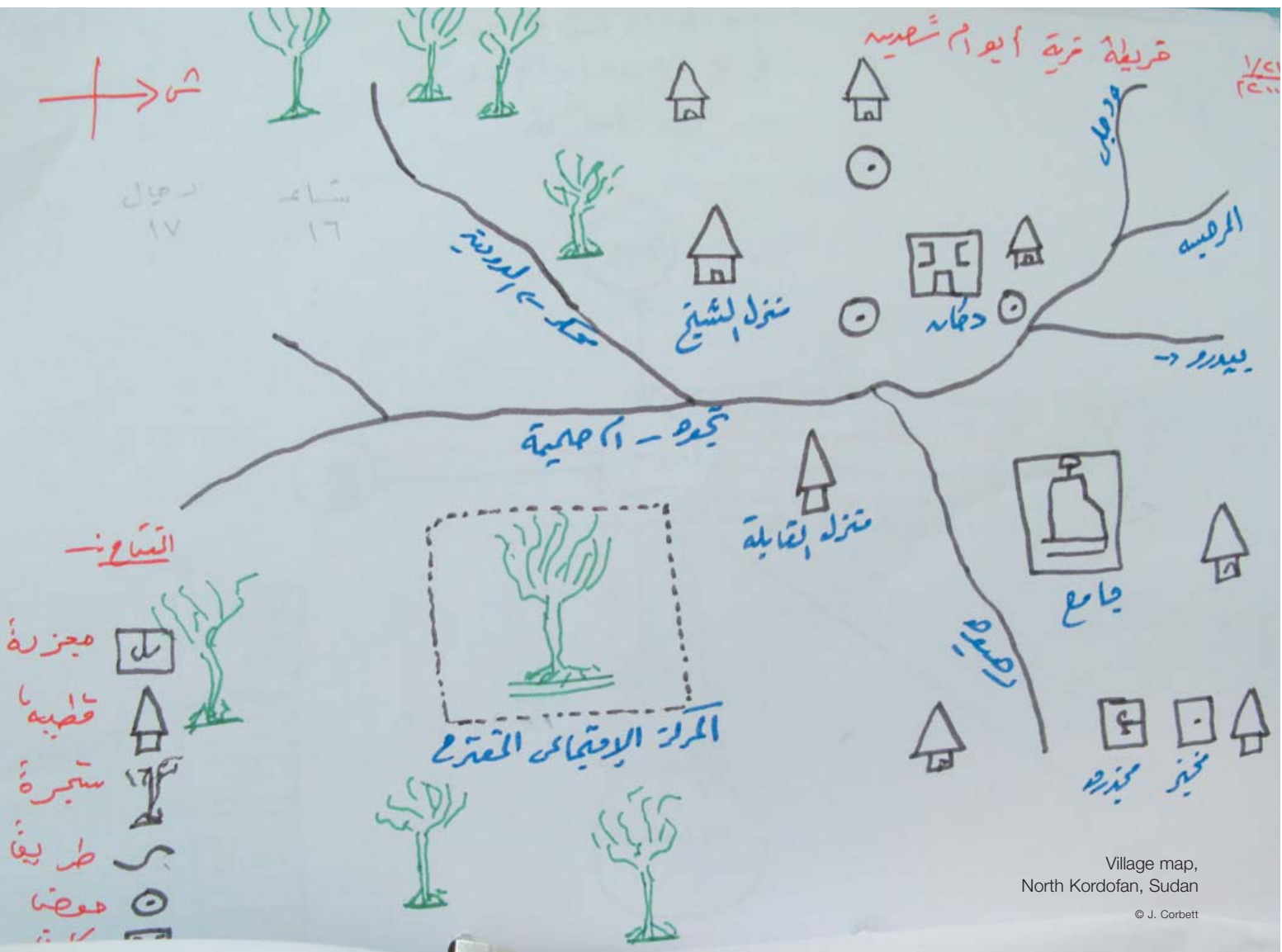
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2 The workshop on Sharing Knowledge on Participatory Mapping for Forest and Pasture Areas was held in Tirana, 27-31 May 2007. Further information can be found at [www.landcoalition.org](http://www.landcoalition.org).

3 The workshop on Participatory Mapping: IFAD's Step-by-Step Approach was held in Rome, 15 July 2008.

4 See also IFAD (2009).





In 1983, Robert Chambers, a fellow at the Institute of Development Studies (United Kingdom), used the term 'rapid rural appraisal' (RRA) to describe techniques that could bring about a 'reversal of learning'. Two years later, the first international conference to share experiences relating to RRA was held in Thailand. This was followed by a rapid development of methods that involved rural people in examining their own problems, setting their own goals, and monitoring their own achievements. By the mid-1990s, the term RRA had been replaced by a number of other terms, including 'participatory learning and action' (PLA), which is more commonly used today.

and negotiation. According to Chapin, Lamb and Threlkeld (2005, 625), early PRA mapping was often simply sketch maps, which evolved into more carefully measured work, with compass readings and transects. Then, in the 1990s, it connected with global positioning system (GPS) and geographic information system (GIS) technologies. Further details are presented and discussed in *Good practices in participatory mapping*.

and projects that fit within national policies and systems. These initiatives respond to the needs, priorities, opportunities and constraints identified by poor rural people.

- (ii) Enable poor rural people to access the assets, services and opportunities they need to overcome poverty. Moreover, IFAD helps them build their knowledge, skills and organizations so they can lead their own development and influence the decisions and policies that affect their lives.
- (iii) Test new and innovative approaches to reducing poverty, and share the related knowledge widely with IFAD Member States and other partners to replicate and scale up successful approaches.

Clearly, the intent of the participatory mapping process is embedded in the second two objectives of the Fund's Strategic Framework, as well as in its potential to be used by marginal communities to directly identify and communicate their needs, priorities, opportunities and constraints and to evaluate development interventions.

IFAD-supported programmes and projects aim to ensure the full participation of minorities and marginalized and vulnerable groups (including pastoralists, indigenous peoples and forest dwellers) in devising, implementing and monitoring development policies and actions that directly affect them. Of particular importance is IFAD's commitment to rural poverty reduction, which can be directly supported through the use of participatory mapping. Mapping helps secure and facilitate greater access to natural resources and also increase the ability of marginal communities to defend their land-related rights.

IFAD and the ILC have supported a number of participatory mapping projects in pastoralist, indigenous and forest-dwelling communities and have promoted the critical sharing of experiences through their partnerships with leading scholars and indigenous networks in this field.

## Field visits to IFAD projects

The report draws largely on material and experiences gathered during the preparation of *Good practices in participatory mapping*, as well as during field visits to three IFAD projects in Kenya, Mali and the Sudan. The field visits provided an opportunity to gain an in-depth understanding of the challenges and opportunities related to specific livelihoods and those facing partner organizations in the implementation of participatory mapping initiatives. The visits had the following objectives:

- examine the processes used to make participatory maps;
- identify opportunities for improving these processes;
- determine how these maps have been used, and the associated impacts of their use (taking care to differentiate between intended and actual uses); and
- examine how the maps have been incorporated into broader IFAD project goals and objectives.

The overall intent of the field visits was to learn from the implementation processes of the three projects visited, and then use those findings to inform the development of a unified IFAD participatory mapping process. This unified process comprises the substance of this report.

### Kenya: Mount Kenya East Pilot Project

The Mount Kenya East Pilot Project (MKEPP) for Natural Resource Management is being implemented in selected sub-catchments of the Tana River on the eastern slopes of Mount Kenya. The Tana River watershed provides water to a significant portion of the population of Kenya. Increased abstraction of water in the areas surrounding the national park and forest reserve, as well as inappropriate agricultural practices, have led to a decline in river flows and accelerated soil erosion, with increasing silt loads feeding into the river. The combination of these factors and the deforestation of Mount Kenya

Figure 1: Location of the MKEP Project - Kenya



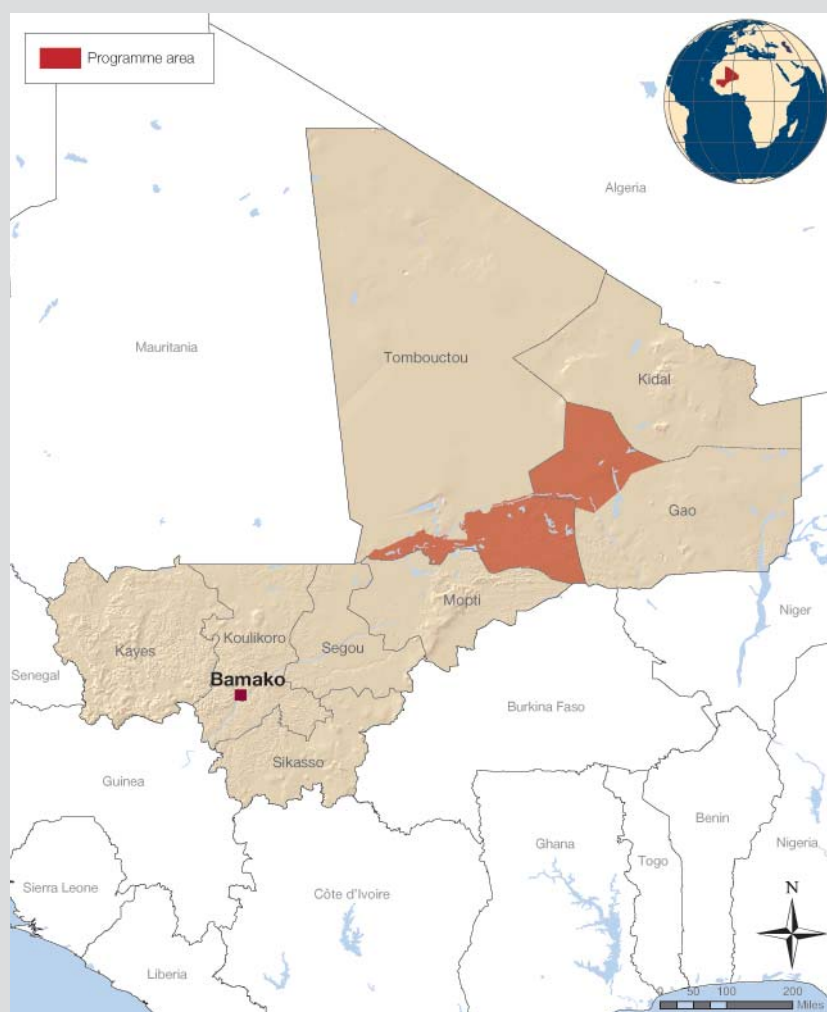
are the principal causes of environmental degradation in the watershed and are undermining both the productive potential of the area and its capacity to provide fundamental ecosystem services. Working with local communities in the catchment area, MKEPP aims to reduce rural poverty by promoting more effective use of natural resources and improved agricultural practices. Of particular importance are those activities involving communities living at the margins of the Mount Kenya Forest reserve.

Within this project, participatory mapping is undertaken with community stakeholders as part of a more broadly focused set of PLA activities. Mapping activities have been carried out to (i) identify the boundary of the

focal development area<sup>5</sup> and ensure that the local community understands that project activities will take place within this boundary; (ii) identify points of potential project intervention and activities; and (iii) support new ways of thinking about issues, including the management of resources.

<sup>5</sup> The selected geographical area where project interventions will be focused.

Figure 2: **Location of the PIDRN Programme - Mali**



The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.

Map compiled by IFAD

### **Mali: Northern Regions Investment and Rural Development Programme**

The focus of the Northern Regions Investment and Rural Development Programme (PIDRN) is its work with local governments in communes (extended villages) within the project area. The vast northern region of Mali is afflicted by extreme poverty, exacerbated by a harsh natural environment typified by drought, desertification and limited access to water. These factors all contribute to high levels of resource competition among local groups. Mali launched a policy of decentralization in 1999. Local government at the commune level has become the focal point for rural development and is now responsible for planning, executing and maintaining public investments.

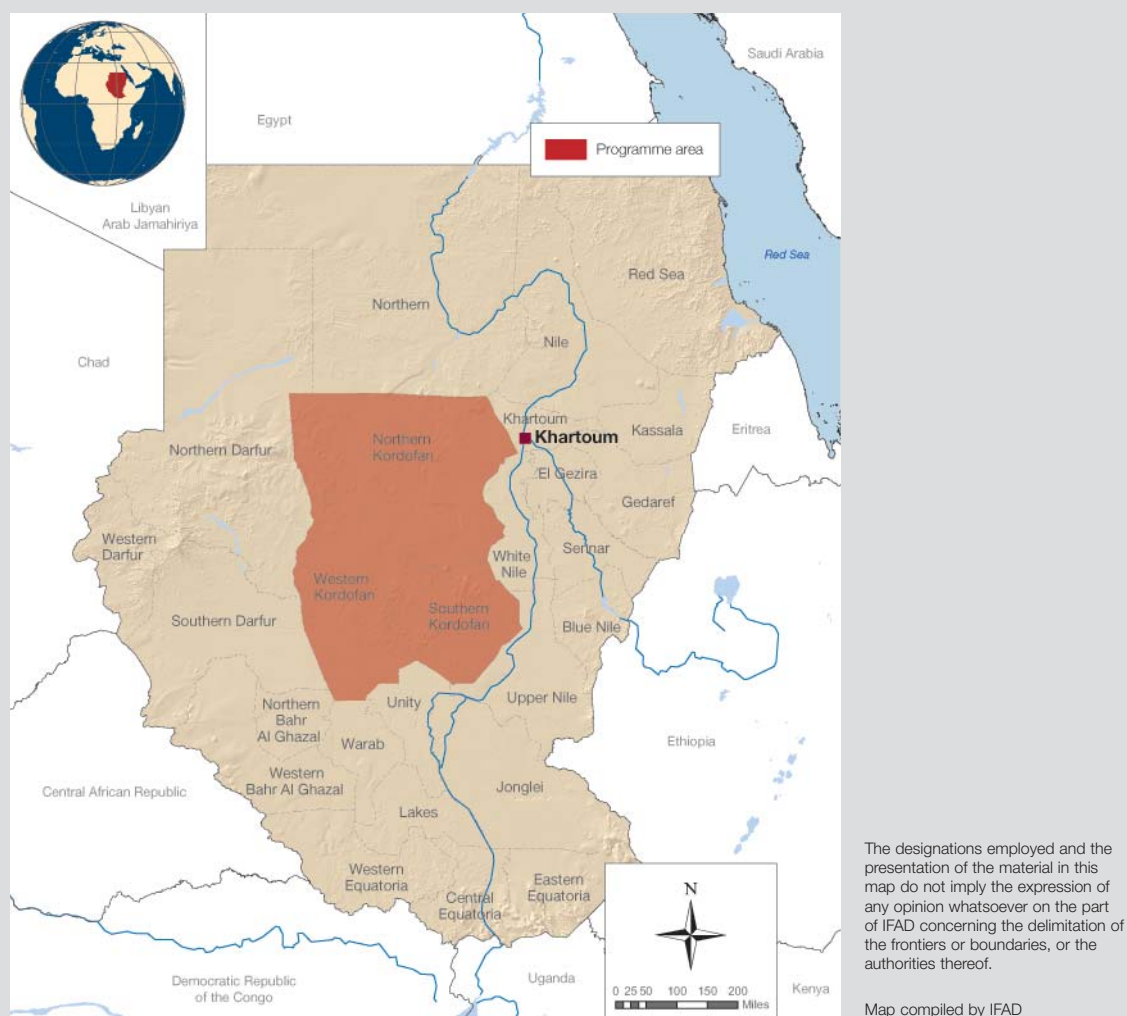
These governments, with the assistance of a national consultant group (AFRI CONSULT), are using participatory mapping tools and processes to capture community members' information on natural resources and their management, as well as other socio-economic features within the commune territory. Mapping is also being used to enable community members to envision how their community and resources will appear 20 years into the future.

### **The Sudan: Western Sudan Resources Management Programme**

The Western Sudan Resources Management Programme (WSRMP) covers the North and South Kordofan States of the Sudan. The overall



Figure 3: Location of the WSRM Programme - Sudan



programme aim is to promote establishment of a natural resource governance system that is equitable, economically efficient and environmentally sustainable. A main activity of WSRMP is the rehabilitation and development of 17 stock routes running through the Kordofan States. Increased pressure on existing scarce resources has led to an escalation of conflicts along these routes, especially between settled communities and nomadic pastoralists. One aim of the project is to promote conflict resolution in support of the development of the stock routes. As a first step, the project carried out surveys and initiated the process of demarcating the routes. PLA methodologies have been used to support these processes in settled communities and some of the nomadic

tribes, although engagement with the nomadic groups has proved extremely difficult.

As with the Kenya project, participatory mapping is one of a series of PLA tools being used by extension officers to demarcate stock routes, using both sketch mapping and GPS tools. Moreover, participatory mapping has been used to prepare local community development plans that set development priorities and thus focus programme interventions.

The lessons learned in the field visits inform the next two sections of this report. Key findings are used to justify both the proposed set of core principles that guide implementation and evaluation of a mapping project and the proposed adaptive step-by-step process.

## 2. Core principles

As Rambaldi et al. (2006) point out, each profession carries its own moral parameters and ethical codes to guide good practice. This section describes some of these core principles as they relate to participatory mapping, which is of particular importance to groups working with communities.

The decision made by a community to engage in a participatory mapping initiative and the choice of the mapping tool are often influenced by the level of support the community receives from development partners, government (at various levels), universities and other actors involved in the development process. In this report, these groups are referred to collectively as ‘development intermediaries’. It is important that they are committed to supporting the mapping initiative and to building capacity to a point at which community members can begin to assume ownership of the process and of the final map product. The capacity to arrive at this point begins with a commitment to build on existing assets and capacities within the community.

### 1. Free, prior and informed consent

“Free, prior and informed consent (FPIC) recognizes indigenous peoples’ inherent and prior rights to their lands and resources and respects their legitimate authority to require that third parties enter into an equal and respectful relationship with them, based on the principle of informed consent.”<sup>6</sup> The process begins with initial contact and carries

through to the end of the involvement of community members in a project. The process of FPIC refers to the dialogue, information sharing and general process through which community members choose to participate in a project. When properly implemented, it ensures that communities and individuals are voluntarily taking part in a participatory mapping initiative with a comprehensive knowledge of the relevant risks and benefits.

Participatory mapping initiatives initiated by outsiders require that communities and individuals have a clear understanding of:

- the purpose of the initiative, expected duration and procedures;
- their rights to decline to participate and to withdraw from the initiative once it has started, as well as the anticipated consequences of doing so;
- factors that may influence their willingness to participate, such as potential risks or adverse effects;
- prospective benefits;
- the use, archiving and possibly reuse of the spatial information they provide; and
- whom to contact with questions.<sup>7</sup>

Within the context of mapping initiatives, simply applying a participatory process does not guarantee that results will be an authentic representation of vulnerable

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<sup>6</sup> United Nations Commission on Human Rights (2004), p. 5. This position was reinforced in the United Nations Declaration on the Rights of Indigenous Peoples, adopted by General Assembly Resolution 61/295 on 13 September 2007.

<sup>7</sup> Many of the issues raised by the FPIC process are discussed in more detail in subsequent sections of this report.

communities' knowledge, values and desires. Participatory mapping can, in some cases, be misapplied so as to be an extractive, data-mining exercise, rather than a genuinely empowering endeavour.

It is important to be aware that participatory mapping might serve to make sensitive local knowledge vulnerable to exploitation. This is particularly the case when maps draw attention to high-value natural resources or other sensitive sites. Maps make this information visible to outsiders and thus open to misuse. Moreover, a number of unintended negative and conflictual consequences might occur in direct relation to participatory mapping initiatives. Community members must be informed of these potential risks at the outset of the project, even though this might influence their willingness to participate.

#### **Participatory mapping and boundaries**

Participatory mapping initiatives can contribute to conflict when boundaries that have been contested, undeclared, overlapping, fuzzy and permeable in the past are represented on a map using a definitive line that suggests a sense of authority, inflexibility and permanency. This potential conflict is especially likely if mapping initiatives are undertaken on a community-by-community basis and do not involve all communities that have a stake in the area in a broad and inclusive process.

Boundaries need to be discussed, negotiated and confirmed. A participatory map should not present the views and enhance the position of a single community at the expense of other communities that have a stake in the area and resources depicted.<sup>8</sup> If the process does not allow for discussion and verbal exchange among stakeholders, mapping initiatives can contribute to both inter- and intra-community tensions.

In a project that implements the principles of FPIC, community members will be fully aware of these boundary-related issues before embarking on the mapping process.

#### **Representing local knowledge through maps**

Local knowledge is alive, dynamic and embedded in community practices, institutions, relationships and ritual. Much of it is transferred informally: it is usually unwritten and instead is preserved and communicated orally in the form of stories, songs, folklore, proverbs, dances, myths, rituals, community laws, local taxonomy and agricultural practices. There are formal traditional systems in place to facilitate the transfer of some of this knowledge, such as ceremonies, festivals and other processes. Maps are not a traditional way of representing and communicating this land-related information. Before community members engage in a participatory mapping initiative, they need to be aware that maps may represent their land-related knowledge imperfectly. This incompatibility can be partially overcome by affixing additional elements to a map – for example photographs. When working in a digital environment (particularly using tools such as Google Maps), multimedia information (video, audio and text files) can be embedded in a map, thus integrating qualitative information into the map.

#### **Experiences from the field**

There is a danger that local communities can be brought into a participatory mapping activity without a clear understanding of the purpose and longer-term use of the materials to which they are contributing. In Mali, for example, government administrators considered GIS-produced maps an excellent way to ensure that all development interventions were equitably distributed throughout the commune territory. Yet there was evidence that, in some steps, local community members had become

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<sup>8</sup> Tensions related to boundaries can be partially overcome through a process employing a multistakeholder/collaborative decision-making strategy. In other words, no boundaries are drawn on the map without the explicit agreement of all involved stakeholders. Alternative methods include not identifying boundaries on the map, but rather depicting key 'use areas' within an area, or using fuzzy boundaries that depict a shared use area.



GIS maps used during validation of community plan in Bourem, Mali

© J. Corbett

disconnected from the mapping process because: (i) the initial community maps were removed from the community, digitized and turned into GIS maps by experts in Bamako – it was not clear if all community members understood this process and realized that the GIS maps were based on information they had originally provided; or (ii) during the validation stage (where the information on the map was vetted for accuracy), only community decision makers and elected representatives were engaged; other community members were excluded.

### Implications for IFAD

All IFAD interventions affecting the lives of vulnerable communities<sup>9</sup> require early and sustained input from a cross-section of groups within a community (women, youth, elders, rich and poor) to ensure that initiatives respond to the collective priorities, are in consonance with local culture and reflect the entire community's development choices. The principles of FPIC should be embedded within every participatory mapping initiative, and thus are of great importance in the PLA training received by

<sup>9</sup> In this case, we refer to pastoralists, indigenous peoples and forest dwellers.



government officers and other development intermediaries involved in the delivery of IFAD-supported programmes.

In addition, it is recommended that those intermediaries working in the field, and especially those working with pastoralists, indigenous peoples and forest dwellers, receive training in:

- the principles of FPIC, as well as mechanisms to communicate these principles in a clear and non-technical manner to pastoralist, indigenous and forest-dweller communities; and
- the incorporation of FPIC principles into project planning, implementation and evaluation.

## **2. Commitment to community control**

A key principle of participatory mapping initiatives is that external stakeholders turn as much authority and decision-making control as reasonable over to community members, so they can direct – as much or as little as they desire – the map-making process and the map's use. Otherwise, community mapping may only serve the objectives of the organization, institution, researcher, or government agency that facilitates it.

When working with indigenous peoples (as well as pastoralists and forest dwellers), development intermediaries need to understand and respect diverse community world views and cosmologies (for example, the way spatial information is presented on the map). They should also recognize the responsibility associated with being granted access to traditional or sacred knowledge and the corresponding accountability that possession of this knowledge entails. To the extent possible, these should be incorporated into agreements drawn up among the actors in the initiative.

A community's jurisdiction over the participatory mapping process should be understood and respected. Development practitioners should comply with any

traditional laws, by-laws, policies, rules or procedures adopted or used by the community. This is potentially problematic if a group external to the community has initiated the mapping process and has a clear idea of what information should be presented and how the maps will be used. Nonetheless – and, again, this should be stressed within the indigenous context – care needs to be taken to ensure that the mapping process is a medium to build community capacity and empowerment, not simply to gather information and thus potentially disenfranchise community members of their knowledge.

Genuine collaboration is developed between development practitioners and communities when the process promotes partnership within a framework of mutual trust and cooperation. Participatory mapping initiatives can employ a range of levels and types of community involvement, while ensuring shared power and decision-making. Such partnerships will help ensure that the mapping process is culturally sensitive, relevant, respectful, responsive, equitable and reciprocal with regard to the understandings and benefits shared between development practitioners and community members.

### **Experiences from the field**

Field staff tasked with the facilitation of PLA activities can become overburdened by large, repetitive workloads. This has been identified as a serious hindrance in the effective delivery of participatory mapping activities. The field trips found that mapping is often only one tool that a project facilitation team will use. In all three projects visited, project extension teams often view mapping as a routine activity and give little thought to exploring the full potential of the process and the product, especially with regard to exploring any form of analysis and effective use of the information displayed on the maps. As a result, there is little consideration given to enabling a community to 'control' the process and product. Mapping is viewed as an activity that must be performed, and creativity in its delivery is not considered. This attitude and

practice severely curtails the potential benefits of the mapping activity as a medium of empowerment and longer-term change.

Moreover, during fieldwork, there seemed to be little awareness of the sensitivity of the information being collected (especially regarding indigenous knowledge). In all three projects visited, the information presented on the maps was considered open access – shareable with anyone. The team found no evidence of any agreements drawn up among the various actors in the participatory mapping initiatives.

### Implications for IFAD

In IFAD-supported programmes and projects, participatory mapping activities are most often carried out by in situ government officers, who use the maps and mapping process to engage local communities in identifying solutions to a set of predetermined development issues. Thus it is often unrealistic to assume that the community will take complete control of the mapping process. Nevertheless, more time needs to be dedicated by field staff to these activities in order to obtain more useful analysis and information (particularly by identifying the flashpoints of past and potential conflicts). Better training of extension workers would improve their capacity to undertake more in-depth and sophisticated delivery of mapping activities. Concomitantly, greater understanding and support is needed for project officers working in the field.

Because of the internationally recognized requirements for working with indigenous knowledge, it is recommended that extension officers working in the field with indigenous peoples receive training in:

- identifying the traditional or sacred knowledge of indigenous peoples and developing protocols for storing, managing and protecting this knowledge sensitively and responsibly;
- recognizing and accommodating traditional laws, by-laws, policies, rules or procedures adopted or used by the community to govern the use and distribution of this knowledge.

When a participatory mapping initiative is undertaken with outside facilitation, there is always the danger that there is an inequality in the power differential emerging among the different groups involved in the process. This might influence the quality and quantity of information presented on the map, as well as its validity. At the outset of the mapping process, it is important that the roles of the different stakeholders are carefully defined and agreed on, so that all have a clear understanding of their own role and responsibilities, as well as of those of the others. These agreements are best drawn up in a written document. In order to realize this requirement, training is needed in the drawing up of agreements between the various actors involved in participatory mapping initiatives.

## 3. Accommodate community needs

It is assumed that any participatory mapping initiative should ideally lead to outcomes beneficial to the participating community and individual community members. The community and its members are the primary actors capable of expressing their needs. These cannot be determined and should not be articulated by an outsider, though the outsider can play an important role in facilitating the expression and communication of these needs.

As with any development initiative, participatory mapping projects can be lengthy and can require a considerable input of time from participants. Often this is time that community members can ill afford to spend, particularly during busy times of the year – in agricultural communities this busy period includes the sowing and harvesting periods. If outside groups initiate the mapping initiative, it is important that it is introduced in a pre-planning stage, so that community members can determine what time of year would be best (see section on “Adaptive mapping process” in chapter 3).



Discussing issues emerged through the participatory mapping process, MKEP Project, Kenya

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### Experiences from the field

In Kenya, the time allocated to community engagement and PLA activities was recognized as the main constraint influencing the participation of community members. Nevertheless, there is undoubtedly a profound and systemic respect by extension workers in all projects visited for the needs and commitments of the community members with whom they work. There is also a clearly articulated desire among all extension workers interviewed that community members should be given the assistance, space and forum to articulate their own development needs. Yet, once again, care must be taken that extension workers themselves are not forced into achieving unrealistic targets with regard to the

number of communities involved in a project and the activities to be carried out. Unrealistic goals and workloads in compressed periods of time during the year severely undermine the potential benefits derived from the mapping activity. A key to the successful implementation of participatory mapping is allocating sufficient time to undertake the activity correctly.

Moreover, workload requirements greatly impact the ability of extension workers to offer the in-depth training required to truly enable community members to understand the mapping process and the full potential that participatory mapping offers.





Example of a village map, Abuzad locality, North Kordofan, Sudan

© K. Fara

### Implications for IFAD

Marginalized communities (including pastoralists, indigenous peoples and forest dwellers) need the opportunity to strengthen their individual and collective capabilities. Thus training and capacity-building in local languages (if feasible) are needed (both technical and non-technical) if members of these groups are to take greater control of participatory mapping initiatives.

Consequently, development intermediaries (in most cases government officers) need to:

- assume the role of trainer and thus themselves require training in skills and knowledge transfer;
- be capable of supporting the education and training of community members, including training in community facilitation, cartography and mapping methods, and evaluation techniques.

These goals can be achieved through increasing resources for the training of trainers and establishing relationships with other groups that already possess these skills and abilities, such as local NGOs, universities and other appropriate organizations.

#### 4. Support for community intellectual property

The spatial information presented on the map will contain local knowledge over which the community should maintain rights. Production of a map with facilitation by outside groups does not give those groups the right to take ownership of the information contained in the map, nor remove the map from the community without express permission. The intended use of the map should be made clear at the outset of the process during discussion of FPIC.

Participatory mapping projects that touch on or document traditional or sacred knowledge should consult community leaders to obtain their consent before approaching community members individually or in small groups (including family groups). This is nearly always the case when working with indigenous peoples.

The process of obtaining FPIC should be undertaken sufficiently in advance of the proposed start of participatory mapping activities and should take into account the community's own legitimate decision-making processes regarding all phases of planning, implementation, monitoring, assessment and evaluation of a participatory mapping project.

Community members and their communities retain their inherent rights to any cultural knowledge, sacred knowledge, cultural practices and traditions shared with the development intermediaries. The intermediaries should support and develop mechanisms for the protection of such knowledge, practices and traditions.

When working with indigenous groups, the recording of knowledge, practices and traditions in any form (written notes, audio, video or otherwise that might be supplementary to the mapping activity) should be done only with explicit permission – and under mutually agreed terms set out in advance with the guidance of the appropriate elders and knowledge holders. All uses and wider dissemination of cultural knowledge,

practices and traditions should also be done only with explicit permission.

Development practitioners should recognize and respect the rights and proprietary interests of individuals and the community in generating the maps that are produced in such participatory initiatives:

- Maps produced by the community should be considered 'on loan' to the development practitioners unless otherwise specified in an agreement.
- Transfer of maps from an original party involved in the participatory mapping initiative to a third party requires the consent of the other original party(ies).
- Secondary use of maps or other information produced during the participatory mapping initiative requires the explicit consent of the community.
- Where a map is known to have originated from a specific community, the development intermediary should consult with the appropriate community institution before initiating secondary use.

Development activities are often susceptible to misinterpretation or misrepresentation when information about the community is analysed without sufficient consideration of the cultural characteristics that make the group distinct. A community should have an opportunity to participate in the interpretation of maps and in the review and evaluation of conclusions drawn from the mapping initiative in order to ensure the accuracy and cultural sensitivity of the interpretation.

#### Experiences from the field

In Kenya, maps produced by community members during PLA activities were not left with the communities. This occurred even though community members stated that they were interested in using the maps to:

- (i) communicate information to others;
- (ii) clarify ownership to land and resources;
- (iii) prioritize planning interventions;
- (iv) understand what initiatives were planned and where they were located;

- (v) communicate where project interventions had taken place to outsiders; and
- (vi) support the implementation and monitoring of development activities.

Indeed, the removal of maps from the community appeared to be a systematic problem throughout all the projects visited. Development intermediaries were more focused on the information contained on the maps being of use to the project than the potential for these maps to be of use to the communities that produced them. In Mali, however, GIS maps were returned to the communities. Community members and locally elected representatives were extremely happy to have them, as they felt they were a useful community tool. Knowing that the map will be removed will likely impact the type of information that people will be prepared to share. Moreover, communities might become skeptical and begin to feel that the mapping process is simply a data-mining exercise. This impression would severely reduce the potential benefits of the mapping activity as a medium of empowerment and longer-term change, and bring forward ethical issues associated with the expropriation of traditional and indigenous knowledge.

#### **Implications for IFAD**

Development intermediaries, individual participants and the community should have a clear prior understanding of their expectations as to how participatory maps (and any other associated products) will be used, and the extent to which the maps will remain confidential if the community so desires. This understanding should ideally be supported by training in FPIC and, more broadly, in the ethics required by a participatory mapping activity.

## **5. Commitment to an inclusive process**

A 'community' is not a homogeneous entity, but an affiliation of individuals: communities are differentiated in terms of status, income and power. Knowledge of this social structure is an important precursor to undertaking participatory mapping activities.

There has long been an emphasis on the importance of widespread community involvement in participatory mapping initiatives, both as a means of building a shared vision and commitment to working together, and to ensure that priority issues are identified and proposed strategies are viable to all members of a community, including the marginal and less-powerful members. However, in widely dispersed as well as larger communities, it is more difficult (from both a practical and a conceptual perspective) to ensure that everyone has the opportunity to participate. Ensuring that all views are fairly considered and reconciling the views of different factions and interest groups are challenges in any mapping initiative.

Though development practitioners cannot assume that everyone within a community will want to or have the capacity to participate in a mapping initiative, all efforts must be made to create and provide spaces that facilitate the inclusion of marginal and less-powerful members.

#### **Elders' knowledge**

Local knowledge is the body of learning that is unique to a given culture or society. This knowledge has been accumulated over time by successive generations. Communities have used it to sustain themselves and to maintain their cultural identity. It is a reservoir of information that leads to the formation of effective self-management systems to govern local resource use. Thus it is vital to the local decision-making processes that guide food security, human and animal health, education and other activities.

All members of a community will have some level of local knowledge. The type and





GIS maps produced from sketch maps following a participatory mapping process, Temera, Mali

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extent of this knowledge will be dependent on the individual's own requirements, curiosity, societal status and communal duties. Therefore different types of knowledge exist simultaneously within a community: common knowledge, held by almost all people in the community; shared knowledge, held by many; and specialized knowledge, held by a few with special training. The knowledge of the elders of a community is particularly important. Their knowledge often encompasses the full range of knowledge systems and is usually respected and honoured within the community (particularly in indigenous communities). Engaging elders in participatory mapping activities is very important.

### Gender sensitivity

Sensitivity to women's roles in the mapping process and the need for their voice to be included in the map product are of great importance. Women often have unique perspectives on a community's land and their relationship to it. These are often very different from men's perspectives. If women are not explicitly invited to be involved in the mapping process, there is a danger that the final map will reflect only the knowledge and views of the men in a community. The danger of excluding defined groups can also be applied to youth, poor people or other social groupings. Care needs to be taken to identify these groups in a pre-mapping stage in order to ensure that they are included.

### Inclusion of youth

Youth are often excluded from decision-making activities, especially if external development intermediaries are involved. These potential participants in a participatory mapping project do not have much experience and feel unskilled and ill-equipped to make an informed contribution. Thus it is important to consider and address these issues of personal competence. The engagement of youth through participatory mapping initiatives has great potential to add their voice to planning processes. First, their inclusion allows them to inform other community members, as well as development intermediaries, of the spaces that are significant within their own everyday geographies. Second, a participatory mapping process might serve to facilitate their inclusion (and long-term retention) in community activities. Finally, the skills learned during these mapping activities help improve educational literacy and contribute to the overall development of this group.

### Experiences from the field

In the three IFAD projects visited, there was a clearly articulated gender component to the community outreach activities performed. For example, extension officers implemented gender-specific activities (including gender-based calendars<sup>10</sup>) during PLA activities in Kenya. Despite this commitment to gendered activities, mixed groups undertook the mapping activities. This combined activity is perhaps a weakness, given that women can find it difficult to engage in mixed-sex group activities. Creating separate maps for men and women can often provide useful insights into diverse priorities or values attached to particular areas or resources, and it is likely that the maps will differ in many aspects. Including gender-specific maps will result in a more complete final picture than if only one gender's or a mixed map had been used. It may also encourage the more active involvement of all participants.

Of greater concern is the requirement to incorporate the voices of all marginal stakeholders that use or manage a particular natural resource. In the Sudan project, the PLA tools in use were designed for sedentary and often literate communities. The methodologies are best suited to geographically well-defined communities with clear boundaries and a strong sense of place; they are far less effective among nomadic communities or across an entire stock route.

Participatory maps currently are produced only of the immediate village area. Project staff and officers tasked with facilitating PLA processes need to expand the geographical range. Maps should depict the entire village territory, so that the community begins to understand how their village and resources fit into the broader landscape and geography. This understanding is important in identifying the flashpoints of past or perceived conflicts and in creating a clearer profile of conflict along the entire stock route.

### Implications for IFAD

There is a clear need to introduce different participatory mapping methodologies that will enable nomadic communities, in particular, to play a stronger role in mapping their needs and relevant issues related to the stock routes. The onset of new, robust and easy-to-use mapping technologies, such as GPS and GPS-enabled cameras, presents a series of innovative new tools to address the incorporation of community spatial information that has in the past been logistically very difficult to collect.

Development intermediaries (in most cases government officers) thus need to:

- understand the range of tools available to engage nomadic and other non-

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<sup>10</sup> Gender-based daily calendars help identify who does what within a community, as most activities in traditional rural societies are undertaken according to gender lines. Gender calendars monitor what activities men and women undertake over a whole day and throughout the different seasons (i.e. rainy or dry season).



sedentary groups in participatory mapping activities; and

- attend training-of-trainers workshops to ensure that they have the capacity to train these groups in the use of the new technologies.

## 6. Long-term commitment to mapping initiatives

Maps represent a snapshot in history. The information, relevance and significance of the map change over time. Unless the map is produced for a single purpose, the information must be updated. Making and updating maps is a long-term activity, regardless of the tools or technologies used. Successful participatory mapping initiatives depend on long-term commitment to the process by all stakeholders. This commitment includes supporting organizations that demonstrate responsibility towards raising the capacity of community members and continuing to provide long-term support (moral, financial and informational).

### Experiences from the field

In the three IFAD projects visited, participatory mapping activities were implemented or facilitated by external practitioners (e.g. a consulting firm in the case of Mali) or by local government officers. This practice has both negative and positive aspects regarding the development of a long-term commitment. Kenya provides an interesting example of a negative association: high government staff turnover greatly undermined the commitment of individual project staff members to developing a longer-term relationship with communities (some staff members stayed no longer than two years in a position, and when they left, there

was no funding to train new staff). Moreover, a principal criticism of the mapping activity in Kenya (and more generally of all PLA activities) was the severe lack of time to undertake all the PLA activities required.

In Mali, the role of local government appeared to be much longer term. Government officials had conducted a clear strategy for using the maps for long-term as well as short-term purposes. This was partly manifest in their commitment to invest in GIS for the management of local community lands – in order to request and target development interventions, as well as for managing local natural resources. They networked directly with the national consulting company to provide the needed resources.

### Implications for IFAD

It is obviously unrealistic to recommend that government staff should stay longer in a given position. In order to overcome staff turnover, perhaps the fostering of good working relationships among expert practitioners (consulting firms, NGOs or research centres) and project staff should be emphasized – including local government officers – thus effectively contributing to capacity-building and enhancing the long-term sustainability of initiatives.

Increased and improved training of local communities would further ensure a higher degree of participation in and understanding of the whole process. This training would lead to stronger feelings of ownership of the mapping process among local communities and probably to improved and longer-term application and usefulness of the maps.

### 3. The mapping activity

The obvious inconsistency in design, implementation and impact of the participatory mapping initiatives seen during the three field visits to Kenya, Mali and the Sudan indicated the need for a standardized methodology in IFAD projects and for adoption of a set of principles that aspire to 'good practice'.

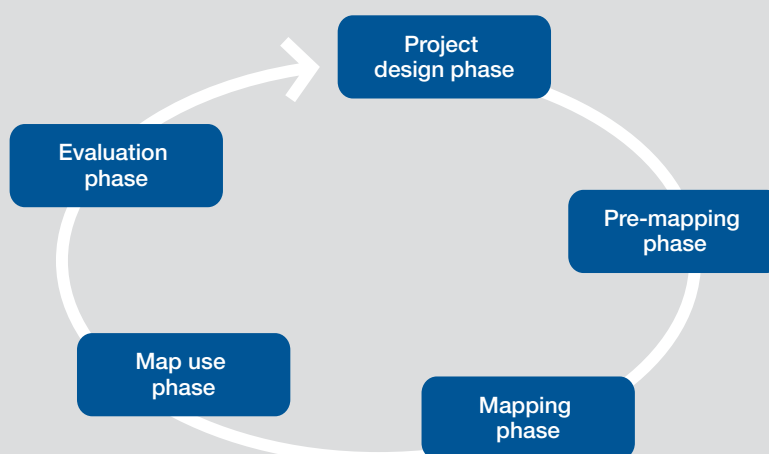
This next section seeks to outline such an approach. The process is based on the findings gathered: (i) in the field – including extensive discussions with project management unit (PMU) staff in IFAD-supported projects and those working with IFAD projects (e.g. NGOs, consultants and community members); and (ii) a workshop held in Rome on 15 July 2008 that refined a draft approach to participatory mapping. Fifty-one participants attended the workshop from a wide range of organizations, including the Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA), ILC, International Union for Conservation of

Nature (IUCN), Food and Agriculture Organization of the United Nations (FAO), IFAD, National Association of Communal Forest and Pasture (NACFP – Albania) and SOS Sahel International. Inputs provided by the participants supported the finalization of the IFAD adaptive mapping approach outlined in this document.

#### Adaptive mapping process

The proposed mapping process follows an adaptive learning loop. This loop implies a structured, but iterative process that seeks to improve the application of participatory mapping in a project, over time, through project monitoring and evaluation. This adaptive loop is characterized as 'learning by doing'. The approach consists of five defined stages, which will be discussed in turn.

Figure 4: IFAD adaptive approach to participatory mapping



## Project design phase

Preliminary planning to support the incorporation of participatory mapping into IFAD-supported projects needs to occur during the project design stage. Some of this planning is already intrinsic to IFAD programme design; however, it needs to be contextualized more specifically to participatory mapping. Moreover, potential mapping partners and other stakeholders need to be identified and relationships developed. Key resource management issues need to be recognized. Finally, during the project design phase, funds need to be allocated to mapping activities.

### Situational analysis

A situation analysis (including a rapid vulnerability assessment) is an important first step in targeting the most vulnerable communities within a project's geographical area. It can identify the most at-risk members within each community, as well as their likely needs and whether participatory mapping might support their engagement in natural resource decision-making and management processes. During the analysis, particular attention should be given to 'distinctiveness' (ethnic, gender and indigenous groups) and these communities' level of legal recognition and power.

The analysis will support identification of the overarching purpose of participatory

mapping activities, including initial designation of the mapping tools and methodology most suited to the particular context (important in determining the approximate cost of the mapping activities). Different mapping tools and processes have widely divergent costs, infrastructural needs and training requirements.<sup>11</sup> This, in turn, will inform the initial assessment of training needs of the community members and practitioners implementing participatory mapping.

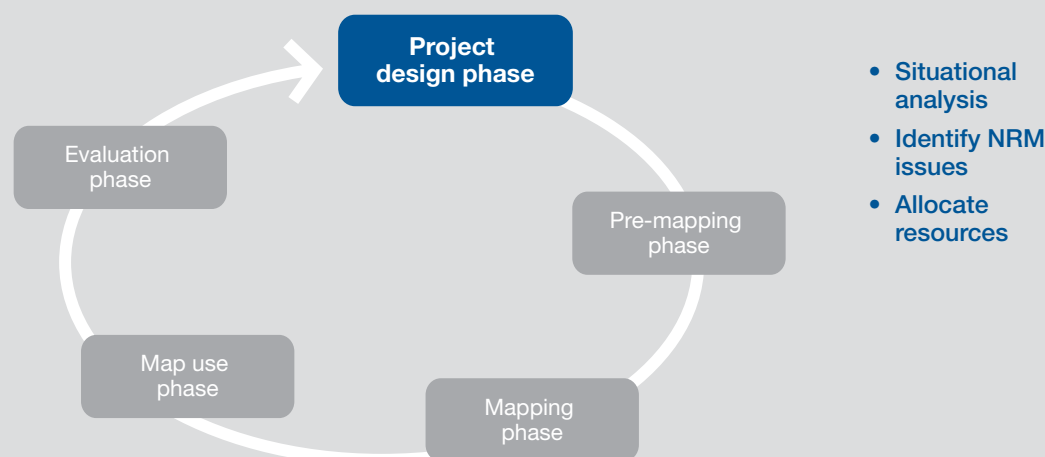
### Identify the primary natural-resource-management issues of specific livelihoods

During the project design phase, it is important to identify mapping tools that support community identification of priorities and actions related to natural resource and environmental management issues. This process will translate into more effective project outreach through better communication, decision-making and implementation of activities.

The pilot application of several mapping tools can be used during this stage to identify the primary natural-resource-management (NRM) issues and thus inform the later project mapping activities. For example, when

<sup>11</sup> See IFAD (2009) for details.

Figure 5: The Project design phase



working with pastoralist communities on issues related to livestock routes, it might be best to choose sketch mapping and ground mapping, which do not require literacy skills. For a comprehensive list of the tools available, refer to *Good practices in participatory mapping*.

### Identify collaborators

The design phase can be used to determine and evaluate in-country institutional support (government, consultant, NGO and university). As was seen in the Mali field visit, these contacts can become instrumental in supporting collaboration and partnerships with groups and organizations working within a project's geographical region, or those groups with experience in using participatory mapping approaches. In particular, emphasis should be placed on fostering good working relationships between expert practitioners and local government officers, thus effectively contributing to capacity-building and enhancing the long-term sustainability of initiatives.

### Allocate resources to participatory mapping activities

Field visits to IFAD-supported projects that use participatory mapping showed that not enough consideration is given during project design to the full range of requirements (and in particular costs) associated with the implementation of participatory mapping initiatives. Additional resources need to be allocated during design to ensure that implementing agents have the support to realize their objectives in the field. The resources needed are financial (e.g. funds for mapping equipment that will be used by field staff and community members), human (e.g. funds for training of trainers and for training community members), and time (e.g. costs associated with site visits and return site visits to evaluate and update maps).

### Phase 1 checklist

- ☐ Was a situational analysis conducted?
- ☐ Did the analysis consider ethnicity, gender, indigenesness and the community's legal recognition?
- ☐ Have the primary NRM issues of specific livelihoods been identified?
- ☐ Has a preliminary assessment been conducted to identify appropriate mapping methods?
- ☐ Have collaborators/partners been identified?
- ☐ Have the resources needed to undertake the participatory mapping activities been allocated?

## Pre-mapping phase

The pre-mapping phase refers to the preparatory steps to be taken at the project (and usually PMU) level before implementing participatory mapping in the field. This stage requires that implementers first re-examine the recommendations and processes outlined in the project design phase, and then prepare, both logistically and from a human resource perspective, for the mapping activities to come.

### Validate design approach

Before beginning the mapping activities, it is important to review the approach laid down in the design phase to ensure that the issues identified are still relevant. This is especially important when there have been significant delays between project approval and the start of implementation. In this case, the proposed approach developed during the design phase should be informed and validated by a community engagement strategy.<sup>12</sup> In other words, the communities that are beneficiaries of the project should be the ones that identify the primary NRM issues and thus validate the design. Moreover, this step will allow better understanding of the specific needs and characteristics of the communities.

### Confirm mapping tools

Building on the previous step, it will be possible to confirm whether the mapping tools and methodologies identified in the project design phase actually respond to the needs of local communities or whether they should be changed and refined to promote greater uptake and impact.

### Identify participatory mapping implementers and their training needs

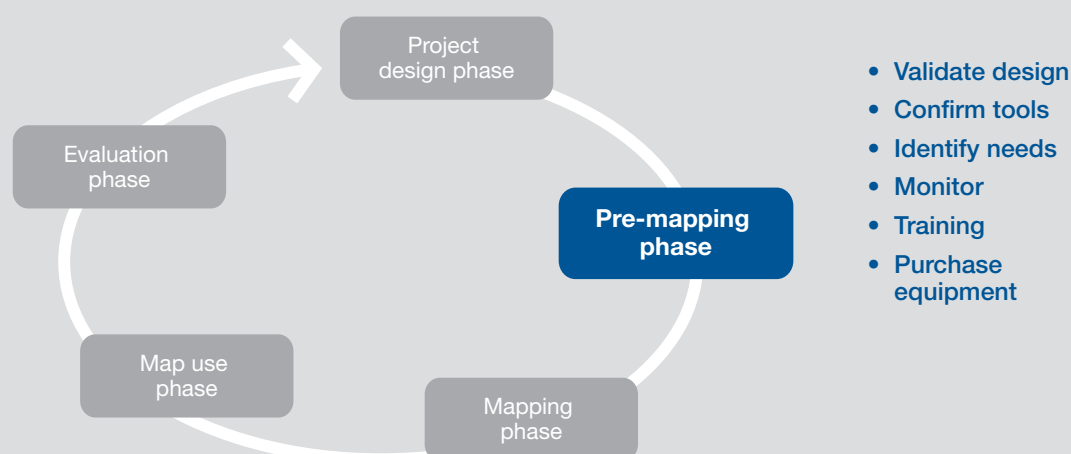
During the pre-mapping phase, the intermediaries who will facilitate the participatory mapping activities must be identified. The facilitation may be undertaken by NGOs or other experts recruited by the PMU (e.g. the consulting company AFRI CONSULT in Mali), by local government extension officers already working with local communities (as was the case in both the Kenya and Sudan participatory mapping processes), or by community facilitators identified and selected through a participatory process.

To promote project sustainability, an organization with participatory mapping experience might assist local extension officers with implementation. This would

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<sup>12</sup> Special attention should be given to women and vulnerable sectors of the community.

Figure 6: Pre-mapping phase



further support capacity-building among government officers. In addition, to ensure continuity in the mapping process, supervision of any organization engaged by the project might be advisable if there is high staff turnover in local administrations.

After gaining an understanding of the main NRM issues and determining who will be tasked with facilitation of the participatory mapping activities, it is important to reconfirm the training needs identified at the project design stage. Training might include establishing a better understanding of the range of available participatory mapping tools, building community facilitation skills, training the trainers, and developing conflict management skills.

The lack of specialized training was a recurrent shortcoming identified in all three field visits by local government and project officers involved in implementing participatory mapping activities. While general training in PLA techniques was provided in all projects, more attention is needed to identifying training needs specific to the mapping activities in each project. More training in facilitation, negotiation and conflict management is often important in supporting the appropriate implementation of these methodologies.

Training should not be a one-time event limited to a few officers. It should be a recurring activity that aims to overcome problems of high staff turnover (a pressing issue in Kenya), sharpen the skills of project intermediaries, and give officers a regular opportunity to interact and to address issues they may have (specific mapping modules could be added to existing training without a significant increase in costs). Training should also be extended to community members directly involved in PLA exercises (people trained in the community can in turn share their skills with other community members). The training would equip them with needed skills and also emphasize the importance of equal participation in local communities where power relationships may not always be equitable.

### Define monitoring mechanism

During this pre-mapping phase, project officers should define a set of baseline data and preliminary criteria for monitoring. Monitoring should focus on measurable change that occurs as a result (direct or indirect) of the participatory mapping initiative. The monitoring mechanisms, as well as indicators to infer change, should be of direct relevance to the community involved in the mapping process, as well as to the overall project goals. These monitoring mechanisms and indicators need to be developed by and be suitable to the three levels of stakeholders typically involved in IFAD-related mapping initiatives (i.e. the community, project intermediaries and IFAD-level administration).

The use of generic or universal indicators in evaluating the impact of a participatory mapping initiative is contentious. When questioned<sup>13</sup> about the use of indicators, mapping practitioners were less than enthusiastic about their relevance. Practitioners' combined experience from around the globe shows that the results of mapping projects differ widely and are contingent on a variety of factors. Two of the most important are the degree to which the group that does the mapping is organized and the political situation in which it operates. Indigenous groups that are politically powerful will be able to successfully use maps to lobby for resources and influence; those that are weak (without organization, resources and political power) will have trouble with follow-up. Groups working in countries with restrictive political regimes have more trouble influencing decision-making processes than those in more democratic, receptive settings. In some places, there are legal frameworks available for follow-up; in others there is nothing.

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13 The questioning took place through the PPGIS listserve ([www.ppgis.net](http://www.ppgis.net)), an electronic community of over 1,500 participatory mapping practitioners for sharing information, ideas and experiences.

This is not to say that there is no impact when a weak group carries out a participatory mapping project; it can help them organize, focus their objectives and give them cohesion. But this is very different from strong groups that can go straight out and lobby for land rights – and win. Also some funders look for immediate impact, while it is generally the case that impact is felt slowly and only emerges years later.

A further fear is that the use of a set of restrictive indicators to measure the efficacy of a mapping project would place too much emphasis on ‘outcomes’, which have to be immediate. The focus is increasingly on ‘product’ rather than ‘process’. This occludes and de-emphasizes social impacts that are often less obvious, but no less significant. These might include changes to the internal dynamics of a community that relate to social cohesion, or hard-to-measure changes such as community-building and empowerment.

These issues will be dealt with in more detail in a forthcoming publication that will focus specifically on the monitoring and evaluation of participatory mapping initiatives.<sup>14</sup>

### Programme training

Training should be undertaken for staff tasked with facilitating the mapping activities and also for PMU staff – to give them an in-depth understanding of participatory mapping and monitoring activities. Gender awareness and engagement need to be incorporated into the training component, as well as components related to conflict resolution and negotiation if indicated.

### Purchase equipment

During this stage equipment should be purchased based on community development needs and the mapping methodologies selected. Equipment might range from assembling sets of paper and pens for sketch mapping to purchasing a GPS, satellite images and even computer equipment.

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<sup>14</sup> This publication, as yet untitled, is being developed under the framework of the project Piloting IFAD's Participatory Mapping Approach for Specific Livelihoods (Pastoralists, Indigenous Peoples, Forest Dwellers) through Innovative Twinning Arrangements – phase II.

## Phase 2 checklist

- ☐ Are the issues and approaches identified in the project design phase still relevant?
- ☐ Do the mapping tools identified actually respond to community needs?
- ☐ Have you identified and approached the intermediaries who will facilitate the participatory mapping activities?
- ☐ Are the training requirements identified at the project design stage still applicable? Do they need to be augmented or modified?
- ☐ Have plans been made and resources set aside to ensure that training is ongoing and relevant to the changing nature of participatory mapping tools and projects?
- ☐ Have you defined a set of baseline data and preliminary criteria for monitoring?
- ☐ Were community members involved in the selection of these criteria and indicators?
- ☐ Have you completed relevant training of the mapping facilitators?
- ☐ Did this training include a gender awareness component?

## Mapping phase

### Prepare the community for the mapping activity

Prior to beginning a mapping activity, the community needs sufficient information about participatory mapping (what maps are and how they are made and used), the range of tools available (from sketch maps to, if relevant, sophisticated computer-based mapping systems), the process required to create the map (how much time, effort and resources are required) and the map's potential uses.

This information is best presented at a community meeting. This meeting also provides community members a forum for discussing the relevance of the map-making process to NRM issues facing the community. If this project is being initiated or facilitated by outsiders, the initial meeting is also an opportunity for them to introduce themselves and begin building a relationship with community members. All projects in the field visits stressed the importance of building trust in implementing successful mapping initiatives.

At this stage of the process, it is also important that the facilitator(s) of the meeting identify and articulate the risks associated with mapping these lands (see section on "Free, prior and informed consent" in chapter 2). It is important that community

members are clear about and have the opportunity to discuss these issues at an early stage, so that the information to be collected and included on the map can be tailored to avoid potentially negative consequences.

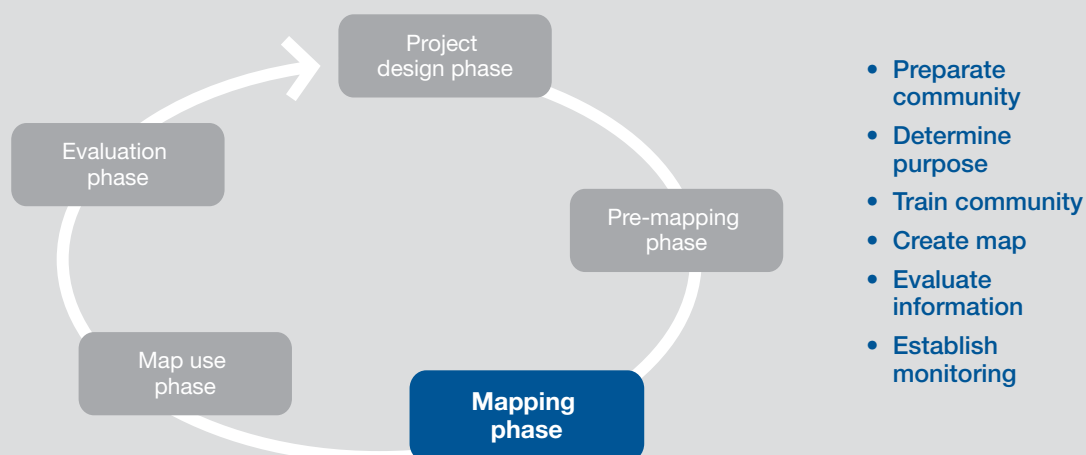
Only when community members have a rounded understanding of both the opportunities and risks associated with the mapping activity will they be able to make an informed decision on whether they are prepared to invest the required time and energy.

### Determine the purpose(s) of making a map

People's time is precious (see section "Accommodate community needs" in chapter 2). Thus it is important that community members determine at the outset the purpose, or purposes, for creating a map, and define a strategy for using the map to address these issues (often in pastoralist, indigenous and forest-dwelling communities these are NRM-related concerns). This step avoids the community spending time to produce a map that might not address their needs. The initial meeting, described in the previous step, is the appropriate moment to determine the map's purpose(s).

During this decision-making stage, it is important to involve as many community members as possible (see section on "Commitment to an inclusive process" in chapter 2). A commitment to broad

Figure 7: Mapping phase







Community ground map, MKEPP, Kenya

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community involvement is important in getting people to think through issues collectively, share important knowledge and memories, and debate relevant issues. If these discussions do not take place among community members, or if pressing issues related to the land are left unresolved, they can undermine the legitimacy of the map at a later stage.

Community buy-in and control are dependent on a broad cross-section of community members engaging in this decision-making stage. The wider the selection of community groups involved, the better the maps will represent the views and interests of the entire community. If more groups are involved at this early stage, it is also more likely that the community will assume

ownership of the map, which will result in it having a greater legitimacy both within the community and subsequently to outsiders.

If the community meeting is large, it is often best to split into smaller groups. These can be determined by gender, age and socio-economic status so that everyone is comfortable and able to contribute to the group in which they are working.

During each of these decision-making steps, it is important that community members and other stakeholders engaged in the mapping process ask who is leading decision-making on the map. It is important



to identify whether community members are making decisions by consensus, or whether it is a local leader or institution, or outside NGOs, researchers or government officials. The intent is to enable community members themselves to take control of this process.

After a clear set of purposes have been determined, community members must decide what information to incorporate into the map to satisfy the identified purposes. This might include documenting information about the location of natural features (rivers, mountains or pasture lands), man-made features (the location of village sites, roads or agricultural areas), the location of resources (forest types, hunting areas or grazing sites), as well as sites of important cultural or historical value (boundaries, graveyards or areas with spiritual significance). It may also include identifying areas of potential conflict, land-use change, development and other contemporary and pressing land-related issues.

Before information collection begins, the community must decide on some fundamental map-related issues. These include:

- deciding who from the community will be involved in making the map;
- symbols that will be used on the map (these can be modified later in the process);
- the language in which the map and legend will be presented; and
- whether the community intends to map the entirety of the community's territory or to focus on areas of special significance.

### Train community members

The community needs to select members who will act as their representatives. These representatives should be trained in basic facilitation skills to help smooth the progress (and in some instances mediate) the mapping activity. They will also require a broad level of training in participatory mapping processes and the tools required.

Other community members will require targeted training in surveying and mapping techniques before the process of data collection begins. This is especially the case if specialized mapping equipment, such as compasses or GPS, is being used. Training can be carried out by project staff, associated organizations or even the selected and trained community representatives.

### Document information

Participatory mapping is a vast topic, and the mechanics and techniques required for information collection and map creation will be dependent on the chosen process and type of map. Documentation of the mapping process is, however, an issue that needs to be addressed. 'Documentation' is a generic term used to refer to the procedures employed in collecting and recording information that will either:

- be incorporated into a participatory map (for example local, land-related knowledge, history and stories); or
- document the mapping process itself (this record might include information about the activities of a mapping project and challenges that were addressed). Such documentation is often gathered for the purpose of satisfying project funders.

A variety of techniques can be employed on their own or in combination to document local knowledge and the process of creating a participatory map. These range from the simple writing of notes to the use of participatory video.

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15 Good resources for the hands-on creation of a participatory map include Flavelle (2002) (particularly for forest-dwelling communities) and Tobias (2000) (particularly for indigenous groups). For a guide on participatory three-dimensional modelling, there is no better resource than Rambaldi and Callosa-Tarr (2002).

### Create the map and determine the legend

The time and effort required for making a map will vary depending on the type of map being created and the tools employed. It is beyond the scope of this report to discuss the details of this particular step.<sup>15</sup>

Facilitation skills play an important role in generating diverse views, reaching a consensus on areas of contradiction and promoting creativity and innovation. The preparation of the legend, particularly the selection of features to display, and the way they are depicted and textually defined, assumes a key role in determining its final intellectual ownership, its resulting message, and its usefulness in the process (Rambaldi, 2005).

### Analyse and evaluate information on the map

Once a community has created the map, it is important that facilitators lead a discussion to evaluate and verify the overall quality and completeness of the mapped data, and examine their accuracy and relevance (see section on “Commitment to community control” in chapter 2).

This step is of particular importance if:

- the map has been partially made by outsiders; or
- the map was made by just one group in the community (e.g. youth); or
- any part of the map-making process has involved the map leaving the community.

At this stage, community members (even if they were not directly involved in the map-making process) should have the right to add, remove or modify the information presented on the map.

### Establish monitoring mechanism

During this mapping phase, project staff should begin to identify the tangible indicators of impact and change that are beginning to occur as a result of the mapping activity. These should be monitored through a multilevel participatory process, and

feedback mechanisms should be in place to improve the process and thus maximize impact and counter unexpected risks.

Indicators should relate directly to the purposes identified in the subsection “Determine the purpose(s) of making a map” and should attempt to qualify or quantify the impacts related to the mapping project and activities. For example, if the purpose is to delineate the ancestral boundaries of a forest-dwelling group, indicators would obviously include the transposing of boundaries onto a map. But there should also be further elements to examine some of the less-obvious impacts of the mapping activity. For example, does the boundary depicted on the map have the support of all groups within the community? Do neighboring communities agree with the position of the boundary?

Then there are indicators that relate directly to change stimulated by the mapping activity. These might include: changes that occur within individuals (e.g. the skills and knowledge learned through the mapping project have enabled individuals to assume a different role within decision-making processes in the community); changes within communities (e.g. a community now has cohesive, consensus-based management or a communication plan to guide future resource-related negotiations); or changes in the role that a community might have in influencing events within their broader region (e.g. a map produced by a community was used to influence government land- or a resource-related decision-making in a way that is advantageous to the community)



Community members describing the participatory mapping process in Abuzad Locality, North Kordofan, Sudan

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### Phase 3 checklist

- ☐ Has a community meeting been held to discuss the questions identified below?
- ☐ Do community members have sufficient information about participatory mapping (what maps are and how they are made and used)?
- ☐ Do community members understand the range of tools available (from sketch maps to, if relevant, sophisticated computer-based mapping systems)?
- ☐ Are community members clear about the process required to create the map (how much time, effort and resources are required)?
- ☐ Are community members clear about the map's potential application(s)? Are these applications part of a broader and well-defined strategy?
- ☐ Has a discussion been held between all stakeholders in the participatory mapping project to identify and articulate the risks associated with mapping these lands?
- ☐ Have community members been given the opportunity to determine or else augment the purpose of the mapping activity?
- ☐ Was this done in an inclusive manner within a community (especially through the involvement of women and other vulnerable groups)?
- ☐ Have community members chosen representatives to be trained in the activity?
- ☐ Have the selected community members been trained?
- ☐ Have the project documentation requirements been identified?
- ☐ Are there resources in place to adequately document the process?
- ☐ Has the map been created?
- ☐ Have community members determined the legend?
- ☐ Have community members been given the opportunity to verify and modify the map and its content?
- ☐ Are community members beginning to employ monitoring indicators and evaluate the impact of the project?

## Map use and decision-making

### Use maps to support communities' NRM initiatives

Analysis of the information on the map offers an opportunity to support community members in better evaluating their circumstances. They may become more aware of the problems, challenges and potentials of their community and thus become more effectively equipped to manage their local natural resources. The maps can be used both for decision-making and to prioritize the interventions needed to ensure access to and management of natural resources. Thus it is important that development practitioners explore these issues with the community.

Practitioners should not assume that the mapping work will result in local ability to generate and implement effective solutions. Although local people often have the best information about local needs and issues, in some cases they may be limited in understanding the causes and generating viable solutions, especially if their educational level is low and exposure to other ideas and experiences is restricted. There is also a risk of biased solutions being proposed by a majority or powerful elites, without due regard for minority interests within the community. Local people *are*, however, best placed to design a resource management strategy in practical

terms and to navigate competing interests. Maps can become an important tool in helping determine the location of key resources, as well as in determining management units and their associated requirements (for example, through a harvesting regime, a conservation significance). This was achieved in Indonesia, where participatory mapping activities formed the foundation for community resource inventories, which in turn provided the information to generate management plans.

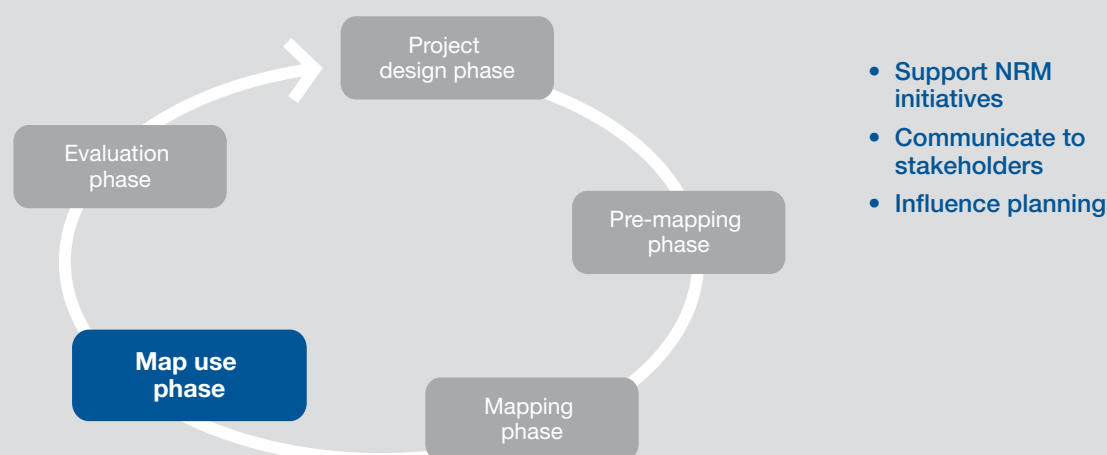
Facilitators can assist by introducing new ideas for discussion, providing information on strategies that have worked elsewhere, introducing others who can provide expert advice, and being critical friends to ensure that legal, management and safety issues are properly considered.

### Communicate mapping information to stakeholders

Maps are powerful and engaging visual tools that excel in communicating local knowledge. They offer a readily understandable language that can be interpreted by people from all backgrounds, whether community members, researchers or government officials.

Using the community's maps to convey its information is a most important component of the participatory mapping process, and also one of the most complex and difficult to achieve successfully. If a community has provided its

Figure 8: Map use and decision-making



time and energy to create a map, it is important that they see this investment put to use and that the completed maps serve the purpose(s) identified by the community. Use of the maps needs to be part of a broader and well-defined strategy. However, other potential uses will emerge and develop over time, once community members have a clearer idea of how the maps might be used, and as new circumstances arise to which the maps might be applied.

The map, by itself, is unlikely to solve any land-related issues, but when the map is incorporated and used as part of a clear communication strategy, then its contribution to that strategy will be more likely to initiate change. Successful use of the map is also directly related to the presence of enabling and disabling legislative and political environments.<sup>16</sup>

Once a map has been created, it is often put into a public arena. This turns local knowledge into public knowledge and conceivably takes it out of local control. It is important that communities are aware of this and attempt to develop a set of regulations that control how the map is used and distributed (see section on “Support for community intellectual property” in chapter 2). Community members need to be clear about who will use the final map and who authorizes its use. The ownership issue has been a critical and recurrent issue in many participatory mapping initiatives.

Issues linked to capturing and using the knowledge generated through participatory mapping processes and to developing a participatory communication strategy are extensively discussed in a forthcoming publication.<sup>17</sup>

### Link outcomes to broader planning processes

Project intermediaries can be instrumental in using map information and the associated discussions to identify areas of synergy and similarity with existing planning frameworks at a higher decision-making level, as well as to realize the goals identified in the communication strategy (see previous subsection). This is particularly the case if they represent governmental or non-governmental

organizations with a mandate to work with local communities. If these linkages can be proven, the information produced within the community should help influence NRM and investment decisions at these higher levels.

### Maps as participatory tools for project evaluation

Maps can also support the participatory evaluation of projects/initiatives under implementation. An example is the use of participatory mapping in the evaluation of two community empowerment projects implemented by Bharitiya Seva Ashram (BJSA) and Chitrakoot Seva Ashram (CSA)<sup>18</sup> in Uttar Pradesh, India, supported by the International Land Coalition. The evaluation was carried out in February/March 2008 in 13 villages, and participatory mapping was used to measure community awareness of land tenure issues and land availability and to identify land that had been grabbed by powerful elites. The maps allowed visual representation of the impact the projects had in terms of securing land rights for marginalized groups and stimulated the exchange of information. Through the maps, the villagers were able to show both land that had been redistributed and land still under illegal possession.<sup>19</sup>

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16 Further discussion of this issue is presented in IFAD (2009)

17 This publication, as yet untitled, is being developed under the framework of the project Piloting IFAD's Participatory Mapping Approach for Specific Livelihoods (Pastoralists, Indigenous Peoples, Forest Dwellers) through Innovative Twinning Arrangements – phase II.

18 BJSA and CSA are community-based organizations working on land rights in India and supported by ILC.

19 Further information on these case studies will be found in a forthcoming publication.





Participatory evaluation of community empowerment project for access to land, Uttar Pradesh, India

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#### Phase 4 checklist

- ☐ Is the map being used to support community members in better evaluating their circumstances and becoming more aware of the problems, challenges and potential of their community and more effectively equipped to manage their local natural resources?
- ☐ Have the maps been used to support decision-making?
- ☐ Has the project management team facilitated a structured evaluation of these issues?
- ☐ Have the maps been used in a public setting or presented at a higher decision-making level?

## Evaluation

Stakeholder monitoring and evaluation of the participatory mapping process should be undertaken at three levels: the community, project intermediaries and the government (local, district and national).

### Communities evaluate the utility of mapping

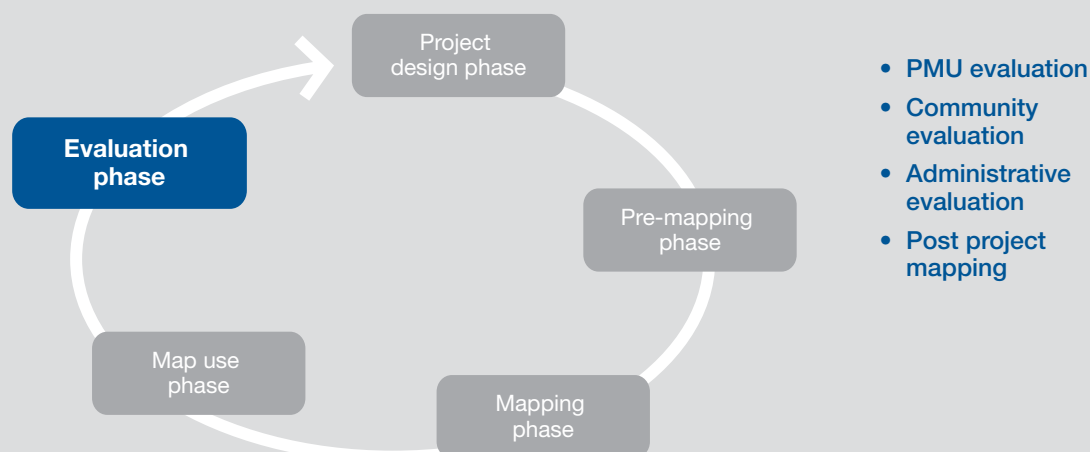
The impact of participatory mapping activities on community cohesion and empowerment related to resource management and decision-making should be monitored and evaluated by community members. This evaluation should be achieved through a community self-assessment mechanism in which members discuss the usefulness of the participatory mapping process, the failures and next actions required. This will enable the PMU and implementers to refine the mapping process (as well as identify additional participatory components to support the mapping activities). Such evaluation will help in scaling up the methodology.

Horizontal exchange and learning – in other words bringing communities together to discuss their mapping experiences – is also a helpful mechanism to analyse and incorporate key outcomes and evaluate overall change and the broader impacts of the project. This can be done through

bringing multiple communities together (for example regionally or within one watershed area) or, more simply, bringing two or three communities together (the number will depend on the overall objectives of the mapping project and the budget). The Centre for International Forestry Research (CIFOR) convened a training workshop on participatory mapping involving over 20 communities from a single watershed in East Kalimantan, Indonesia, at the beginning of a large watershed-wide project. Participants worked together for four days, after which they returned to their communities to undertake the mapping activities. Further exchange involved communities working together directly to identify mutually acceptable boundary locations, which were then positioned on the map. A final meeting was held at the end of the project to report the outcomes of the produced maps to the Government and other communities. The maps, themselves, personal stories written in journals, and the experiences of the project intermediaries involved in supporting the communities were all shared in this final meeting.

These horizontal exchange activities will require further training of community members in facilitation skills, session-planning and interview techniques, to mention a few areas. Moreover, resources

Figure 9: Evaluation phase





will have to be assigned to this activity at the beginning of the project.

### **Project management unit and in-country evaluation missions**

Ideally, a monitoring system should be in place at the PMU at the start of participatory mapping activities. It should include a feedback mechanism to help improve activities, and it should be an integral part of the overall project results and impact management system. The monitoring system will involve a level of reflection and evaluation of what has been achieved through the mapping project, and thus give a glimpse of some of the social impacts that might not be immediately visible or quantifiable (see subsection “Define monitoring mechanism” under “Pre-mapping phase” in this chapter). Initial ideas can be recorded in a journal, taped on video, or expressed and added to collaboratively through a blog or Wiki (given the availability of new technologies).

Community groups and facilitators should be tasked with ensuring regular consultations with project officers. This step will require that additional training and resources be allocated during the project design stage. The monitoring-and-evaluation criteria developed and validated during the pre-mapping phase should be shared with in-country evaluation missions so they may evaluate the results and impacts achieved by the project’s participatory mapping activities. They should then be able to identify possible opportunities, problems

or risks, in addition to proposing the necessary adjustments in their recommendations.

### **Administrative evaluation of overall policy change and decision-making**

Monitoring in this area would focus on the contribution of mapping activities to overall policy dialogue and to strategies supporting local development at district, regional or national levels. Indicators might include actual changes in legislation, governance mechanisms (decision-making) and policy implementation, to name a few. These will be contingent on the scale, reach and intent of the mapping project.

### **Post-project mapping**

Post-project mapping occurs at the end or even after the completion of an IFAD project. It seeks to re-examine the broader impacts that participatory mapping activities and the associated communication and decision-making have had on the community – as well as to determine if the expected effects and impacts continue to be generated.

Unlike other components of the evaluation phase, this stage uses maps to represent change. These maps can be directly compared with others created at the beginning of the project to provide a visual depiction of such change. It also involves application of the other media, communication and decision-making processes central to this handbook.

## **Phase 5 checklist**

- ☐ Has a monitoring system been in place from the start of participatory mapping activities?
- ☐ Are there feedback mechanisms to help improve the mapping activities?
- ☐ Have community groups and facilitators held regular consultations with project officers?
- ☐ Have communities been given the opportunity to evaluate the utility of the mapping activities?
- ☐ Has the project management team supported horizontal and vertical exchanges and learning activities?
- ☐ Has there been evaluation at both the project management and partner level?
- ☐ Has a post-project mapping activity been organized and implemented?

## 4. Conclusion

This is the second report in a two-part series that focuses on the use, tools, core principles and design of participatory mapping initiatives within IFAD-supported projects. It elaborates on the process of designing, preparing, implementing and evaluating a participatory mapping initiative within an IFAD context. It articulates core principles, as well as the practical mechanics of designing an adaptive approach to participatory mapping. It is a 'living' document – changing as new light is shed on the issues presented.

This report, together with the review *Good practices in participatory mapping* (IFAD, 2009), provides a set of tools and information to assist in the implementation of participatory mapping processes. In addition, during phase II of the project Piloting IFAD's Participatory Mapping Approach for Specific Livelihoods (Pastoralists, Indigenous Peoples, Forest

Dwellers) through Innovative Twinning Arrangements, two other publications are being developed: one publication will focus on the development of participatory communication strategies to support the management of knowledge generated through participatory mapping processes, while the other will focus on participatory monitoring and evaluation of these processes. Both publications are intended to support and complement implementation of the IFAD adaptive approach to participatory mapping.

## Project Design Checklists

### Phase 1

- ☐ Was a situational analysis conducted?
- ☐ Did the analysis consider ethnicity, gender, indigeneness and the community's legal recognition?
- ☐ Have the primary NRM issues of specific livelihoods been identified?
- ☐ Has a preliminary assessment been conducted to identify appropriate mapping methods?
- ☐ Have collaborators/partners been identified?
- ☐ Have the resources needed to undertake the participatory mapping activities been allocated?

### Phase 2

- ☐ Are the issues and approaches identified in the project design phase still relevant?
- ☐ Do the mapping tools identified actually respond to community needs?
- ☐ Have you identified and approached the intermediaries who will facilitate the participatory mapping activities?
- ☐ Are the training requirements identified at the project design stage still applicable? Do they need to be augmented or modified?
- ☐ Have plans been made and resources set aside to ensure that training is ongoing and relevant to the changing nature of participatory mapping tools and projects?
- ☐ Have you defined a set of baseline data and preliminary criteria for monitoring?
- ☐ Were community members involved in the selection of these criteria and indicators?
- ☐ Have you completed relevant training of the mapping facilitators?
- ☐ Did this training include a gender awareness component?

### Phase 3

- ☐ Has a community meeting been held to discuss the questions identified below?
- ☐ Do community members have sufficient information about participatory mapping (what maps are and how they are made and used)?
- ☐ Do community members understand the range of tools available (from sketch maps to, if relevant, sophisticated computer-based mapping systems)?
- ☐ Are community members clear about the process required to create the map (how much time, effort and resources are required)?

- ☐ Are community members clear about the map's potential application(s)? Are these applications part of a broader and well-defined strategy?
- ☐ Has a discussion been held between all stakeholders in the participatory mapping project to identify and articulate the risks associated with mapping these lands?
- ☐ Have community members been given the opportunity to determine or else augment the purpose of the mapping activity?
- ☐ Was this done in an inclusive manner within a community (especially through the involvement of women and other vulnerable groups)?
- ☐ Have community members chosen representatives to be trained in the activity?
- ☐ Have the selected community members been trained?
- ☐ Have the project documentation requirements been identified?
- ☐ Are there resources in place to adequately document the process?
- ☐ Has the map been created?
- ☐ Have community members determined the legend?
- ☐ Have community members been given the opportunity to verify and modify the map and its content?
- ☐ Are community members beginning to employ monitoring indicators and evaluate the impact of the project?

### Phase 4

- ☐ Is the map being used to support community members in better evaluating their circumstances and becoming more aware of the problems, challenges and potential of their community and more effectively equipped to manage their local natural resources?
- ☐ Have the maps been used to support decision-making?
- ☐ Has the project management team facilitated a structured evaluation of these issues?
- ☐ Have the maps been used in a public setting or presented at a higher decision-making level?

### Phase 5

- ☐ Has a monitoring system been in place from the start of participatory mapping activities?
- ☐ Are there feedback mechanisms to help improve the mapping activities?
- ☐ Have community groups and facilitators held regular consultations with project officers?
- ☐ Have communities been given the opportunity to evaluate the utility of the mapping activities?
- ☐ Has the project management team supported horizontal and vertical exchanges and learning activities?
- ☐ Has there been evaluation at both the project management and partner level?
- ☐ Has a post-project mapping activity been organized and implemented?

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