Participatory mapping as a catalyst for rural people's empowerment: An overview of experiences from the International Land Coalition (ILC) network

Participatory mapping as a tool for development-oriented interventions has gained increasing prominence since the late 1980s. Community-based mapping approaches allowed for improved information exchange between outsiders (researchers, NGOs, government, etc.) and insiders (community members) in the design and implementation of development projects.

Today, maps also represent central tools for many land stakeholders and are no longer confined to exchanges of information for project design and implementation. Mapping has become a powerful tool to gather information on overlapping land claims where duties, rights and responsibilities over land and resources are unclear. In other words, mapping increasingly plays a role in the empowerment of people and communities.

Mapping tenure relations not only provides spatial information but also maps the socio-political relationships underlying these entangled links, and socio-institutional structures that govern the natural resources. Mapping is an exercise through which tacit knowledge, as embedded in people's spatial memory, is converted into explicit and externally-usable knowledge.

This brief paper reviews the lessons learnt by International Land Coalition (ILC) network members and partners in combining participatory mapping and spatial information technologies to improve secure land access and control for poor men and women.   While this overview does not necessarily cover the full range of the mapping toolbox, it does seek to frame how technology-assisted community mapping is related to the broader goal of empowering rural people that is a central objective for many of ILC's partners.

The International Land Coalition is a global network of intergovernmental, governmental and civil-society organizations, and works to increase secure access to natural resources, especially land, by poor men and women. Its operational focus includes support to rural people's organizations and their NGO partners, in order to

increase opportunities for poor men and women to participate in policy- and decision-making processes that affect their livelihoods.

Overview of ILC partners' experiences

The experiences of the ILC's network members suggest that mapping initiatives are undertaken with at least five key purposes in mind: (1) providing community cohesion and leverage for collective action, (2) identifying, adjudicating and registering land rights, (3) improving land-use planning and management, (4) supporting land dispute or conflict resolution and (5) forming a basis for territorial planning and socio-economic integration.

1. Mapping for community cohesion and advocacy

Mapping often contributes to building community cohesion and, especially in the form of 3-D modelling, can be used as a tool to pass historical knowledge down through generations, thus nurturing cultural identity (UNORCAC-Ecuador, CPI/AC–Brazil). This may be particularly significant for indigenous communities, which find their cultural rights closely linked to territorial rights. For indigenous peoples, mapping can be used to buttress their own vision of the many interrelations between man and the surrounding environment, and between land and territory.

In cultural mapping, information is not necessarily geo-referenced. Sketch mapping and ethno-mapping can be combined with geographical information systems when the knowledge generated in the mapping process is also aimed at land rights registration. (PAFID-The Philippines). Moreover, in a cultural dimension, community mapping has the potential to enhance the local governance structure as a channel through which to defend or advocate for the rights of indigenous peoples to their ancestral lands (CEDETI-Bolivia).

2. Mapping for land rights identification, adjudication and registration

Bottom-up geo-referenced mapping can help rural communities' land claims to be recognized by state institutions, particularly where the existing legal framework is supportive of these claims. There are examples of this on both individual and family bases, as well as land rights claimed and subsequently registered by communities (PAFID- the Philippines, APLR-Georgia).

Geo-referencing community spatial knowledge (e.g., PGIS, PPGIS, GPS, ortho-photo mapping, P3DM, satellite imaging,) provides the accuracy needed in community-led processes for state authorities to recognize the results (FTierra–Bolivia, HARDI-Madagascar). Although the higher level of accuracy required (especially for individual titling of small plots) can make the process time-consuming, mapping for land registration enables information to be transferred and digitized into GIS.

While land title deeds or certificates of occupation do not capture the overall complexity of land insecurity, a reliable and regularly updated cadastral system can enhance land security for the rural poor, particularly when maintained at the local level. Community-level organizations advocate for participatory-created and monitored, decentralized land administration systems, often perceived as more equitable, because information is available where it is generated and better reflects community-level land systems (such as customary systems), and empower community-level land institutions (HARDI-Madagascar, FTierra-Bolivia).

The mapping process, however, may bring out latent conflicts. Title deeds or certificates of occupation alone will not secure land rights for poor men and women unless enforcement is guaranteed and the process of identifying and issuing them is unbiased by vested interests. The process must also be affordable and its methods understandable by communities that use them (AFRA-South Africa).

3. Mapping for land use planning and natural resources management

Planning and managing land use is intimately linked to tenure security. Moreover, land planning goes beyond the determination of primary rights (ownership rights) to include secondary use rights (access to grazing land, water resources, fruit trees and forest). These are fundamental in defining the livelihood strategies of the communities' poorest, and partially define the comparative advantage of a communal tenure system as alternative/complementary to an individual ownership/tenure system.

ILC partners' experience in this area, is often linked to broader strategies of land demarcation and/or territorial planning, as in shifting cultivation management or pasture management (APLR-Georgia), or land and water use optimization (ACH-Nicaragua). When past, present and future patterns of natural resource use are taken into account, the mapping process can also help to create a learning environment in which landscape-nested institutions, and their strengths and weaknesses, appear more clearly to community members (ACH/CODER-Nicaragua). When community institutions or water users' committees are empowered as full partners in action research – rather than treated as mere subjects for data collection – mapping land and water use plans can become instrumental in negotiating better conditions for farmers (CEPES-Peru).

4. Mapping for land dispute or conflict resolution

Land conflicts, particularly in rural and remote areas, are multi-dimensional and complex in nature. Often the financial concerns of national and local governments generate policies that attract outside investment to areas in which disputes or conflicts already exist and where laws and policies related to land and territorial rights – and particularly those concerning indigenous peoples' rights – are not in place or not enforced. A blend of statutory, customary and hybrid (formal or informal) institutions and regulations may co-exist in the same territory, all having a *de jure* or *de facto* authority over land rights.

In such contexts, mapping can be a powerful mechanism to transform and possibly resolve disputes or conflicts, if it is accompanied by appropriate institutional building and a broader effort to empower people and communities. Community-initiated and collaborative mapping can assist the negotiation process in extractive exploitation

(APA‑Guyana, YTM‑Indonesia). Furthermore, mapping can help manage internal dynamics and disputes or conflicts through the identification/strengthening of dispute/conflict management capacity of indigenous land-related authorities, among neighbouring communities (PAFID-The Philippines) or individuals within the community (ACH-Nicaragua).

5. Mapping for territorial planning and spatial integration

Decentralization processes are underway in many countries and, to varying degrees of effectiveness, are devolving or de-concentrating powers and authorities to local and regional bodies. As a result, new opportunities are emerging for community members to define the developmental trajectories of political/administrative units that are newly empowered or established. This is particularly important for rural areas, historically neglected in the design of national policies.

For decades, the planning practice has been sectorally based and urban-biased. There is now some movement toward inter-sectoral and spatially-integrated territorial planning. In this respect, mapping can sustain the process of identifying territorial units of management, while helping rural communities to include their concerns in an enlarged, integrated vision of the reality. This is done through a spatial projection of their territorially-determined dynamics, such as communication and commercialization routes, natural resource management systems, water flows and commercial flows. In other words, by using a common spatial framework, maps can fortify the users' understanding of how physical, social and economic factors interact. Spatial integration thus becomes a step toward socio-economic integration (PhilDHRRA-The Philippines).

Mapping as a tool for Empowerment: Lessons Learned

Mapping, when combined with spatial technologies, can be highly supportive in advancing the land rights agenda for rural communities. However, the promise of community empowerment through mapping may be tempered by concerns that the mapping process – including the control and management of its technology – can reinforce or reconfigure existing forms of power distribution and relations.

For rural communities, maps often represent a step toward grass-roots empowerment for better land access and tenure security. Rural maps, in the experience of ILC's partners, have shown to be useful tools for impacting and even altering power relations, by increasing the users' capacity to advocate, lobby, plan, manage and monitor the territorial and land–related dimensions of the development path of the mapped area.

There are several recurring issues that arise, when discussing mapping as an empowerment tool:

1. *An enabling environment matters.* For mapping to contribute to empowerment, there must be institutions and decision-making processes to be accessible by and accountable to rural people. Many ILC network members develop strategic partnership between government and civil society in an effort to make mapping outcomes binding. This has proven to be a viable strategy – although one that is difficult, delicate and time-consuming – to increasing the likelihood that the state will recognize land claims by rural poor and indigenous groups, including those documented through mapping.

2. *Mapping needs to reflect the full bundle of rights.* Secondary rights – including rights to use, improve, assign, and transfer natural resources – are highly relevant for rural people. Ownership rights may appear more clearly than others, though, and if registered via a mapping process can obscure the bundle of secondary rights, thus reducing the livelihood options of those relying on them.

3. *The mapping process may matter more than the results.* In the experience of ILC's partners, the ultimate aim of land rights mapping is as much consensus-building on the process as it is agreement-reaching on boundaries. It is thus important to establish guidelines to make the whole process as transparent as possible, including how precise the mapping exercise intends to be. While it is a delicate process, in many rural areas land rights are founded on voluntary-based flexibility and mapping carries the risk of freezing the fluidity of those tenure arrangements. Accuracy of boundaries – necessary for dispute and conflict resolution, natural resources management and land demarcation – should aim to reflect the agreement reached by mapping users concerning the trade-off between fluidity of land rights and their relative security.

4. *Technology must include, not exclude.* More advanced technologies, such as those related to GIS, permit a wider use of vast amounts of information but run the risk of increasing the conceptual distance between those making the maps and those providing the local knowledge that nurtures the maps. All too often, it is difficult to transfer applications at the local level because software is either too costly or available only English (a major constraint in countries where English is not even the second language), or simply because of frequent electrical breakdowns that make computers inaccessible. Capacity-building in the use of mapping technologies can represent an empowering experience some rural people, but this may be at the expense of other community members (women; elders; orphans, returnees). Experience shows how, in some cases, communities strategically choose not to master new mapping technologies, unless the map-makers themselves are accountable to community members. Training – including the production of important reference material in the local language – is important, as this affords community members a wider possibility to decide which strategy to follow for monitoring and intervening in the mapping process.

5. *Maps are the beginning of the empowerment process, not the end.* The ability to use the map(s) as part of a grass-roots toolbox not only implies that there must be a territorial-driven demand for mapping, but also that communities should have developed a improved capacity to develop map-use strategies. Community institutions and their members should be able to update the maps according to their needs. The long-term usefulness of a mapping exercise depends on the initial strategy – i.e., whether capacity-building for these long-term uses is built in.

Mapping not only helps to identify physical resources, it can also identify customary institutions that manage these resources and regulate power among different territorial stakeholders. This can provide a basis for reviving and strengthening local NRM institutions that may have grown weak over time, which can contribute to greater environmental sustainability and reduced conflict. This institutional dimension of mapping must be taken into account from when setting out the strategy, so that the final map product is not a mere "museum item," but a real tool for community empowerment and sustainable development.

List of acronyms

ACH	Acción Contra el Hambre, Nicaragua
AFRA	Association for Rural Advancement, South Africa
APA	Amerindian Peoples Association, Guyana
APLR	Association for Protection of Landowners Rights, Georgia
CEDETI	Centro de Tecnología Intermedia, Bolivia
CEPES	Centro Peruano de Estudios Sociales, Peru
CODER	Comisión para el Desarrollo Rural San Juan de Cinco Pinos, Nicaragua
CPI/AC	Comisao pro Indio do Acre, Brazil
Ftierra	Fundación Tierra, Bolivia
GPS	Global Positioning System
GIS	Geographic Information Systems
PhilDHRRA	Philippine Partnership for the Development of Human Resources in Rural Areas, The Philippines
PGIS	Participatory GIS
PPGIS	Public Participation GIS
HARDI	Harmonisation des Actions pour la Réalisation d'un Développement Intègre, Madagascar
ILC	International Land Coalition
PAFID	The Philippines Association for Intercultural Development, The Philippines
P3DM	Participatory 3 Dimensional Modelling
UNORCAC	Unión de Organizaciones Campesinas e Indígenas de Cotacachi, Ecuador
YTM	Yayasan Tanah Merdeka, Indonesia

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