

3-D Mapping: A Tool for Community Empowerment

In the context of the Indigenous Peoples' Rights Act (IPRA) of the Philippines passed in 1997, 3-D mapping has served as a crucial enabling tool for indigenous peoples (IPs) to self-delineate their ancestral domains and to file claims over their lands and resources. 3D mapping has also helped IPs make operable the provision in the IPRA law that states: "Under the principle of self-determination, ICCs/IPs shall formulate their own sustainable development and management plans for the land and natural resources within their ancestral domains based on their indigenous knowledge and practices." (see boxed article)

WHAT, HOW, WHAT FOR?

A 3-D map is essentially a scale model of an area under study, reflecting its topographical contours; bodies of water; residential, agricultural, and timber land; and other important land and water features. It is the concrete output of an entire participatory information-gathering process – merging the

indigenous knowledge of the community with scientific mapping technology. The 3-D map is usually kept in the local community.

The implementation of a participatory 3-D mapping tool in community resource assessment and planning involves practically everyone in the community. The larger the number of participants, the better—as the output of the process depends on the participants' combined knowledge of the area being assessed. The process is also known as a Participatory Geographic Information System (PGIS) or Participatory 3-D Mapping (P3DM).

In general, 3-D mapping may be employed in conducting community resource assessment and planning. Its more specific uses include: strengthening land tenure for indigenous peoples, delineating their ancestral domains, and *supporting community forestry projects*. In a conference sponsored by the International Land Coalition in Nairobi in September 2005, the following benefits of 3-D mapping

and PGIS were also highlighted: promotion of equity (ethnicity, culture, gender); amelioration of (territorial and resource) conflicts; and providing a creative means for communities to affirm their historical, cultural, social, ecological and spiritual assets.¹

3-D MAPPING SUPPORTS AN ANCESTRAL DOMAIN CLAIM

One success story is that of the Calamian Tagbanwa people of Coron, Northern Palawan whose claim to their ancestral lands and waters was supported by the 3-D mapping output.²

In the 1980s, after thousands of years of settlement, eight Calamian Tagbanwa communities in northern Palawan faced imminent disenfranchisement because of unabated, wholesale destruction of local marine resources. Despite coordination with village, municipal and law enforcement authorities, the communities' past efforts to contain illegal fishing and large-scale commercial fishing had been hampered by

Key Provisions of the Indigenous People's Rights Act (IPRA) R.A. 8371, 1997

- Seeks to recognize, promote and protect the rights of Indigenous Cultural Communities/ Indigenous Peoples (ICCs/IPs): right to ancestral domain and lands; self-governance; and the right to cultural integrity
- Recognizes prior rights, including pre-conquest rights, of IPs
- Promotes the principle of self-determination, whereby ICCs/IPs formulate their own sustainable development and management plans for the land and natural resources within their ancestral domains based on their indigenous knowledge systems and practices
- Provides for Free and Prior Informed Consent of the IP community as a requirement for the granting or renewal of any contracts, licenses, concessions, leases and permits within the ancestral domains

a lack of legal recognition over their right to utilize, regulate, and manage customary land and marine resources. It was not until the Philippine Constitution of 1987 that "Native Title" or the traditional ascription of territories to indigenous ethnolinguistic communities "since time immemorial" became part of the law.

¹ "Mapping for Change" in *Advancing Together* (Newsletter of the International Land Coalition), Vol. 2 No. 3, September-December 2005, page 12

² Philippine Partnership for the Development of Human Resources in Rural Areas (PhilDHARRA), in cooperation with PAFID and Tagbanwa Federation of Coron Island (TFCI), 2000. *Mapping the Ancestral Lands and Waters of the Calamian Tagbanwa in Coron, Northern Palawan: A Showcase of the Philippine Association for Intercultural Development's (PAFID) Land Tenure Improvement Project Using 3-Dimensional Mapping Tool in Community Resource Assessing and Planning.*

In a historic step in 1993, the Calamian Tagbanwas in Coron, Palawan filed the first formal legal claim in the Philippines over “ancestral waters.” Five years later, on June 12, 1998, their claim for ancestral domain, consisting of 22,400 hectares of land and waters, was finally granted by the Philippine government.

While historic, this victory was not easily won.

TAGBANWA FOUNDATION OF CORON ISLANDS: A TRUE PEOPLE’S INITIATIVE

In 1985, the Tagbanwa Foundation of Coron Islands (TFCI) was formed by the residents of barangays (villages) Banwang Daan and Cabugao. This was in response to three problems: (i) the public bidding of the Tagbanwa clan caves (used as sacred burial sites) carried out by the municipal government; (ii) the influx of migrant settlers in Coron Islands; and (iii) the issuance of tax declarations on parcels of Tagbanwa land to outsiders by the municipal assessor.

Having learned of the awarding of a Community Forest Stewardship Agreement (CFSA) to another group of Tagbanwa in central Palawan, the Tagbanwas of Coron contacted PAFID to gain more information about securing a CFSA as well. They had heard that a CFSA was a legal instrument that could guarantee tenure for a limited period

in exchange for the management of forest resources.

After much discussion about the application for a CFSA, the assembly chose the officials for the TFCI by consensus, and appointed 12 community elders to act as an advisory board. The officials then prepared a census, a sketch map, the organization’s by-laws, and a development plan for Coron Island.

After four years of follow-up, the CFSA was finally awarded in 1990. As a result, the public bidding of clan caves was stopped, the entry of outsiders ceased, and all tax declarations issued by the municipal assessor on Coron Island were cancelled.

Hearing of this success, other Calamian Tagbanwa clans in the outlying islands, as well as community leaders from other barangays in Coron began to exchange information with TFCI. Each barangay took steps to form a community organization focused on securing tenure over its own area. TFCI’s success thus helped bring the different Tagbanwa clans together to support each other’s ancestral domain claims.

SEEKING A MORE COMPREHENSIVE CLAIM

Soon after the granting of the CFSA, however, it became clear that the Tagbanwas’ domain included not only their ancestral lands but also their traditional fishing grounds, fish

3-D Mapping Success Stories

In the Philippines - Three-dimensional mapping as a consensus-building mechanism was used by the Philippine Association for Intercultural Development (PAFID) in the implementation of its Land Tenure Improvement Program, aimed at helping indigenous communities secure tenurial rights over their ancestral domain. It was then utilized in the implementation of the IPRA, in support of numerous ancestral domain claims by indigenous peoples—among them the Calamian Tagbanwa of Palawan, Philippines.

In Northeast India – The PAFID experience and mapping tools were then introduced in two projects in Northeast India assisted by the International Fund for Agricultural Development (IFAD). In May 2003, within the context of the North Eastern Region Community Resource Management Project for Upland Areas Project (NERCRMP), the West Garo Hills Community Resource Management Society (WGRHCRMS) hosted a training on P3DM facilitated by PAFID. The event was supported by IFAD and the International Centre for Integrated Mountain Development (ICIMOD). The P3DM method was tried out in Sasatgre village, which lies in the Nokrek Biosphere Reserve. The output was a 1:5,000-scale model of the West Garo Hills, Tura and Sasatgre, Meghalaya, India.

In addition to enhancement of natural resource management planning and livelihoods goals, P3DM is envisioned to assist in developing a model, which would be replicable for other Protected Areas. The objective is to ensure that local plans developed by communities are included in larger management plans for Nokrek National Park and the buffer zone area. Currently, drafting and development of a buffer zone management plan is high in the priority of the Forestry Department. However, initial efforts by the Forestry Department to draft such a plan have given limited attention to the actual resource management and utilization initiatives of the communities. This situation is due to lack of updated information on current resource utilization and management activities. Later, when more villages will be able to come up with P3DM, recommendations could be formulated on a workable policy for participatory buffer zone management and guidelines developed.

– Source: *Integrated Approaches to Participatory Development website* – (http://www.iapad.org/whats_new.html)

sanctuaries, diving areas for marine products, and other submerged areas that were being threatened with destruction. They realized that the CFSA was not sufficient to protect these vital areas, as it granted only temporary tenure and only for land resources. After studying the legal options open to them, a

consensus was reached to take advantage of the Palawan Council for Sustainable Development's (PCSD) founding charter, Republic Act 7611 passed in June 1992, that expanded the definition of ancestral domains in Palawan to include coastal zones and other submerged areas. Thus, in February 1993,

seven barangays in Coron filed an application for a Certificate of Ancestral Domain Claim (CADC).

Four years later, the seven Tagbanwa foundations federated into the Saragpunta (from saragpun, meaning “let us gather”) to support each other’s ancestral domain claims. The community then sought PAFID’s assistance to come up with supporting documents to strengthen their claim.

PAFID’S AND THE COMMUNITIES’ ROLES

The external intervention of PAFID provided the impetus for the communities to pursue their ancestral domain claims. PAFID’s role involved clarifying legal policies and documentation requirements (such as position papers, 3-D mapping, etc.).

Prior to PAFID’s intervention, however, the communities had already conducted a series of informal consultations among themselves, through the initiative of their elders. They identified issues, such as government plans to push tourism projects in the area which could threaten their ancestral domain and resources. Through a series of clan and village meetings, a consensus emerged that a CADC was needed, but one that would include marine as well as land areas. As Chairman Ben Calix of Bulalacao put it: “If the claim has land, then it should have seas. Without the seas, the Tagbanwa will not be able to survive.” (translated) A set of officers was thus

formed to represent the communities before various government agencies involved with the CADC application process. Selection was through voting or by consensus among elders and barangay officials, considering factors such as age, education, experience in barangay affairs and skills in negotiation. Persistence and a proven track record in following up meetings were also valued.

MAPPING ACTIVITIES: A COMMUNITY UNDERTAKING

In January 1996, PAFID began work on the mapping requirements, with the direct participation of the Tagbanwa Foundations and the community leaders and residents:

- **Community sketch maps** – PAFID’s field worker assisted the communities in preparing community sketch maps to accompany the petitions filed. TFCI officers, with the aid of clan representatives and village elders, indicated the relative location of houses, Tagbanwa sitios, water sources, mangrove areas, burial sites, coral reefs, fishing grounds, kaingin, cashew groves, etc. These sketch maps provided the needed information for the preparation of base maps used in the on-ground survey of the ancestral domain.
- **Consolidation of boundaries** – PAFID undertook the boundary survey accompanied by members of multi-sectoral groups (NGOs, local government

representatives, and the DENR). The pre-survey process included collating sworn statements of village elders and documenting other evidence of long-term use and occupation of the territory.

- **Survey of boundaries** – The method used in the marine survey involved Trimble GPS receivers switched to the GPS marine setting. In the mapping activities, a motorized banca was used to trace the edges of the communal fishing area and important marine resources. A Tagbanwa boat captain familiar with the area steered the banca and directed the position of the GPS receiver on board. In this way, community members were assured that the surveyed boundaries were the exact points they had indicated.
- **Map validation** – Technical experts applied differential correction to the survey results before preparing a GPS map. They then digitized several features from maps from the Coast and Geodetic Survey—namely the rivers, lakes, island coastlines, peaks and coral reefs. Next, they overlaid the corrected boundary points and the corrected outline of major coral reefs on these features and culled the place names from the community sketch maps. From the sketch maps, they also created a layer featuring the relative location of swiftlet caves, burial caves, fishing grounds, villages and sitios, coconut and bamboo groves, and other

indigenous uses of the territory.

The resulting maps were presented to meetings of the different Tagbanwa Foundations, as well as leaders and residents. Several revisions were made, and the validation map was annotated to indicate spelling corrections for Tagbanwa place names, data for deletion, and additional information on certain key sites. The maps were then re-drawn to incorporate the corrections and turned over to the Saragpunta Board Members for inclusion in their CADC application.

The Provincial Special Task Force for Ancestral Domains (PSTFAD) then conducted a validation of the Calamian Tagbanwa's claim—with the validation report containing several contentious points that Saragpunta protested against. In the end—despite the protests—barangays Bulalacao and Tala were excluded from the claim and the area approved as ancestral waters was confined to 100 meters from the shoreline, an arbitrary criterion with no basis in traditional law.

GPS TECHNOLOGY MEETS TRADITIONAL KNOWLEDGE

Merging the information gleaned from the Calamian Tagbanwas' local knowledge of the area and the navigational skills of their boat captain with GPS technology produced maps of exceptional accuracy in terms of position and content. The initial community

sketch maps also corrected many place names and, more significantly, enriched the GIS (Geographic Information System) maps by overlaying the traditional use of the landscape and seascape. The information contained in Saragpunta's maps easily surpass other land and water use maps of the same areas for several reasons:

1. They locate the major coral reefs in the area and identify each by name;
2. They show the actual, current use of the resources in the ancestral domain (including sensitive or taboo sites, labeled as "Restricted Areas");
3. They indicate the place names of mountain peaks, inland lakes, beaches, coves and other features which were nameless in circa 1980s government maps; since the names are in the Calamian Tagbanwa language, the maps communicate the historical fact that these areas were explored, established and named by their ancestors;
4. They indicate important natural resources with their value or use to the community, showing that the area is clearly not uninhabited, unexplored, nor free from prior rights;
5. They indicate burial caves and other important ritual sites that evidence long-term occupation and use of the territory; and
6. Indigenous knowledge of the ancestral domain is tied to accurate geographic information, thereby facilitating

verification of the status of land and marine areas, and confirming the information gathered from community sources.

REFLECTIONS

While the linking of 3-D mapping to GPS technology is scientifically impressive, it is the "human factor" of collective empowerment that was the key to success. The victory of the Tagbanwa communities' legal claim over their ancestral domain can be attributed to the following:

1. the people's great interest and commitment in conserving and protecting their natural environment;
2. the consistently participatory approach employed throughout the process;
3. the strong leadership of the Tagbanwa Foundations, guided by clan elders;
4. the strategy of "strength in numbers," as seen in the Tagbanwa Foundations and then in their federation Saragpunta; and
5. external linkages and technical support provided by a committed community-development NGO (PAFID).

In the words of the TFCI chairperson, Rodolfo Aguilar: *The 3-D map has helped strengthen more our unity because we see on it our very own homes and our source of living. It*

also guides us in making a decent plan for our ancestral domain because, with it, we could easily locate our forests, lakes, and other important landmarks of our place. (translated) □

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