

## CASE STUDY

Mindanao, Philippines

# 03

## Participatory 3D mapping supports ancestral domain claims

Participatory 3D mapping has proven to be an effective tool to support indigenous peoples' formal claims over their ancestral domains in the region of Mindanao. These include rivers, forests, agricultural and coastal areas, among other natural resources. While the mapping process facilitates the resolution of conflicts over land, it also increases the capacities of the communities to engage in land-related decision-making. The digitised version of the maps has helped document formal claim dossiers and allowed communities to demand their right to free, prior and informed consent. They are also being used as an educational resource for the youth.

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### PRINCIPAL ORGANISATIONS INVOLVED

Philippines Association for Intercultural Development (PAFID)

### LOCATION

Mindanao, Philippines

### TIMELINE

1996-Present

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### TARGET AUDIENCE

Policy makers, civil society organisations, communal land governance structures

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### KEYWORDS

Land rights, indigenous peoples, titling, capacity building

## GOOD PRACTICES

Towards making land governance more people-centred

This case study is part of the ILC's Database of Good Practices, an initiative that documents and systematises ILC members and partners' experience in promoting **people-centred land governance**, as defined in the Antigua Declaration of the ILC Assembly of Members. Further information at [www.landcoalition.org/what-we-do](http://www.landcoalition.org/what-we-do)

This case study supports people-centred land governance as it contributes to:

**Commitment 5**      Respect and protect the inherent land and territorial rights of indigenous peoples

**Commitment 7**      Ensure that processes of decision-making over land are inclusive

**Commitment 9**      Prevent and remedy land grabbing

# Case description

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## Background issues

Indigenous communities in the Philippines have close ties to the land and their ancestral domain encompasses the areas where they have acted as stewards since immemorial times, which includes forests, rivers, agricultural and coastal areas. Land is not only seen as a means of production and livelihood, but also as part of indigenous peoples' spiritual and cultural tradition. A legal framework for the recognition of the rights of indigenous peoples over their ancestral domains, named the Indigenous Peoples Rights Act (IPRA), was passed in 1997.

Mindanao, the second largest and southernmost major island in the Philippines, is the poorest island group in the country. It is characterised by a protracted conflict between the National Government and Christian settlers, and the *Moro* people and other indigenous groups. This originates from conflicting claims over land and natural resources as well as deep socio-economic inequality. Ancestral domain lands are often contested by different groups. Against the background of this protracted dispute, the indigenous minorities aspire to achieve land tenure security by having their communal ancestral domains recognised. The burden of self-delineation is left to the communities themselves, who often lack the knowledge and capacity to file formal claims. Meanwhile, the claims filed by indigenous groups are obstructed by migrant families that settled in the area, local elites and big businesses.

## Solution

PAFID has used participatory 3D mapping to facilitate the legal recognition of ancestral domain claims in Mindanao. Participatory 3D modelling is a community-based process in which community members depict land cover, resource use and other environmental

features on a scaled and geo-referenced 3D cardboard model of the territory in question. The model integrates geographical data with local knowledge of natural resource use. Data depicted by the community on the models can be extracted, digitised and incorporated into a Geographic Information System (GIS). The participatory 3D modelling of ancestral land has proven to be an effective tool to increase community awareness of their rights regarding ancestral domains, empower local communities to participate meaningfully in spatial planning, inform the local government on the customary tenure of land and forests and foster a culture of collaboration between stakeholders.

## Activities

PAFID is a social development organization which has been assisting Philippine indigenous communities to secure or recover traditional lands and waters since 1967. Since 1989, PAFID and its partners have surveyed and mapped a total of 1,195,935 hectares of ancestral domains in the Philippines. Participatory 3D mapping includes various steps:

### Community meetings

Consultation meetings with the community are held to introduce the concept of participatory 3-D modelling as a method.

### Sketch mapping

Sketch mapping sessions with the Council of Elders are conducted to identify the natural boundaries of their territories. Usually, the activity includes locating, drawing and naming of rivers and other significant and permanent landmarks such as mountains and other geographic features. The spatial data obtained from sketch mapping are then located using a topographic map (contour). Ancestral domain boundaries are then drawn on the topographic map for enlargement.

After that, the community, with the support of PAFID, makes the necessary logistical arrangements like finding a venue sufficiently large to allow the construction of the model, and procure the materials needed for the model. They also organize transportation, accommodations and catering for all the participants in the construction of the model.

### Road network survey

This entails on-the-ground survey of road networks, including landmarks, around the ancestral domains. This serves as geographic reference and will help community members during the coding of the various land uses. Results of this activity will be overlaid onto the topographic map, which shall serve as a base map for the 3D-model.

### Base map production

A base map is produced using data from sketch maps, topographic maps and road network printing. The map is enlarged based on the most appropriate scale. Surveys are then consolidated and digitized for enlargement.

## **Assembling the blank model**

The base map is reviewed by the elders to pinpoint the exact surface to be mapped. This serves as a basis for constructing the base frame. The base map is then laminated using a transparent adhesive tape to minimize tearing. Carbon papers are glued at the back of the laminated base map. Rubber sheets are placed under the base map. Contour lines are traced starting from the lowest elevation, which is usually 20 m, up to the highest elevation.

The rubber sheet is cut according to the contour lines. The different layers of crepe rubber representing different contour levels are laid down on the base and fixed. The terraced contour layers are smoothed using sandpaper, after which, epoxy resin is applied and allowed to dry. White paint is then applied on the 3-D map. Participants are given the opportunity to study the blank model.

## **Coding sessions**

The community is invited to agree on terms, symbols and colours that will be used in the model. Key informants are invited to delineate vegetation types, land uses, and other aspects that they consider relevant to their environment. Strings and yarns are used to depict information and to define boundaries. Facilitators may need to help resolve conflicts and find agreement. This process can be done twice: for the present situation (based on the actual use of natural resources) and for the historic situation (based on the memory of community elders).

## **Validating results**

During the mapping process, and before digitising the information, transect walks are organized with selected community members for delineating boundaries with the use of GPS. If a boundary between neighbouring communities is to be marked on the GPS, neighbours are also invited to take part in the delineation process. Community members are made familiar with this technology, as well as with the minimal accuracy requirements required by the law to have land title issued.

## **Digitizing the information**

A plastic sheet is placed on top of the model and the data is copied and documented. Accurate documentation is essential. The initial results are discussed with the community. The transparent plastic sheet, the accompanying legends and colour prints are handed over to the GIS team for digitization, editing and data storage.

## **Community validation**

Map validation activities are undertaken to enable the community to examine and evaluate the accuracy of the information that has been provided during the 3-D mapping and coding sessions. Sometimes, there are requests for recoding some important landmarks and features which were not previously identified.

## **Handing over the model**

A handing-over ceremony is organised, which formally transfers ownership of this asset to the community, allowing its use for the purpose set forth at the beginning of the process. The model must be entrusted to an entity with the means and the commitment to safeguard and maintain it, and to make it accessible to those who would like to use,

update, integrate or correct the data. At this point the community can disseminate the map to other stakeholders, including the local or national government.

## Importance of the case for people-centred land governance

Participatory maps provide a valuable visual representation of what a community perceives as its place and the significant features within it. These include depictions of natural landscapes and resources and socio-cultural features known by the community.

Participatory mapping is multidisciplinary. What makes it significantly different from traditional cartography and map-making is the process by which the maps are created and the uses to which they are subsequently put. The 3D-model also provides the community with a dynamic tool which they can continually use to monitor changes in their territory and environment.

The participatory mapping process can influence the internal dynamics of a community. This process can contribute to building community cohesion, help stimulate community members to engage in land-related decision-making, raise awareness about pressing land-related issues and ultimately contribute to empowering local communities.

# Changes

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## Baseline

Before the Indigenous Peoples Rights Act (IPRA) was passed in 1997, national policies and laws in the Philippines did not recognize the existence of ancestral domains. Indigenous communities were merely referred to as upland inhabitants or “settlers”. While new policies recognized the role of upland and indigenous communities in the management of natural resources in forest lands, tenure security was limited to usufruct and/or leasehold agreements, where community-beneficiaries were identified as leaseholders or stewards of the forest.

## Achievements

Since the enactment of IPRA 1997, more than 200 communities have filed official claims and 156 Ancestral Domain Titles covering 4,306,446 hectares have been awarded, validated and approved by the National Commission on Indigenous Peoples (NCIP); however only 37 (24%) of the Certificates of Ancestral Domain Titles (CADT) have been registered with the Land Registration Authority.

The positive outputs and outcomes of participatory modelling for the community are multiple. First, the process of participatory 3D modelling incentivises intergenerational dialogue in the community; leading to improved cohesion, and awareness about the

community's right to recognition of their ancestral domains. Second, the product of the participatory 3D mapping exercise (the model and the digitised version of the map) supports formal claims.

The issuance and approval of CADTs have enabled communities to file claims and protest against proposed development activities threatening their territories. For instance, maps of their domains have allowed communities to demand implementation of the "Free and Prior Informed Consent" principle, as prescribed by the IPRA and other laws such as the Philippine Mining Act of 1995.

# Lessons learned

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## Lessons for civil society

Participatory 3D modelling is a very valuable tool for empowering tribal communities and helping them formulate more appropriate plans, while solving long-standing conflicts, especially those in which the Government is not able to mediate.

Prior to the intervention by PAFID, it was only the Government which had the sole capacity to generate, analyse and interpret spatial data, often resulting in inaccurate and anti-IP policies. The GIS process provides indigenous communities with an opportunity to come-up with their own unique view of the spatial reality. The GIS process has allowed communities to discuss their traditional systems with policymakers in a more objective manner.

## Lessons for policy makers

To implement the true intent and spirit of IPRA and ensure the observance of self-delineation as the basic principle in the identification of ancestral domain boundaries, the participation of indigenous and local communities in the mapping of their territories must be ensured. Participatory mapping tools and methods including P3DM are extremely effective.

Members of indigenous communities have the capacity to participate and engage in the mapping and delineation process provided their familiarity with the appropriate tools and methods is ensured.

The results of the participatory mapping activities show the complex nature of the boundaries and the management zones of the ancestral domains. The maps show the spatial relationship between indigenous communities and their environment, and the role that they have played in managing and nurturing the natural resources since time immemorial. This cannot be captured by expert led processes which alienate the community and dilute their role as the true stewards of nature.

## Challenges

Participatory 3D mapping process requires a substantial investment of time and personnel. Although the technique has been successfully applied by PAFID throughout Mindanao, it is complex and expensive to use this technique on a large scale.

One major constraint of a 3D model is its limited mobility. Its use is therefore confined to those who can convene around it. To broaden the use of P3DM, the models should be integrated with GPS and GIS to make their content portable and shareable.

## Follow-up

As of 2013, a total of 63 ancestral domain titles have been awarded in Mindanao. PAFID continues to work in different regions: Gutalac, Zamboanga del Norte; Aloran, Misamis Occidental; Lilingayon, Valencia City.

# Supporting material

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## References and further reading

De Vera, D. (2007) *Mapping today and the future: Participatory mapping and planning with the Talaandig in Bukidnon, Mindanao, Philippines*

[http://www.iapad.org/wp-content/uploads/2015/07/devera\\_bukidnon\\_mapping.pdf](http://www.iapad.org/wp-content/uploads/2015/07/devera_bukidnon_mapping.pdf)

IFAD (2009) *Good practices in participatory mapping*. Rome: International Fund for Agricultural Development

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Rambaldi G. (2010) *Participatory 3-Dimensional Modelling: Guiding Principles and Applications*. Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA)

[http://www.iapad.org/wp-content/uploads/2015/07/p3dm\\_english\\_web.pdf](http://www.iapad.org/wp-content/uploads/2015/07/p3dm_english_web.pdf)

## Photos, videos

Participatory 3D Modelling (P3DM) for Peoples' Advocacy vis-a-vis Extractive Industries (2012) PAFID

<https://youtu.be/q7Lfrpn6VsU>

Participatory 3-Dimensional Modelling: a quick overview, CTAPlus (2015)

<https://vimeo.com/127012480>

Dave De Vera elaborates on Participatory GIS practice in the Philippines (2009) PAFID

<https://youtu.be/IN4gGCuhARU>

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