Source: Newsletter no. 3 "Special Issue on "Land Allocation & Land Use Planning", June 1999,
Social Forestry Development Project Song Da, Vietnam

3D Model, an Effective Tool for Attracting Farmer's Participation in Land Use Planning and Land Allocation

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In addition to a topographic map, a 3D model is used in land use planning process at communal level. Using a 3D Model is more advantageous than map. What is 3D model? What are its advantages and disadvantages? How to make it? How to facilitate the farmers to discuss on the 3D model? This article will answer these questions.

A 3D model is a miniature model of a region, made by a combination of sand, soil or cement. It illustrates topography (hills, mountains, streams) and features (houses, roads, trees, upland fields and paddy) by certain signs and colours.

Thus, a 3D model is a visualization tool which helps the villagers to know about the overall picture of their present land use. Based on that, they will discuss options for effective future land use. However, it is difficult to make a 3D model for a large commune. The solution could be to make a 3D model for each village and then combine them into one.

Some materials need to be prepared: sand, soil (cement if possible), colour powder, tree branches and leaves. A flat area of land is needed for making a 3D model and discussion. 3-5 knowledgeable villagers will be invited to make a 3D model (they are called collaborators). Initially, technical staff should assist them to define the directions: East, West, North and South. The collaborators will have to know which villages those directions border with, and then they have to write the names of these villages at the respective locations. Questions to be asked are: What is the highest mountain, most distinguished road or stream? Where are they located? Then they should put sand in those places, using different symbols to indicate relevant features. The same method is used to indicate other characteristics and features of the village. Local names will be put on paper and placed on top of each feature.

The 3D model itself does not say anything. Next questions should be asked: Where are the forests? Where is the agriculture land? Where is residential land, bare land, stream and roads? The collaborators will be guided to use green powder to put onto the forest areas, yellow leaves or powder onto the agriculture land, small pieces of paper onto the residential land, red colour onto the roads etc. Thus, an overall picture of the present land use planning of the village is shown. Next step is the discussion of villagers around the 3D model. At least 30% of the household representatives should be women. One of the collaborators will present the 3D model and the signs of the 3D model to the villagers and ask them to give comments.

Then, the villagers are invited to speak about the advantages and disadvantages of their current land use. Based on the current land use, natural conditions, labour etc. the villagers will discuss the proposed land use plan, using a stick to point at forest land, agriculture land and residential land...

Technical staff will assist in converting the land use plan from the 3D model into a topographic map. Similar steps are done for other villages and by combining them a land use planning map of the commune will be made.

The reality shows that the farmers are capable of making 3D models themselves with the assistance of the technical staff. During the course of making a 3D model, villagers can help each other to improve the 3D Model so that it can become more practical. In areas where the villagers have more access to education and other social services, it takes 2-3.30 hours to make a 3D model and in the areas where villagers have less access to education, it takes 3-4 hours to complete a 3D model. Thus, with a reasonable time investment, villagers are encouraged to discuss their own land use planning and that makes it more practical and applicable.