

Vayals : a traditional classification of agricultural landscapes

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Introduction

Traditional ecological knowledge comprises of a component of local knowledge of species, environmental phenomenon, beliefs and practice in the way people carry out activities related to resource use within ecosystems. Interest in traditional ecological knowledge has been growing in recent years, partly due to recognition that such knowledge can potentially contribute to biodiversity conservation, maintenance of ecological processes and development of sustainable resource use strategies. The present paper looks into such knowledge of an ethnic community named *Kurichiya* in Wayanad District of Kerala in the traditional classification of paddy fields (*Vayal*), traditional knowledge associated with its sustainable utilization and management strategies to utilize physical and human resources for rice cultivation.

The *Kurichiyas* are one of the several tribal communities of Kerala whose principal livelihoods is centered around paddy. They are matrilineal settled agriculturists and land is collectively owned and hence landholdings are relatively larger. The *Kurichiyas* cultivate several traditional varieties and are rooted in cultural wisdom to the extent that they do not change the land use for the cultivation of cash crops.

The *Kurichiyas* have depended on several landscape elements for their survival. Paddy field is one of the important landscapes on which they depend for food security. They possess unique knowledge about the landscapes and have further classified the paddy fields based on some peculiarities. The *Kurichiyas* use four key elements in their classification of *Vayals*- availability of water, soil composition, soil fertility and physical location of the field. The traditional *Vayal* classification system helps the *Kurichiyas* in making cropping decisions, use of appropriate input and organize their labour

accordingly, vis-a-vis, their landscape elements. Resource management and agricultural practice vary with *Vayal* types. *Kurichiya* depend on each *Vayal* type in various ways to satisfy their needs other than food security.

Traditional Classification of Vayals

Wayanad in *Malayalam* means land of the *Vayals* (*Vayal* = Paddy Fields and *Nadu* = Country). Valleys surrounded by low range undulating hills characterize a typical paddy field in Wayanad. They classify *Vayals* into three types, namely *Kuni Vayal*, *Kundu Vayal* and *Koravu Vayal* on the basis of soil texture, mud content, percolation and retention of water fertility of land and location of the field (Figure 1). Different varieties grown on these *Vayals* is given in Table 1.

Kunivayal is the gentle slope on the foothills that meets flat low land. This *Vayal* type contains more soil with less mud content, has low water holding capacity and very rarely experiences water logging. Cultivation is chiefly under rain-fed condition, which may be supplemented with ash and cow dung, with only one crop being raised during *Nancha* season between May/June to November/December.

Kundu vayals are the flat fields located in the valley bottoms. This type of *Vayal* is characterized by standing water throughout rainy season. The soil is clayey with less sand content, thereby increasing its water retention capacity. Moreover, water is retained here for a longer period due to lack of proper drainage facilities further enhancing chances of pest attack on the crop.

Koravu Vayal is also known as *Aathi Vayal*, reported to be a rare and swampy variant of *Kundu Vayal*. The profile of this *Vayal* type is like that of a cushion, with practically no soil or sand content. One cannot stand/walk on to this field, as

Figure 1. Vayal types and their characteristics

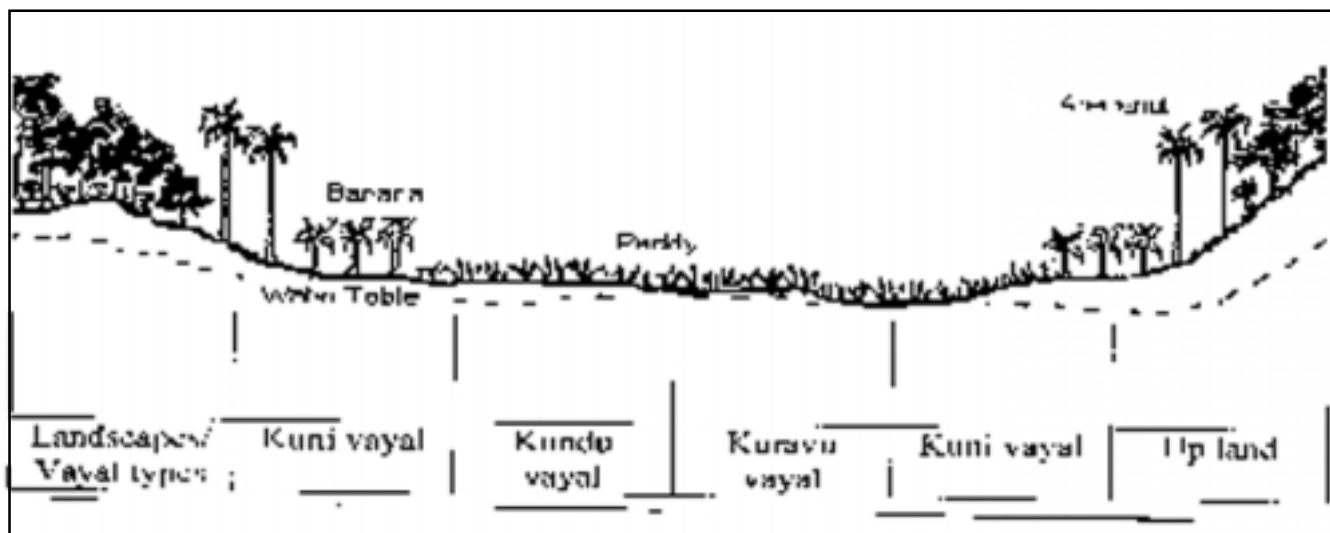


Table 1. Vayal types and Variety tie-up

Kuni Vayal (Drought tolerant & short duration)	Kundu Vayal (Medium duration)	Koravu Vayal (Flood tolerant & long duration)
Pal Thondi, Mara Thondi, Thonnuran Thondi	Gandhakasala, Mullanchanna, Poothadi Kayama	Pal Veliyan, Chettu Veliyan
Uruni kaima	Jeerakasala	Mundon
Njavara	Chempathi	Chenthadi
Kalladiyaran	Chomala	Ongan Puncha (rare)
Kochuvithu	Chennellu	Mullan Puncha (rare) Adukkam

plants are seen in and around *Kuni Vayal*.

The faunal diversity associated with paddy fields is also rich and plays a significant role in controlling harmful insects/pests attack. A total of 16 species of birds associated with paddy fields have been listed. The diversity of fish and its availability is reported to be high in *Koravu and Kundu Vayal* types. Water loving species like crabs, frogs, edible snails are abundantly seen in *Koravu Vayal* and to a lesser

chances of sinking into deep swamp are high. As a result, men undertake all agricultural operations. Due to the swampy nature, use of animals for ploughing is not possible.

Functional significance of classification of Vayals

Classification of *Vayals* helps the *Kurichiyas* in the efficient utilization of physical and human resources. The *Kurichiyas* developed management practices in line with the availability of physical resources in each *Vayal* type. For example, natural soil fertility varies in each *Vayal* type. They use additional manures in *Kuni Vayal* because soil fertility is low in this *Vayal* type. They apply little or no manure in *Koravu Vayal* since it is naturally fertile. The classification of *Vayals* not only helps them to select diverse varieties suitable to distinct *Vayal* type but also to utilize available human resources and natural resources on the field throughout the year. Transplanting of paddy requires a large amount of labour. Also, varieties with different duration helps them to adjust the days of transplantation.

Biodiversity associated with each Vayal type

Paddy fields shelter several species of plants and animals. The occurrence of medicinal plants is high in *Kuni Vayal*. Paddy fields are the chief source of several wild food species like *Alternanthera sessilis*, *Monochoria vaginalis*, *Amaranthus spinosus*. According to *Kurichiya*, most of these wild food

extent in *Kundu Vayal*.

The Kurichiyas collect several edible greens from paddy fields. According to *Kurichiyas* once paddy fields get converted, such plants become rare. Even if they grow in banana or arecanut plantation, they are not used for consumption because of heavy chemicals and pesticide use. There is a popular feeling among the *Kurichiyas* that most of the fish species are getting rare after the conversion of paddy fields due to indiscriminate use of chemicals and pesticides.

Conclusion

Landscape variability and traditional rice varieties are closely interlinked and hence disturbances in any one will affect the other. Therefore the conservation efforts should give priority not only to crops and varieties but also knowledge associated with landscape types.

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