

Real Estate and Agricultural Wetlands in Kerala

P P NIKHIL RAJ, P A AZEEZ

The “rice culture” of Kerala is fast vanishing due to the increasing diversion of the land for non-agricultural purposes. The real estate sector is gradually swallowing up the rice cultivating low-lying wetlands. This paper attempts to examine the growth of real estate business and consequent destruction of the wetland ecosystems in the state.

Wetlands are an important part of the ecosystem and are also the most threatened part of it (Turner 1991). Conserving wetlands as shields against scarcity of water, floods, environmental pollution, and distress of micro-climatic vagaries is therefore important. Kerala has the largest proportion of land area under wetlands among all the states of India. Compared to other states of the country, wetlands in Kerala are under severe anthropogenic threats primarily because of high population density and the peculiar distribution of human habitations in the state. According to Nair and Sankar (2002), who mapped the wetland systems of Kerala using Indian Remote Sensing (IRS) satellite data, the state has a total of 217 wetland units of which 157 units extend over more than 56.25 ha.

In an agriculture-based economy with paddy as the prime crop the rice-growing wetlands of the state were significant. However, the steep growth in agricultural income in the state suddenly declined during the mid-1970s and have been fluctuating thereafter (Mahesh 2000) due to the redistribution of landholdings. Farmers began diverting the waterlogged rice fields to perennial crops such as coconut or arecanut. They also started growing other more profitable crops like rubber. Land is habitually kept fallow for years since cultivation is not profitable and as a result, priority is given to cash crops such as rubber, coffee, tea, coconut, arecanut, and nutmeg (www.ecostatkerala.org). At present, rubber plantations cover about 18% of the total agricultural land and 11% of the total geographical area of the state (Chatopadhyay and Chattopadhyay 1997). There are many factors responsible for this rapid change from the “rice culture” of the state: shortage of labour, increased labour charges, and hikes in the cost of input are the major ones. According to

Raj (2003) the percentage of population engaged in agriculture has gone down drastically to around 26% of the total rural population. The agricultural labourers have decreased to 16.07% from 25.55% of the total during 1991-2001 (www.kerala.planningboard.org). However, about 60 lakhs of people in the state directly depend on rice cultivation (Harigovindan 2007). The state economy in recent years is subsidised by the non-resident Indian (NRI) remittances that amount to more than Rs 20,000 crore per annum.

Keeping a wetland fallow for a while, as a prelude to diverting it for other uses, is a common trend in Kerala, especially near highways, roads, or commercial ventures. It is common to consider wetlands as wastelands that provide much greater service if drained and reclaimed, a belief that is grossly ignorant of the valuable ecosystem services wetlands provide. Filling up wetlands and paddy growing areas and converting them into built-up areas has become a practice since the late 1980s because of increased cash flow and economic development due to NRI remittances. The real estate business has thus become a big venture in the state. The lack of justifiable returns and incentives from rice cultivation, high population density, a consumerist way of life, easy access to finance and demand for land for building have paved the way to a booming real estate sector. Increase in the agricultural landholding after the Land Reformation Act-1963 has also catalysed the diversion process in the state. The 1990-91 agriculture census shows that there are 54.18 lakhs of total agricultural landholdings in the state of which 84% is less than 0.5 ha (www.kerala.gov.in/dept_agri).

The Real Estate Sector

The larger inflow of foreign money is an important factor supporting the high priced growth of the sector. Zachariah and Rajan (2004) reported 35% rise in the total annual foreign remittance to Kerala during the period 1999-2004. The state failed to offer any other avenue for profitable investment. The policymakers too do not have any vision towards channelling these easy funds for the betterment of the state.

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Of the 14 districts of Kerala, Thrissur, with a population of about 3.2 lakhs (Census 2001), is a typical case of rapid changes in land use for the purpose of large-scale real estate projects. The district level remittance rate from the non-resident Keralites (NRKS) is comparatively high in Thrissur and amounts to about Rs 3,234 crore, which in turn hiked the per capita income of the district to Rs 38,525 or by Rs 10,654 (Zachariah and Rajan 2004). Several other factors attract companies in real estate and the construction business to Thrissur which is the cultural capital of the state and is located close to Cochin, the commercial capital of Kerala. The gap between the demand and supply of suitable area for residences and commercial real estate projects has led to radical conversion of the lowlying wetlands to buildable areas. Low-lying areas usually fetch low prices (Rs 2-3 lakh per acre) and agencies with funds aplenty are acquiring these lands to promote real estate projects earning huge margins.

Scarcity of buildable land in Thrissur and its prevailing market price has routed the pressure of demand to the ecologically important and cultivable wetlands adjoining the city. The 37,012 ha of total

rice cultivable land area in Thrissur during 2001-02 declined to 34,158 ha by 2003-04 (www.keralaplanningboard.org). It also ruins uplands including hills and hillocks by destroying the soil and rubbles for levelling the low-lying lands. This massive levelling is likely to have serious ecological implications in terms of flooding, scarcity of drinking water, vector borne epidemics and unwelcome repercussions on livelihood of the lower income groups of the society. It is estimated that such habitat conversion accounts for \$250 billion per year in human enterprises (Balmford et al 2002). It is unfortunate that in the most literate state of India, not much attention is given to environmental implications of such actions and no serious scientific investigations are undertaken. Filling up the paddy fields is not a new story limited to Thrissur alone. It is typical of all the districts of Kerala. Since 1995 about 63-76% of the total area of Kuttanad, an important wetland system of Kerala has been filled up for non-agriculture or non-ecological purposes.

The Kole Wetlands

The Kole wetlands extend to about 18,602 ha in Malappuram and Thrissur district. It is an important rice-growing area that

occupies 2.35% of the total rice cultivating area of the state and one of the major ecologically important freshwater wetlands of the state. In Thrissur district, these wetlands are distributed in Mukundapuram, Chavakkad, and Thrissur taluka, lying between Chalakkudy river in the south and Bharathapuzha river in the north. The floodwater from Keechery and Karuvannur rivers flows to this land before draining into the Arabian Sea. The wetlands are believed to be formerly lagoons formed due to the recession of the sea.

Being very productive for rice and at par or more than Kuttanad and Palakkad, cultivation in the Kole wetlands was known to have started back in the 18th century. However, proper records on cultivation in Thrissur (Kole) lands date back to 1916 only. The saucer shaped wetland area is surrounded by elevated fringes of land. These fringes are more or less dry and terraced for coconut plantation. Earlier, rice was cultivated in the Kole wetland by making temporary earthen "bunds" or embankments, from December to May. In due course of time the government and farmer cooperative societies built permanent concrete embankments surrounding the wetlands, an important

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step to improve the cultivation. Normally two rice crops are raised in Kole wetlands, a summer crop (*punja* in December/January-March/April) and an additional crop *kadumkrishi*. In the upper reaches of the Kole wetlands the cropping pattern is different; in place of the summer crop, a winter crop *mundakan*, is raised in September/October-January/February and an autumn crop *virippu* is raised in April-August.

From the point of view of ecosystem services the Kole wetlands are important. They serve as buffer for flood water and drainage, function as groundwater recharge sites, offer habitats for several identified and unidentified species of plants and animals, offer breeding sites for several commercial important aquatic species, help in settling large quantity of nutrients conveyed through the flood water from upper reaches of the lands, help in maintaining the local microclimate and help in carbon sequestration, not to mention several undocumented and unrecognised valuable services.

The Kole wetlands of Kerala are one of the declared Ramsar sites (the convention on wetlands, signed in Ramsar, Iran in 1971 is an intergovernmental treaty which provides the framework for national and international action for conservation/wise use of wetlands) in the state and are prioritised under category one by the Ramsar convention. The Vembanad-Kole wetland system is also considered as an important bird area (IBA). The Kole wetlands and the associated agricultural lands are important seasonal habitats for several migratory birds. There are 182 taxa of birds reported from Kole wetlands which include resident, migratory and certain endangered waterfowls. From the Muriyad wetland (a part of Kole wetlands), 35 species of aquatic macrophytes, 90 species of algae and 28 species of fishes have been reported (Thomas et al 2003). Even though the area is part of an identified Ramsar site, landfilling and building construction is common here. This slowly deprives the dependent species including water birds of their habitat, since the adjacent areas have already been filled, and have huge buildings.

Ecological and Social Impact

The diversion of agrarian land for construction has serious ecological implications. In Kerala there is a steep decline of

land area under rice from 8,76,000 ha to 4,31,000 ha during the period 1975 to 1996 and 3,11,000 to 2,87,000 ha during 2002-04 (George and Chattopadhyay 2001 and www.keralaplanningboard.org). It is unfortunate that there is practically no check on diverting lands for environmentally and socio-economically risky and speculative uses. Currently the single most important threat to the Kole wetlands is the real estate ventures that are devouring the area though the real estate business is not confined to the Kole wetland. The fast, urban sprawl has already consumed many of the smaller wetlands close to the city of Thrissur giving way to huge constructions. The urban sprawl now encompasses areas like Ayanthole, Pookunnam and Puzhakkal villages, located in the city premises.

Filling the wetlands will also disturb the hydrologic regime of the wetland. The conversion of waterlogged wetland to dry land will create everlasting problems to both surface and groundwater including hurdles in drainage, flood control, replenishing groundwater and furthering salt water intrusion. The altered drainage pattern of the landscape interfere with water recharge sites, water flow channels and disturbs the hydrostatic pressure balance between marine salt water and the subterranean fresh water aquifers. The wetlands function like sponges imbibing and storing storm water and runoff water, thus helping in maintaining the groundwater level of an area. For a growing city like Thrissur water availability is a serious matter. In rural Kerala an individual household depends to a great extent on artesian wells for day-to-day water requirements, on which the diversion of low-lying lands are likely to have serious negative implications, including the fall in water table and reduced water quality. Changes in the land use will also cause microclimatic problems in the area such as changes in temperature converting the areas into several "heat islands".

Evaluating an ecosystem in terms of the services delivered to the community (James et al 2001; Costanza et al 1997 and Balmford et al 2002) is more relevant in the current scenario of increasing environmental conflicts. One of the pioneering attempts in this line is by Costanza et al

(1997) who evaluated the total value per hectare of different types of ecosystems all around the globe. Although the above evaluation has several drawbacks and is criticised in various quarters it remains a baseline for further work. The total value of the Kole wetland in terms of ecosystem services based on the values suggested by Costanza et al (1997) and the other benefits that are calculated as direct market value is given in Table 1.

Table 1: Total Economic Value of Kole Wetland

Wetland area	18,602 ha
Gas regulation	\$3 million
Disturbance regulation	\$85 million
Water regulation	\$3 lakh
Water supply	\$71 million
Waste treatment	\$78 million
Habitat	\$6 million
Food production	\$5 million
Raw materials	\$2 million
Recreation	\$11 million
Cultural	\$17 million
Total ecosystem value	\$278 million
Total labour benefit	\$85 million
Total agriculture value	\$38 million

The booming real estate is also likely to cause socio-economic repercussions for the small landholders. Migration of small landowners after selling off their landholdings in fast growing city centres to rural areas is also likely. In terms of direct income the real estate sector is highly attractive as compared to agriculture. However large-scale real estate ventures depend on outsourcing labour through a labour contractor, rather than hiring them directly. The labour contractors normally bring labourers from other areas, for several reasons. Labour costs amount to approximately 40% of the total building costs. In contrast agriculture offers consistent employment and provides maximum opportunity to the local labourers especially women. In Kerala about 600 labour days are expected to be used for cropping 1 ha of agriculture land (Rajendran 2007).

The ecosystem services that a wetland offers are diverse and include gas regulation, disturbance regulation, water regulation, water supply, waste treatment, providing habitats for flora and fauna, food production, raw materials, and recreation quite apart from aesthetic and cultural value. The ecosystem services

and direct benefits from the Kole wetlands amount to about \$278 million. On the other hand, the service provided by the real estate business, in the initial stages is mainly through labour charges, access to nearby lands, access to services such as roads, landline telephones and municipal water supply. At the national level it is estimated that the real estate sector is the second largest labour driver after agriculture (Mahurkar and Senthil 2004). However, in most situations the real estate sector competes for labour with the agriculture sector. In Kerala agricultural labour has gradually become a scarce resource. The main difficulty confronting farmers in the region is the lack of labourers and high labour cost. Kole wetlands are largely owned by small-scale farmers with holdings ranging from 0.2 to 0.7 ha. Group or cooperative farming in *padasekharam* (collectives of paddy fields) is the most adaptable practice for getting over the difficulty of these small-holdings and is based on the teamwork of landowners and local administration. In such group farms, non-farm activities will hamper the raising of paddy or any other similar crop. Though the farmers get loans on low interest rate from cooperative societies, failure of a crop indirectly triggered off by diverted activity in the adjacent field would make it difficult for the debtor to repay the loan, a scenario common in Kerala.

The recent Kerala Conservation of Paddy Land and Wetland Bill 2007 is aimed at protecting rice fields from illegal reclamation. However, the bill is likely to be a burden on the small-scale farmers of Kole since it allows the government to seize land that is not cultivated. To prevent the trend of converting an intact biome, a compensatory mechanism in the form of premium is often needed (Balmford et al 2002). Wetland conservation bills must be more farmer-friendly by ensuring a safe return on investment (both in terms of money as well as land) to the farmer who owns the land. This can be an incentive for maintaining the original quality of the land that serves the community by way of several ecological services. The trend in real estate development is grossly misinterpreted to mean total development of the entire State. Of course it contributes to

the economic progress of the state, but breeds disparity and marginalisation of low income land. The large-scale real estate venture is controlled by individuals or private interests with profits largely accruing to private individuals, rather than the general community.

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