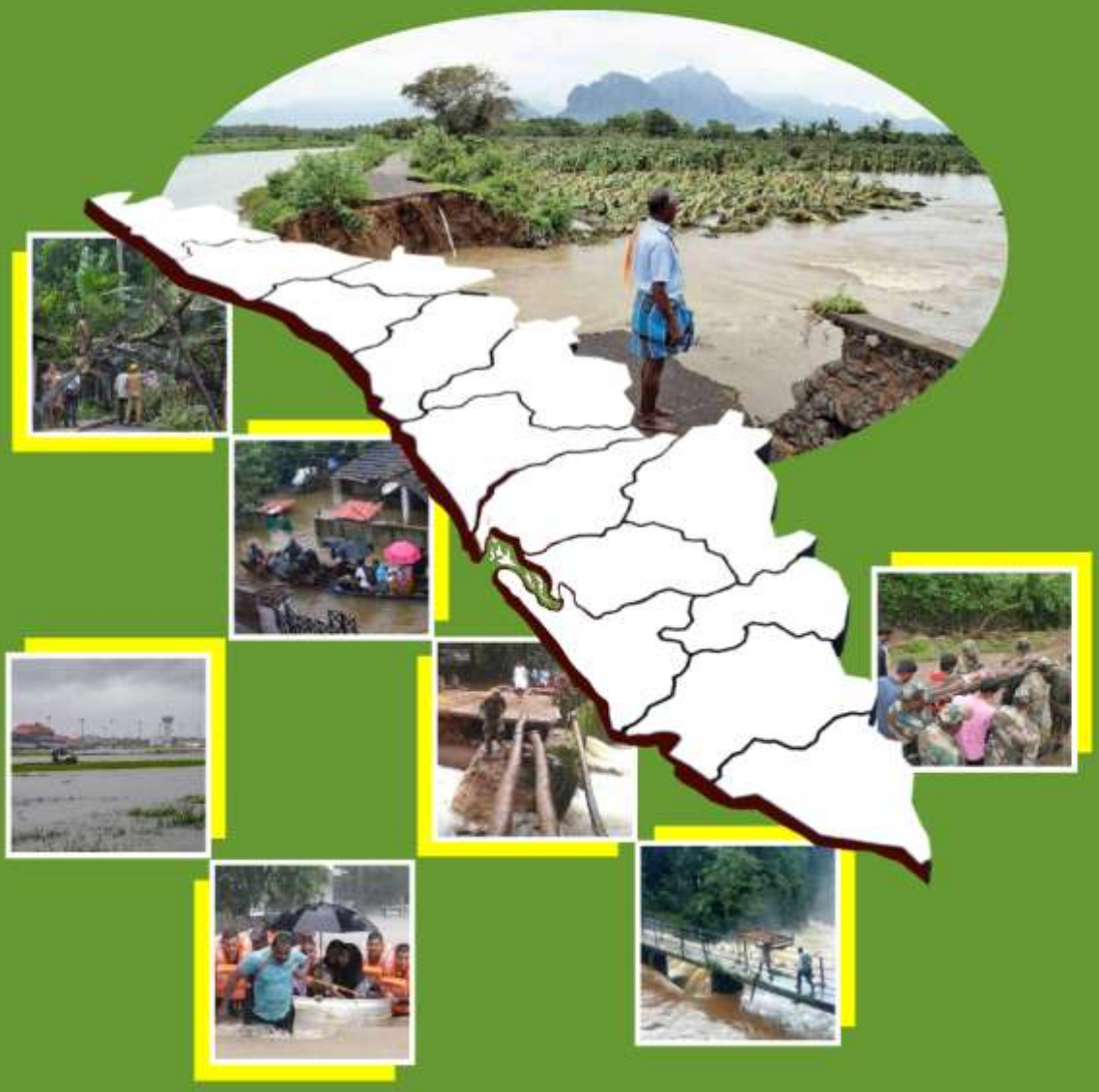
Building a New Kerala

Ideas and Reflections



Reconstruction of Kerala: Drawing on Strength

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Reconstruction of Kerala: Drawing on Strength

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The recent monsoon-related disasters, flood and landslides in Kerala, have drawn nationwide attention not just for its ferocity, magnitude of destruction and requirement of relief and rehabilitation, but also for the fact that a state like Kerala, which has accomplished so much during the last couple of decades in various socio-economic fronts including human development has allowed a so liberal environment and land use policy that ecosystem services of all types of lands whether hills or wetlands, rivers or lakes have drastically reduced, and water holding capacity of all natural water structures has diminished. Instantaneous flow from river catchments has increased and at the same time spill areas in the downstream have been substantially lost due to diversion of land for non-agricultural purposes. The face of Kerala has changed during the last five decades. Widespread land use change across the state and floodplain occupations are well evident. Compared to 1974-75 gross area under paddy had declined by 75%. Even a lake like the Vembanad has lost 75% of its capacity to hold water. In three days from 15th to 17th August, when the rivers of Meenachil, Pamba, Manimala and Achankovil generated 1.63 BCM surface runoff, the Vembanad Lake, which originally had the capacity to hold 2.4BCM of water could hold only 0.6BCM of water. It is a fact that the rainfall during this monsoon is unprecedented and rainfall-record history since 1871 does not show such intense rain barring the year 1924. However, severe flood incidences were reported in 1961 and 1992. The 1992 flood incidence affected 998 revenue villages. Rainfall data since 1871 indicate there is cyclicity in monsoon rain, which follows a simple harmonic motion. Flood and drought occur repeatedly with intervals. There are also signals of changing hydro-meteorological conditions in the last couple of decades, like, shifting of excess/ peak rainfall period from June-July to July-August, a sudden burst of rainfall for a couple of days followed by intense dry spells etc., perhaps related to climate change. While with the present science and technological advancement there is little scope to intervene in the meteorological pathways and moderate incidence of rainfall, there is scope to intervene in land and water management, particularly catchment management, flood plain management and river channel management.

The aim is to increase water holding capacity of the catchment so that flood flow is moderated, and at the same time take necessary measures to minimise/ regulate human

activities, particularly non-agricultural activities in the vulnerable areas and spill areas/flood prone areas, so that human artefacts are not unduly exposed to flood vagaries, and excess river discharges are adequately accommodated and drained out. Restoration of ecosystem services, flood plain zonation, vulnerability assessment and adaptation of nature-based flood management practices are necessary steps to address flood-related disasters. In recent years there is stress on implementing nature-based flood protection measures or a hybrid of nature-based and structural measures for flood management across the World as pure structural measures are found inadequate. The nature-based measures stress on system scale perspectives-spatial scale and timescale, integration with ecosystem conservation and restoration, adaptive management and people's participation. Reconstruction of Kerala or 'Navya Kerala' may be conceived taking cognisance of these issues.

Planning for reconstruction should rest on three pillars: Place, Policy and People. In 2009, Johan Rockstorm and a group of 28 scientists across the world working in Stockholm Resilience Centre published a paper in *Nature*, in which they proposed the concept of planetary boundary and necessity of identifying 'Safe Operating Space' for human activities. According to this group, human activities since 1950 induced changes beyond resilience limit in seven sectors and land system change is one of them. Changes in land system impact water flow, biodiversity and biogeochemical cycle. Land system change begins with local action, which through aggregation leads to large-scale change with global manifestation including climate change.

Locality or place is an important component of reconstruction initiatives in Kerala. How do we identify a safe place for locating human settlements and building infrastructure? It should start with spatial scale and time scale perspectives. Kerala has a solid database, to begin with. In 1990, Centre for Earth Science Studies (CESS) in collaboration with Kerala Sasthra Sahitya Parishat (KSSP) initiated Panchayat Resource Mapping (PRM) programme, perhaps one of the most ambitious and impactful action research programmes ever taken up anywhere in India. This programme envisaged mapping of land use and assets in cadastral scale (revenue map) by trained volunteers and land resource, water resource and environmental appraisal mapping by earth scientists/ professionals. After experiments and firming of methodology, the project was shifted from CESS to Kerala State Land Use Board (KSLUB). All panchayats in Kerala have been covered, and resource maps are now available with KSLUB. These maps provide plot level information related to crops, quality of land, water

structures, settlements, roads, all social infrastructures including educational and medical facilities, and environmental problems. This information supplemented by data on recent flood spread and flood height can be used very effectively for assessing present land use, encroachments in paddy fields and wetlands, land allocation/ reallocation for settlements, identifying vulnerable areas and people, both in terms of floods and landslides and documentation and assessment of settlement damage. It can be further improvised for flood zonation and risk assessment. As all PRM maps are digitised, it is now easy to apply Geographical Information System (GIS), integrate spatial and attribute data with remote sensing data products, develop spatial plans for local area and create scenarios for different inundation levels. At this juncture, these maps can serve a very useful purpose and aid to policy decisions.

A strong policy on land use is necessary for the State. There are policies governing land use practices covering forests, wetlands, paddy field conversion and several other land and water-related activities. However, most of these policies falter at implementation level. One of the impediments in execution of land use policies is that land use decisions for privately owned lands are taken by an individual, who is governed by various socio-economic compulsions including labour market. Factors like foreign remittance, volatility of international monetary situation, globalisation and land as a means of investment/ security control land use practices. Under these circumstances, policy alone will not be sufficient to reorient existing land use practices. People may be directly involved in the framing of land use policy and its execution. It is important to create necessary socio-technical-political space to ensure people's participation for effective execution of the policy guidelines and evolve spatial plans for all panchayats.

Kerala has a long tradition of people's participation. Be it science movement, environmental movement, literacy campaign or planning process involvement of larger society, civil society, conscientization and deliberation, form part of the development process in Kerala. Panchayat resource mapping programme following literacy campaign was a participatory exercise through which people were made aware about local resources and the importance of local level resource management. The People's Plan Campaign (PPC) introduced by the State Planning Board in 1996 was a unique attempt to involve people in the planning process at the panchayat level and also to involve people's science movement, civil society, science and technology professionals and larger society in the development process. It was an

unprecedented initiative that had changed the paradigm of decentralised planning not in Kerala alone, but for the rest of the country and also abroad. The manner in which people of the entire state responded to manage this natural calamity re-establishes that people are the actual source of power and human resource is the real resource. It is important to revive the spirit of PPC. Reconstruction of Kerala warrants involvement of larger society, professionals, government departments and local self-governments. Reconstruction plan may be developed for each panchayat involving all stakeholders and using panchayat resource maps as basic input. In this hour of crisis, when a large part of the State has to be reconstructed, perhaps it is also an opportunity to 'learn nature's law and apply them correctly' in the matter of land use planning and environmental management.

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