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**'Peri-Urban Villages of Bangalore, India:
Reclaiming the Commons to Cope with
Climate Stress**

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Scope and Arguments

- The paper views the patterns of adaptation to climate stress and environmental changes in peri-urban villages in semi-arid India around Bangalore city
- Resilience to climate change will be maximum for farming and land use systems that respect common property resources and the knowledge systems that are associated with community based resource utilization systems.
- The paper situates its arguments with reference to a village near Bangalore city. It is argued that the traditional knowledge systems in the village , by not considering Private Property Resources and Common Property Resources as mutual opposites, permitted a system of utilizing private property systems as common property resources during certain temporal phases of a year.

Scope and Arguments

- However it is also explained that the advent of commercial farming in the village in the 1980s and the externalities of solid waste pollution from Bangalore city by the turn of this century caused resource utilization systems to deviate from traditional land use systems.
- The new resource utilization modes do not respect the limiting factor of water in semi-arid environments and have reduced the permeability of private property resources to common usage.
- This enhances the risk of accelerated depletion of natural resources in the village , thus increasing the risks of climate change to all sections of the community

Scope and Arguments

- Based on evidence from the field, the paper argues about the importance of reclaiming the commons from commercialization trends and advocates policy solutions that link adaptation friendly agriculture with traditional knowledge based on CPR-PPR synergies.
- It is argued that policies that emphasize food and nutritional self sufficiency, if coupled with climate action plans that seek to enforce the symbiotic nexus of PPR and CPRs can go a long way in ensuring that sustainable development goes well with the task of increasing the availability of food and nutrients to the peri-urban poor.

Adaptation to Climate Change

- Adaptation measures can be categorized into two, namely “natural” or “autonomous” and “planned”. While the former involves a natural adjustment process to short-lived variability in climate factors, the latter involves conscious interventions on a larger scale to address “secular” changes in climate (Damodaran,2012).
- Mendelsohn (2000) categorizes adaptation measures into “public”, “private” and “joint” depending upon the agent/agents undertaking adaptation activities and/or receiving its benefits.
- Adaptation is “private” if the decision-maker is the only executer and the sole beneficiary of adaptation action. “Joint adaptation”, on the other hand, is a group activity whereby action taken by an agent involved, affects the benefits other individuals receive.
- “Public adaptation” occurs when governments invest public financial resources on adaptation activities.

Bangalore



Bangalore's Peri-urban Scene



Bangalore Map



The Village's Resource Management system

- The chief lesson that can be gleaned from the traditional resource management systems in the village , practised until the 1980s (prior to the advent of bore wells) is on the importance of utilizing private property resources in tandem with common property resources.
- This means observing and maintaining the delicate balance in traditional Man-Livestock relations that was based on energy, manure and protein linkages

Grazing Cycles

- There were three grazing regimes.
- While the diverse grazing regimes provided biomass to livestock, these regimes also benefitted from the droppings of the grazing livestock.
- The diverse pattern of grazing cycles was based on the axiom that even private property resources such as dry lands cultivating finger millets are open to community grazing.
- Thus private property resources such as dry lands were virtually utilized as common property resources for certain seasons in a year.

Symbiosis

- The symbiotic state did not free the ecosystem from the scourge of poverty.
- Landless labourers, particularly sections of which depended exclusively on dryland agricultural operations for their employment opportunities, were vulnerable to food scarcities during the off-cultivation seasons.
- But the symbiotic mode of resource management created conditions for providing a diversified consumption basket (comprising of legumes and cereals) to the marginal sections of the village community which in turn helped them to meet the livelihood requirements of landless labor and the small and marginal farmers on a sustainable basis.

Spread of the Urban Sprawl

- The urban sprawl of Bangalore city had moved dangerously close to Mundur Village by the year 2000, aided by the fact that, by late 1990s, the city had emerged as the 'Silicon Valley of Emergent India'.
- The conspicuous consumption pattern noticed amongst the affluent rich and middle class of the city resulted in two trends.
- One, was the quest on the part of the new elite to occupy peri-urban spaces of the city for habitation and gentrification.
- The second was increasing pressure exerted by Bangalore's urban bureaucracy to convert common waste lands in nearby villages into solid waste dumping yards and landfills to store the large volume of urban wastes being turned out by the city.
- With its large geographical area and relatively high proportion of degraded common lands, Mundur was one of the ideal candidates for being urban Bangalore's landfill.

Spread of the Urban Sprawl: The roots

- Thus in the late 1990s urban solid waste from Bangalore found its way to a portion of Mundur's commons, which was in legal possession of the State Forest Department as Reserved Forests.
- It is noteworthy that a large chunk of common grazing lands of the village was converted into Reserved forests (345 acres of a total of 545 acres of common grazing lands) in the year 1966, to green the degraded commons.
- The official machinery considered Mundur's grazing lands with its scattered trees and large chunks of grasslands as unproductive land use and desired to re-stock the acquired lands with tree plantations.
- Thus in the 1970s, the common lands that were taken over as reserved forests was planted with 'Eucalyptus tereticornis', a tree which had zero fodder value and poor fuelwood quality.
- The only utility of eucalyptus species was as pulpwood that catered to the raw material needs of the paper and pulpwood industry.
- Dense plantations of Eucalyptus tereticornis replaced the silvi- pastoral land use pattern that was in existence over these lands in the 1960s.
- The fodder base of Mundur narrowed as a result, resulting in the breakdown of the grazing cycle that was central to the sustainable pattern of natural resources management that existed in the village in the past.

Impact

- The advent of landfill on the common lands in the year 2000 was a greater disaster as it polluted water sources in the village on account of contamination of the groundwater aquifers with landfill leachates.
- The advent of the landfill further reduced the permeability of private property resources to common usage in the village, thus creating in its wake the risk of accelerated depletion of natural resources, including water, and thus increasing the risks of climate change to all sections of the community.

Impact

- Further, these sections of the village community also lost control of property rights over land resources by getting deprived of land ownership as well as losing possession over these resources .
- Today, the small and the marginal farmers in the village, who practised dryland agriculture in the past, have reduced access to quality natural resources (including access to potable water).
- Since financial Institutions provide credit and loans on the basis of collateral instruments such as land titles as also on the basis of likely market rate of return from activities for which loans are sought, it is difficult for traditional vocations and systems of resource management to find support from these institutions.

Reclaiming the commons

- Given the realities described above, the starting point for reclaiming the commons in the village is to re-vest property rights over common lands and water sources with the village community and its economically weak sections both by way of legal rights to ownership and 'possession' rights over drylands and common property resources including grazing lands and wetlands .
- The second step is to have a massive drive to clean up the polluted water streams and aquifers.
- Participative hazard analysis and societal risk assessment systems need to be put in place which reflect the community's perception of the pollution problems facing the village than a solution that is techno-managerial and top down in approach and looks towards centralized and uniform technical solutions to pollution and related other un- sustainability problems faced by villages such as the one described.
- No programme of eco-restoration of village ecosystems can be sustainable unless it is inclusive and participative in nature.

Reclaiming the commons

- Villagers also need to be involved in natural resources accounting systems that recognize the ecosystem services rendered by different elements of the village ecosystem.
- This element normally escapes the attention of centralized resource inventorisation and mapping systems .
- A case in point is the propensity of centralized resource mapping systems to focus on large tanks and forest lands and ignore ecosystem benefits and services provided by small ponds and isolated patches of tree groves.
- Only in the event of 'minor ecosystem services ' getting recognized by resource mapping systems would valuation of resources be objective and sustainable development plans be of relevance to local communities.
- Thus centralized systems that look at the large and obvious elements and ignore 'small' but 'significant' factors that are critical to the livelihood needs of the local communities, need to be given up in favour of local community resource mapping and survey systems.

Reclaiming the commons

- Finally, flow of finances is critical for reclaiming the commons of the village.
- The traditional system of Governmental grants for development activities in the village have proved to be inadequate to the real needs of the village.
- Local self governments need to have dedicated financial resources to undertake eco-restoration works and establish management systems to conserve resources.
- The need is to have capital resources to undertake the mammoth tasks of resource rehabilitation.

Reclaiming the commons

- This can be achieved by floating debt instruments like local community ‘bonds’ that can be subscribed to by members of the public.
- These bonds can be issued on the strength of the monetary value of ecosystem services identified by the community resource mapping systems.
- If further underwritten by the State the same would augment flow of capital resources to the village. This will render the task of reclaiming the commons realistic and robust.

Future Directions for Urban Bangalore

- Peri-Urban Green Lungs to enhance water resource generation
- Better reduction of solid waste at Ward Level
- Sustainable handling of wastes
- Rating system for new habitat developments
- Reduction of urban slums

The End