Towards a Sustainable System of Innovation: The Case of Plantation Sector in Kerala

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As we proceed

• Towards an analytical framework
• Emerging innovation system in plantations
  – Organizational innovations: Shift from estates to small holdings
  – Technological innovations
  – Institutional innovations
• Concluding observations
Towards an analytical framework

- Road to high growth is no more an uncharted terrain
- Innovation has been key to higher growth
- Higher growth however has not been sustainable
- While a recipe for higher growth is ready, policy makers are in search of ways to make it sustainable
- If innovation breeds growth, could it also be instrumental for sustainable growth?
- A dollar worth of potato chip different from a dollar worth of microchip
- Hence to understand the micro foundations for growth and sustainability the inquiry has to be at the sectoral level which justifies our focus plantation sector
Towards an analytical framework

• Viewed in a dynamic sense; high growth trajectory could be associated either with complimentary or non complimentary relationship between environmental and economic sustainability

• This in turn would depend on the growth drivers in the economy.

• Since innovation and growth are driven by the underlying innovation system; if growth needs to be sustainable the underlying innovation system also has to be one that is oriented towards sustainability.
Innovation system in plantation sector
Emerging innovation system in plantations

- Plantation sector has been a key source of foreign exchange
- Towards building international competitiveness, a vibrant system of innovation and production has been evolved over time
- The key issue is whether the nexus between economy, ecology and technology in Kerala’s plantation innovation system as evolved over the years has been tending towards a trajectory of high growth with complimentary or non-complimentary relation between economic and environmental sustainability
Organizational innovations: shift from estates to small holdings

• Historically, plantations have been organized as large estate with mono crop
• Over time small holders have emerged as dominant players
• Given the economics of small holder production mono cropping in inimical to small holders
• But, the institutional arrangements are not conducive for mixed crop cultivation which is more environmentally friendly as compared to mono cropping
Technological innovations

- Highly chemical fertilizer and pesticide intensive production (eg cardamom)
- Deforestation resulting from shade regulation in cardamom cultivation
- Felling of trees for feeding cardamom curing houses
- Lack of co-evolution in the form of organizational and institutional innovations to address these issues leading the non complimentarity between economic and ecological sustainability
Institutional innovations (global)

• Agreement on Sanitary and Phytosanitary Measures at the instance of WTO
• Though these are non tariff barriers,
• Positive response from organizations like Spices Board - organic farming - research agenda towards evolving reduced inputs of chemical fertilizers and pesticides
Institutional innovation (global)

- Kyoto protocol – Reducing Green House Emission
- International Emission Trading (IET), Joint Implementation of emission reduction projects (JI) and Clean Development Mechanism (CDM).
- CDM - funding from developed countries for environment-friendly projects in the developing countries - that help developed countries earn Certified Emission Reduction (CER) credits or carbon credits
- Potential for plantations
Concluding observations

• Given the importance of plantation sector as a foreign exchange earner a vibrant innovation system has been evolved overtime
• Competitiveness at the forefront – environment at the back seat
• There is a two two way relation between ecological and economic sustainability in plantations.
• Overtime, there has been growing concern with its impact on sustainability
Concluding observations

• Over the years certain organizations innovations – estate to small holders, mono to mixed cropping) are salutary to sustainability
• But there appears to be an institutional inertia such that institutional innovations (rules laws etc) are not coevolving with organizations innovations
• Certain technological innovations (in production and processing) appears to have the effect of making the the sector environmentally less sustainable ). Here again we find institutional inertia
• But institutional innovations at the global level appears to be more oriented towards making the sector more sustainable
Concluding observations

• The study makes the case for evolving sustainability oriented innovation system wherein various innovations coevolves in such a way that the plantation sector is made sustainable
Thank you