

First Symposium on
Transition Strategies for Sustainable Community Systems:
Design and Systems Perspectives

Background Paper

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Abstract

Apparently, there are infinite combinations of designs and systems that can lead us to unsustainability but probably a few simple combinations to achieve sustainable communities and society at large. This paper presents the potential design variables at different levels of our local communities in terms of production, organizations, governance, institutions and culture of relationships that binds them all.

The paper highlights that while the intent in many of our initiatives towards sustainability; whether in agriculture, farmer producer organizations, community governance, institutions, and culture of relationships, as well as sustainable development goals (SDGs) have been noble; inconsistencies between the intent and approaches, methods, tools and techniques often make these initiatives unsustainable over time. The inherent inconsistencies and tensions thereupon in the designs and lack of synergy across different systems perpetuate lock-in effects and greater external control than freedom. It appears that unless people and communities recognize these flaws and simultaneously make efforts to unlock themselves from the various lock-in effects; our transition to sustainability will only be partial at best.

The first symposium on transition strategies for sustainable community systems during 19-20 January 2017 in Bhubaneswar hope will provide an immersing experience to the various inconsistencies, lock-in effects, path dependencies and causes of failures in outcomes in many of our apparently good initiatives. The deliberations will also provide insights to the narrow windows of hope to sustainability in terms of policy, practice and research. The advisory and executive committee members of the symposium, academic and organizing partners are working towards making the symposium an enriching experience for you. See you at the symposium!!!

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Introduction

Let me give you a quick overview of the structure of this paper which has also been the way that the first symposium on sustainable community systems has been organized. The paper has five parts: **F**irst, it discusses the basic postulate underlying the design and systems perspective in terms of nature of relationship & state of relationship in the society. **S**econd, it presents the rationale behind the choice of the five major dimensions of sustainability around which this paper and the symposium has been structured. **T**hird, it discusses the topics or variables under each track or dimension, the spectrum of each variable, inherent tension within the spectrum of each variable, dynamics of relationships and lock-in processes. **F**ourth, it proposes potential narrow but simple path to unlock sustainability. **F**ifth, it indicates the potential areas of research to understand sustainability better from design and systems perspectives.

First, coming to the issue on the basic postulates underlying the design and systems perspectives in terms of nature and state of relationships in the society; there are indeed deep interconnections and high degree of interdependence in nature and our society. One can look at the working of a clock to understand the interconnections and interdependence. The connection between the second minute and the hour hand can indicate the nature of interconnections but the reality could be much more complex. Interconnected gears in a machine can illustrate it a little better. However, the depth of interconnection that we have in the reality of our society across time and space appear to be much deeper and complex.

There are enough of studies that suggest growing economic inequalities among people across the world; weakening their socio-economic-political relationships. The latest, Piketty (2014) show that global income inequality has increased in the last about hundred ninety years and *gini coefficient* has been increasing during this period. Income inequality in the emerging countries has been growing much faster in the recent decades. For instance in India, income inequality was lower during 1950s to 1980s when it was a social economy. Subsequent to 1980s when it started liberalizing; inequality in terms of *gini coefficient* has been rising steadily. Further, wealth inequalities across countries have been much greater than income inequalities. We often put away these phenomena as development paradox. Should we not discover why this happens and what causes these increases in inequalities; factors of unsustainability?

These inequalities do not seem to be only a phenomenon of the last 200 years. Rousseau (1762) wrote about the inequalities over three hundred years ago. In his book, 'The Social Contract' Rousseau said "Man is born free and everywhere he is in chains. One man thinks himself the master of others but remain more of a slave than they are". Income and material inequality has been a constant source of fear and loss of control. As far back as 4000 years, *Chakra Vyuha* and *Labyrinths* from across the world show the symbols of fear and loss of control by the common

man. Today's control mechanisms may not be just physical or material controls but could also psychological and mental control of the human person by market forces.

Globally, we now have the 17 noble goals under the Sustainable Development Goals 2030 of the UN and ratified by the nation states to transform the world. However, in the current state of growing unequal relationships in our communities, nations and society at large, can these goals be achieved?

The significance of relationships for sustainability of our communities and societies is expressed in the working definition of sustainability (Nayak, 2011); *“Sustainability is a dynamic state of deep relationships among the people and all the constituents both living and non-living within a micro ecological unit that strongly values the acts of sacrifice, reciprocity and love for each other; where the priority is to strengthen the weakest and the spirit of high external cooperation and high internal competition not only drives its own ecological unit to eternal peace, joy and happiness but also inspires other micro ecological units for such deeper inter relationships.”*

In our analysis, relationship is studied from the systems science perspective and spirituality perspective. Further, relationships is core to all other dimensions of study viz., production systems including sustainable agricultural system, organizational designs including farmer producer organizations, community governance and institutions at different levels of our society?

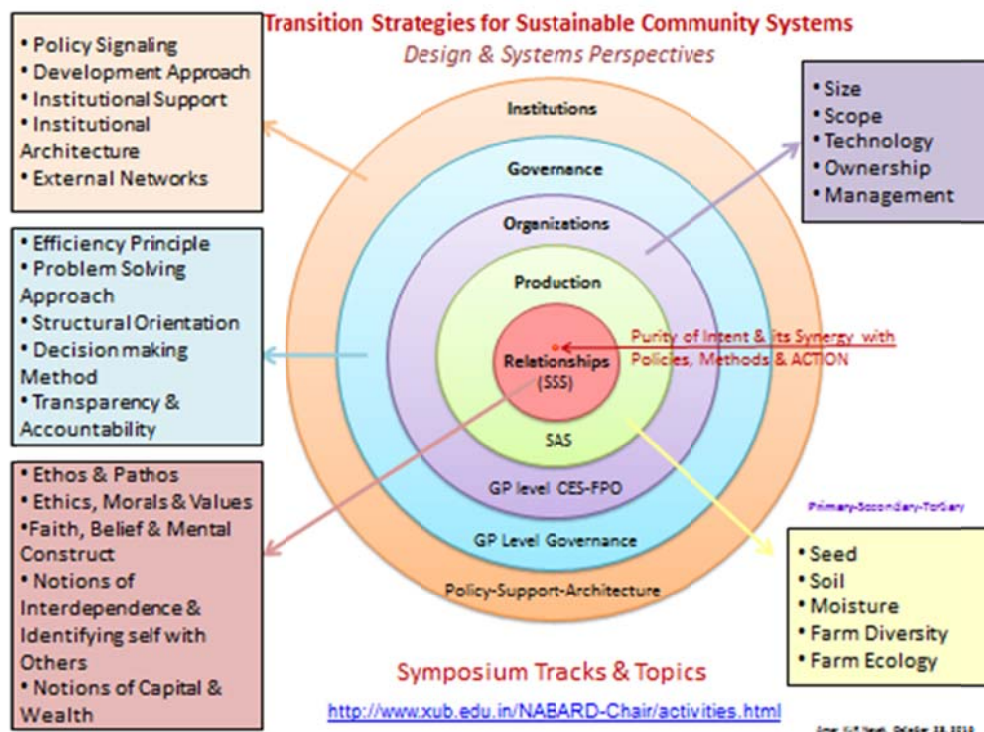
Second, the rationale behind the tracks and topics, their boundaries in terms of design thinking and systems perspectives and how all these have evolved. Hope this will help you synthesize the topics or variables within a track or dimension as well synthesize the linkages of one dimension with other dimensions. Many senior member of the advisory committee of this symposium have been working on various topic of the symposium for around 40 years now. My own engagement in this domain has been for about two decades. During the last ten years the focus however has been sharper on these tracks/dimensions and topics/variables. The various deductive and inductive studies, engaging action research with rural agricultural communities and involvement in policy formulation strongly present a compelling need to understand the lock-in mechanisms of our designs and systems within and across these dimensions; viz., agricultural production, farmer producer organizations, community governance, institutions and inherent culture of relationships that shape our design and systems thinking.

Although our research and action research have largely focused on production in the primary sector, viz., agricultural sector and organizational design of farmer producer organizations (FPOs) as community enterprise systems; the issues of community governance and institutions have been critical to sustainability of the first two dimensions. Further, the variables of social capital, trust, cooperation have been fundamental to the sustainability at all these four levels.

Accordingly the tracks viz., Relationships, Production, Organization, Governance and Institutions were chosen for analysis and discussion at the symposium.

A community system not only consists of certain number of families in a cluster of villages but also a certain extent of geographical spread with its ecosystem. Accordingly, micro-watershed, the basic unit of ecology forms the technical base of our community system. However for optimization of size for economic viability especially under diverse production system, and easier identification of physical boundary by the people; a Gram Panchayat (GP) or Ward that may consist of 4-2 micro-watersheds depending on whether it is in hilly, plain or coastal region has been taken as a community system for the analysis.

Third, relates to the topics/variables under each track/dimension, the spectrum of variables in each dimension, tensions within the spectrum, dynamics of relationships among variables within a dimension and lock-in processes. The *figure* below shows a list of topics/variables under different tracks/dimensions. Interestingly, it also shows the order of layering; from core to periphery and high interdependence among the different tracks/dimensions.



Relationships: The nature and state of relationships often shape the sustainability of our endeavour in production systems, organizational designs, community governance and institutions. Relationships seem to have been at the core of human engagements and their sustainability. Through this dimension, we could explore and understand Relationships from the perspectives of spirituality (theological), philosophical and systems science.

From philosophical and theological perspectives, the deep rooted **faith & beliefs, ethos & pathos, and ethics, morals & values** that influence our behaviours and actions that are contrary to the principles of sustainability could be explored. From a systems science perspective, the **notions of interdependence** and **identifying self with others** around and the **notions of capital & wealth** can be studied. The variable, **mental constructs** probably could be analysed from all three perspectives.

Sustainable Agricultural Systems: Agriculture, the primary production activity is greatly being impacted by climate changes and has been increasingly becoming unsustainable across the world. It appears that in the course of our taking agriculture forward for greater productivity through intensive external inputs has made many small farmers unviable, increased risk in food safety, and environmental degradation.

Agricultural production science could review holistically the principles of **seed, soil, moisture, diversity** and **ecology** in line with principles of agro ecology that can enable a small farmer's agricultural field become sustainable and the farmer viable in short run and sustainable in the long run. In the backdrop, transition strategies related to above principles in agricultural research, practices, ecosystem services, and policies need to be explored.

Organizational Design of FPOs as CES: Organizations have been the key engines of economic growth in human enterprise system. However, today's organizational designs seem to greatly facilitate private financial capital creation as compared to social wealth creation in the society. Farmer Producer Organizations though are initiated on the principles of social capital formation they gradually seem to adopt the design of organizations for private wealth creation. Therefore there is a need to design FPOs such that they can evolve to be community enterprise systems than a private enterprise. FPO for our analysis includes different forms of collectives; viz., primary cooperative, SHGs, Farmer's clubs, producer organizations, and producer companies.

Accordingly, organizational design variables that can facilitate higher frequency of interactions among the members/owners, greater number of transactions throughout the year and help members find greater value through these interactions and transactions need further exploration. The design is to facilitate not only financial capital in the short run but to facilitate greater social capital formation in the long run that can ensure sustainable wealth creation process. The key design variables include **size, scope, technology, ownership** and **management**. Size refers to the number of membership and geographical extent. Scope refers to the number and type of activities that an FPO can engage in. Technology refers to the process and product technology

suitable for an FPO. Ownership refers to shareholding structure in the FPO and Management refers to management structure, type of managerial skills appropriate for an FPO.

Community Governance: Community in our analysis consists of a Gram Panchayat or a Ward. As explained in page 4, this has been taken for consideration for analysis based on the technicality of watershed, economic viability keeping diversity as basis of production, and politically and socially recognizable boundary.

The analysis here include variables, viz., **efficiency principle** adopted in community governance, **problem solving approach**, **structural orientation**, **decision-making method**, and **transparency & accountability**. While the desirable direction of each of these variables may have been well understood, the studies need to figure out ways to overcome the challenges of community governance that can facilitate sustainability in community enterprise system, sustainable agricultural system, and deepen relationships among members within the community.

Institutions: Nature and type of institutions at the district, state, national and global levels can either facilitate or destroy sustainable principles adopted in the other four inner layers, viz., community governance, community enterprise system, production systems, culture of relationships at the core. Even if there are inconsistencies in the institutions at the higher levels from district to global level, coherence of institutions within a district that is at district, block & GP-Ward level can greatly facilitate sustainability at other four inner layers viz., GP, FPOs, Production Systems and Relationships.

Accordingly, analysis in this dimension include five key variables of institutions viz., **policy signalling**, **development approach**, **institutional support**, **institutional- architecture** of community enterprise systems in the district and market **networks** within and outside a district; such that the external institutions facilitate communitarian principles at the community level.

The issues that are most interesting to explore are the spectrums of each variables under different dimensions and the inherent tensions within the spectrum of each variable. The **chart** in the next page provides the list of variables. Against each variable; it presents the extreme positions possible in the spectrum of a variable. The inherent tension in each spectrum of a variable comes out clearly in the process. From a transition strategy point of view, one could discern on the possible intermediate positions that lie between the two extremes of the spectrum.

Spectrum of Dimensions & Variables of Research: Tracks & Topics of Symposium

Relationships (Systems Science & Spirituality)			
Variables/Perspectives			
Concern for the Strongest	←	Ethos & Pathos	→ Concern for weakest in an ecosystem
Regulating Others	←	Ethics, Morals & Values	→ Self-Regulation
Hierarchical & Asymmetric Powers	←	Faith, Belief & Mental Construct	→ Non-hierarchical & Equity
Low (Distrust, Competition & Hate)	←	Notions of Interdependence & Identifying self with others around	→ High (High, Cooperation & Love)
Culture of Financial Capital & Material Wealth	←	Notions of Capital & Wealth	→ Culture of Social Capital & Social Wealth
Sustainable Agricultural Systems			
Exotic	←	Seed	→ Indigenous
Dead	←	Soil	→ Live
External	←	Moisture	→ In-Situ
Low	←	Farm Diversity	→ High
Shallow	←	Farm Ecology	→ Deep
Organizational Design (CES–FPOs at GP Level)			
Large	←	Size	→ Small
Few	←	Scope	→ Multiple
High Cost	←	Technology	→ Low cost
Private	←	Ownership	→ Common
Complex	←	Management	→ Simple
Community Governance (GP Level)			
Professionalism	←	Efficiency Principle	→ Volunteerism
Positivism	←	Problem Solving Approach	→ Constructivism
Centralisation	←	Structural Orientation	→ De-centralisation
Indirect Participation (of elite groups)	←	Decision-making Method	→ Direct Participation (of diverse groups)
Low	←	Transparency & Accountability	→ High
Institutions (GP-Block-District-State level)			
Compartmental	←	Policy Signal	→ Convergence
Disperse	←	Development Approach	→ Saturation
Piecemeal	←	Institutional Support	→ Holistic
Market determined	←	Institutional Architecture	→ Community determined (GP-Block-District)
Borderless loose market networks	←	Networks	→ Deep local market networks

Further, the characteristics of variables within each dimension seem to show a dynamic relationship with each other. As an illustration; let us see how the five variables of organizational design viz., of size, scope, technology, ownership, and management are dynamically interconnected with each other in specific case of say a farmer producer organization (a cooperative or producer company).

As we increase the organizational size in terms of membership and geographic spread; the scope of activities in the organization tends to get limited. In other words; as the size increases the organization tends to become specialized. As it tends to become specialized, it can't but has to rely more on technologies; which leads to subsequent technology intensification in the organisation. As the process and product technology intensifies or is required; this doesn't come free to the organization; but through huge investments. These investments are brought in by some investors who would like to take ownership position in the organization either directly or indirectly through greater management control. With more capital inflow to the firm, the ownership and management structure gradually gets modified and often in favour of major investors. As all the four variables shift towards one side of the spectrum (to far left as in the table), that is size increases, specialization increases, technology intensifies, and ownership-management concentrated, the producer organization can't but have to adopt a very complex management structure to reduce transaction costs. Interestingly, these interconnected changes could be initiated by a change in any one of these five variables; say a process or product technology intensification can lead to subsequent shift towards specialization and so on.

On the one hand; when the size grows, specialized increases, technology intensifies, ownership-management gets concentrated and management complex, an organisation would often emerge to be a large multinational corporations. Unfortunately, large corporations seem to show signs of unsustainability in the future. Several historical research studies (Schumpeter 1943, Vernon 1971, 1977, 2009 Nayak 2009) on large multinational corporations around the world tend to make this point. Is the recent bankruptcy of Fagor, flagship unit of Mondragon Cooperative Group a result of such dynamics? Are the internal tensions in India's best cooperative, AMUL due to design flaws? Would this lens of analysis be useful to understand and resolve the challenges of large corporations in the global economy?

On the other hand; when these variable positions are at one end of the spectrum (to far right as in the table), we get small informal organisations such as self-help groups (SHGs) or small primary cooperatives in India. While SHGs groups have been good social units among the economically poor women; they do not seem to be technically viable to undertake more than some limited functions. So it appears that one of the challenges of sustainability of producer organizations has been to find optimal positions of the design variables. Small is beautiful (Schumacher 1973)

indeed; however, what would be an optimal organizational/community size in the current challenging context to facilitate transition towards a sustainable community system.

It may also be interesting to see the inter-industry dynamics across organizations in primary-secondary-tertiary sectors. Greater volume of production of a crop in a given geography or collection by a producer organization which may be initiated by itself or triggered from outside often require processing or manufacturing activity that gradually lead to more technology dependency; first on process technologies, then on product technologies. Increased transaction cost due to larger operation is then dealt with further scaling-up processes. With scaled up production capacity, higher price signalling mechanism is often used to source inputs by processing/manufacturing units in the secondary sector; which initially comes as a boon in terms of higher prices to farmers but gradually becomes a bane to producers in primary sector; as observed in commercial farming across the world.

With greater demand to deal with complexities in secondary sector; tertiary sector flourishes in terms of global trade & investments and all supporting services including education and training in various fields, viz., technical, management, economics, diplomacy, etc., that are often path dependent to the existing organizations. In the given context, the criteria for efficiency are different for individuals/organizations in different sectors. For instance, diversity is efficient for farmers in agriculture, specialization is efficient for processing/manufacturing units and scale and scope are required for retail organizations. With such technical contradictions across sectors, while pursuing their individual goals, they together perpetuate greater asymmetries across the primary-secondary-tertiary sectors in an economy (Nayak 2013); long term impacts of which seem to play out more clearly in the highly industrialized economies.

Organization, the central dimension among the five dimensions; has been perceived to be the engine of growth in the present market economy and accordingly, governance and institutions; the other critical layers of a society increasingly appear to get shaped by the demands of the leading organizations. Inherent design deficiencies in such organizations can fuel further asymmetries, greater unequal relationships, deeper division among people and perpetuate the vicious cycle of un-sustainability in the society.

However, what I would like to highlight from the above brief analysis of a very complex dynamics is that the variables within a dimension are interdependent and hence influence each other in a manner which drives not only its own dimension (say organization) but also the other four dimensions in a particular direction. Analysis of the variables of each dimension individually shall provide a similar dynamic relationship within and outside. If all 25 variables of the five dimensions were to be simultaneously considered, the complex control mechanisms and

lock-in processes of our present time come in play; a context where apparently no single individual, organization or institution can possibly reverse the vicious cycle of un-sustainability.

Fourth, under the above highly interconnected complex dynamics where our own designs and systems at different levels appear to perpetuate lock-in effects and external control; the chances of our becoming unsustainable seem to be far greater than becoming sustainable. In these circumstances, what could be the way forward to transit to sustainability?

One of the steps could be to review our designs at each level of production, organization, governance, institutions and reflect on the core of all these dimensions viz., our culture of relationships. While it will be hard to remove all inconsistencies at one go; being aware of these inconsistencies and sharing it with others around could be a starting point. Two, identify variable positions in each dimension that are consistent with sustainability principles. It may be noted here that following sustainability principles at the core, viz., relationships, can have healing effect at the higher levels of engagements and following sustainability principles at the periphery, viz., institutions, can facilitate sustainability at the lower levels of engagements. Three, facilitate synergy of variable positions across all five dimensions in relatively simpler community systems where the present lock-in effects are relatively low (Nayak, 2014).

While these steps may be considered only as initial starting points, developing details that are context specific needs greater deliberations of different dimensions/tracks with the stakeholders in a given community and context. The first symposium on transition strategies for sustainable community systems is only one such platforms to initiate the deliberations among academics, policy executives, practitioners, doctoral scholars, students and members of the civil society.

Fifth, on research possibilities in the domain of sustainable community systems; the field appears to have been largely unexplored and neglected. Therefore, it presents a huge opportunity rather a crying need to study and facilitate the transition process in both practice and policy. Indeed, there is no dearth of studies relating to individual dimensions viz., relationships, agricultural production systems, organizational design, governance and institutions. However, most of these studies have broadly followed the reductionist approach of science and hence do not seem to have taken a systems view; either within the dimensions or across these dimensions.

Further, past studies relating to variables in each of the above dimensions has often been limited to studying these variable positions at one end of the spectrum leaving out the multitude of alternatives. In other words; the language, logic and values of analysis have largely been limited to the perspective of competition or a hybrid of competition and cooperation than exploring sustainability from the perspective of cooperation (Nayak 2014).

Our research has listed only 25 core variables or topics for study and deliberations at the symposium. However, there seem to be far greater numbers of sub-variables and possible combinations of these variables and sub-variables under different contexts that needs to be studied to facilitate the process of transition to sustainability across communities.

The methodologies of research to explore alternatives for sustainability are likely to be different from the current methodologies of research and inquiry. Empiricism may not provide clues to sustainability as in the present reality, most practices and policies do not seem to be internally consistent with sustainability principles. Inter-disciplinary research, systems thinking, action research and holistic implementation processes could be some potential ways to explore new alternatives towards successful transition process.

I hope this background note of symposium will provide ample opportunity to identify several potential areas of research to different stakeholders that will enhance our understanding of lock-in processes from design and systems perspectives and help develop strategies to unlock sustainability. These are mere preliminary thoughts and we hope that the deliberations at the symposium and discussions, research, practice and policy thereafter will generate much more thoughts and ideas to jointly pursue towards building sustainable community systems.

To explore further on rebuilding sustainable communities and to register online to participate in the forthcoming symposium, please visit <http://www.xub.edu.in/NABARD-Chair/activities.html>

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