ERGOPOLIS AS AN INNOVATIVE CDM MODEL FOR SUSTAINABLE RURAL DEVELOPMENT, BY INCORPORATING SYSTEMS THEORY AND SYSTEMS THINKING

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Abstract : *The main aim of "Ergo polis" is to establish that Indian Villages are already sustainable. The only hurdle they are facing is the valuation of villages. If we consider the carbon fixing management as envisaged by environmental groups and protocols, we are now valuing them at a very low profile. We have to give enough emphasis to achieved goals of villages in terms of low cost of living, sustainable housing techniques, efficient use of waste and low dependence on external aids. We have to devise measuring parameters for valuing the achievements of existing sustainable human settlements. Presently villagers are getting sustained at less than $2 per person per day. This lowest figure has created negative growth prospects and they take high risk in managing their lively hood. Our villagers work ten to fourteen hours per day thought the year. Their work should be valued as they help in carbon fixing by their agricultural activities. We have to provide necessary technological and financial aids to achieve further sustainable goals on a constant renewable process. This human capital resource, fuel our economy to be most efficient in converting existing resources to its maximum value. By incorporating* ***Systems theory*** *which is the transdisciplinary study of systems in general, with the goal of elucidating principles that can be applied to all types of systems at all nesting levels in all fields of research we are proposing "Ergo Polis", as an appropriate Innovative CDM Model for Sustainable Rural Development,*

Key Words : *Carbon fixing Ergo Polis, Systems Intelligence. Systems Philosophy Systems Theory, Systems Thinking, Ergonomics*

Introduction

India can be considered as "land of villages", as 70 % Indian population now too resides in rural India spread around in about 6,40,000 villages in 28 states and 7 union territories.

Humanity at the end of the 20th century there is more elusive - than the prospect of living in harmony with nature and with each other. What are the possibilities for realizing this dream, and what are the highest-leverage actions that could help us all toward such a future? The concept of Ergopolis explores this question by considering the current status and likely prospects for a particularly powerful approach to achieving this dream of harmonious living: the eco-village. We will also explore the broader concept of sustainable communities and the idea of community in general. The paper emphasize on five concepts the first one is Ergopolis, secondly Systems Philosophy thirdly Systems Theory and fourthly Systems thinking and fifthly Systems Intelligence.

1. Ergopolis

At this time, there is no generally agreed-upon definition of Ergopolis. For the purposes of this issue, we will define an Ergopolis as;

Ergo: Ergo may refer to: A Latin word meaning "therefore." In logic, ergo means the conclusion of a preceding argument. Ergo shifting, in cycling

Polis: A polis (πόλις,pronounced /ˈpɒlɪs/, AncientGreek: [pólis]), plural poleis (/ˈpɒleɪz/, πόλεις [póleːs]), is a city, a city-state and also citizenship and body of citizens. When used to describe Classical Athens and its contemporaries, polis is often

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translated as "city-state."

Hence villages are therefore city-states or Micro nations hence the Term Ergopolis is coined for the purpose of defining the entire rural biomes of India. Ergopolis is a Clean Development Mechanism Model for sustainable Rural Development, Indian villages are human scale settlements, as village communities have sustainable lifestyles and livelihoods hence they can be considered as micro nations. Our constitution as per 73rd Amendment has to empower gram-panchayaths to micro nationhood for highest success rate in executing the concept of PURA and several other rural development schemes and programmes so as it can result in reverse migration.

The lifestyles and livelihoods in villages are eco-friendly, also villagers' work for 12-14 per day throughout the year contributing to 42 % of our national income. Ergonomics (or human factors) is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance. Ergonomics is employed to fulfill the two goals of health and productivity.

As Agro forestry is an integrated approach of using the interactive benefits from combining trees and shrubs with crops and/or livestock. It combines agricultural and a forestry technology to create more diverse, productive, profitable, healthy and sustainable land-use systems, hence there is a need to incorporate Agro forestry in our villages.

Human-scale

- Full-featured settlement in which human activities are harmlessly integrated into the natural world
- In a way that is supportive of healthy human development and can be successfully continued into the indefinite future.
- A human-scale-Human-scale refers to a size in which people are able to know and be known by the others in the community, and where each member of the community feels he or she is able to influence the community's direction. There is considerable practical evidence, both in modern industrial societies and in other cultures, that the upper limit for such a group is roughly 500 people. In very stable and isolated situations it can be higher, perhaps as high as 1,000, while in situations typical of modern industrial societies it is often lower, even less than 100.
- Full-featured settlement-A "full-featured settlement" is one in which all the major functions of normal living - residence, food provision, manufacture, leisure, social life, and commerce - are plainly present and in balanced proportions. Most current human settlement in the industrialized world - urban, suburban, and rural - is entirely divided by function: some areas are residential, some are for shopping, some are industrial, etc. These districts are usually too large to be human-scale, even within a single function. In contrast, the ergo polis is a comprehensible microcosm of the whole of society. This does not mean that ergo polis have to be fully self-sufficient or isolated from the surrounding community. As an ideal, an ergo polis will have as many jobs within it as there are employed people who live in the eco-village; but some of the villagers will go outside the village to work, and some of the jobs in the village will be held by people who reside outside the village.

There are also many specialized services that clearly cannot be located in each ergo polis such as hospitals, airports, etc. Yet with cooperation among villages, clusters and networks, permitting a fully functioning modern society to be mostly comprised of village units, could successfully run essentially any large institution.

In which human activities are harmlessly integrated into the natural world: This idea brings the "ergo" into the village. One of the most important aspects of this principle is the ideal of equality between humans and other forms of life, so that humans do not attempt to dominate over nature but rather find their place within it. Another important principle is the cyclic use of material resources, rather than the linear approach (dig it up, use it once, throw it away forever) that has characterized industrial society. This leads eco-villages to the use of renewable energy sources (solar, wind, etc.) rather than fossil fuels; to the composting of organic wastes which are then returned to the land rather than sending these to a landfill, incinerator, or sewage treatment plant; to the recycling of as much of the waste stream as possible; and to the avoidance of toxic and harmful substances.

In a way that is supportive of healthy human development: This fourth principle recognizes that villages are, after all, human communities, and without genuine human health at the core, these communities are unlikely to be successful. What is "healthy human development"? To attempt a complete definition would take a book, at least!

Suffice it to say here that I see this as involving a balanced and integrated development of all aspects of human life - physical, emotional, mental, and spiritual. This healthy development needs to be expressed not just in the lives of individuals, but in the life of the community as a whole. And that Ergopolis can be successfully continued into the indefinite future."

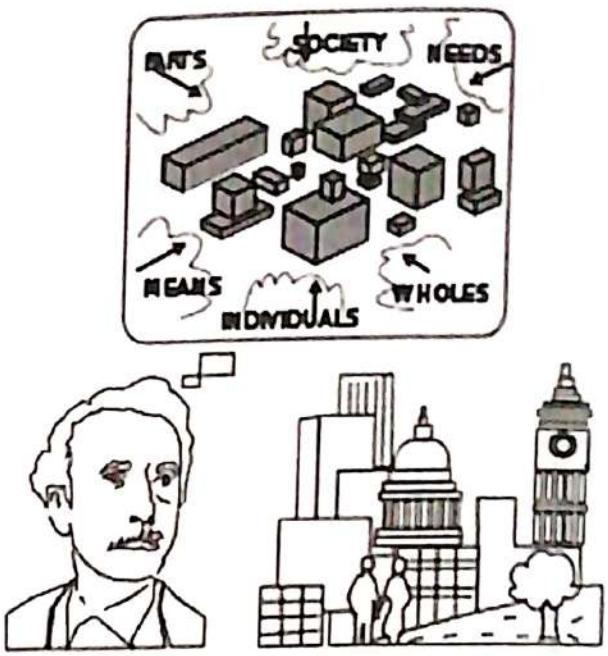
2. Systems philosophy is the study of the development of systems, with an emphasis on design and root cause analysis. Systems philosophy is a form of systems thinking.

Ludwig von Bertalanffy (1969), the founder of systems science, categorized three domains of systemics: the philosophy of systems, the theory of systems, and the technology of systems. This was later modified by Béla H. Bánáthy (1996) of the Primer Group to a fourfold model, the philosophy, the science, the methodology and the application of systemics. The philosophy and the science of systems constitute the knowledge of systems; the methodology and the application constitute the action of systems.

According to systems philosophy, there are no "systems" in nature. The universe, the world and nature have no ability to describe themselves. That which is, is. With respect to nature, conceptual systems are merely models that humans create in an attempt to understand the environment in which they live. The system model is used because it more accurately describes the observations.

Because systems are models created only for understanding, the most fundamental property of any system is that a system has an arbitrary boundary. Humans create the boundaries to suit their own purposes of analysis, discussion and understanding. This is true of every conceptual model that was devised through which humans try to understand the universe.

3. Systems theory has also been developed within sociology. An important figure in the sociological systems perspective as developed from GST is Walter Buckley (who from Bertalanffy's theory). Niklas Luhmann (see Luhmann 1994) is also predominant in the literatures for sociology and systems theory. Miller's living systems theory was particularly influential in sociology from the time of the early systems movement. With the renewed interest in systems theory on the rise since the 1990s, the concept of systems in sociology dates back to Auguste Comte in the 19th century, Herbert Spencer and Vilfredo Pareto, and that sociology was readying into its centennial as the new systems theory was emerging following the World Wars.



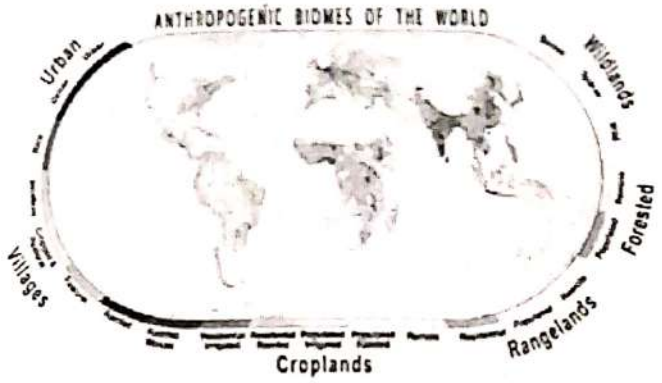
Impression of systems thinking about society [figure 1]

4. Systems' thinking is the process of understanding how things influence one another within a whole. In nature, systems thinking examples include ecosystems in which various elements such as air, water, movement, plants, and animals work together to survive or perish. In organizations, systems consist of people, structures, and processes that work together to make an organization healthy or unhealthy.

Systems Thinking has been defined as an approach to problem solving, by viewing "problems" as parts of an overall system, rather than reacting to specific part, outcomes or events and potentially contributing to further development of unintended consequences. Systems thinking are not one thing but a set of habits or practices within a framework that is based on the belief that the component parts of a system can best be understood in the context of relationships with each other and with other systems, rather than in isolation. Systems thinking focus on cyclical rather than linear cause and effect.

In science systems, it is argued that the only way to fully understand why a problem or element occurs and persists is to understand the parts in relation to the whole. Standing in contrast to Descartes's scientific reductionism and philosophical analysis, it proposes to view systems in a holistic manner. Consistent with systems philosophy, systems' thinking concerns an understanding of a system by examining the linkages and interactions between the elements that compose the entirety of the system.

The sustainability principle - forces a kind of honesty on villagers. Without it, it would be easy (or at least easier) in the short-term to create human-scale communities that seemed to be harmoniously integrated into nature and to be full-featured, but in fact were in some not-so-visible way living off the capital accumulated in other parts of the society; or dependent on unsustainable activities elsewhere; or not inclusive of a major aspect of life (such as childhood or old age). The sustainability principle brings with it a profound commitment to fairness and non-exploitation - toward other parts of today's world, human and non-human, and toward all future life.



The soul of India lives in its villages", declared M. K. Gandhi at the beginning of 20th century. According to the 2001 Indian census, 74% of Indians live in 638,365 different villages. The size of these villages varies considerably. 236,004 Indian villages have a population less than 500, while 3,976 villages have a population of 10,000+. Most villages have their own temple, mosque or church depending on the local religious following.

Here, in the face of vicissitudes of all kinds, farmers follow time-tested as well as innovative methods of growing wheat, rice, lentils, vegetables, fruits, and many other crops in order to accomplish the challenging task of feeding themselves and the nation. Here, too, flourish many of India's most valued cultural forms.

Ergopolis is a ideal for Sustainable Human Community: The more general term "sustainable community" includes eco-villages, but it also includes clusters and networks of villages, and non-geographically based "communities" (such as businesses) that are nevertheless human-scale in their components, diverse, and harmoniously integrated into the natural world. In this sense, a village is a distinct place, either as a rural village or as an urban/suburban neighborhood. A city could not be a village, but a city made up of villages could be a sustainable community.

Ergopolis can take humanity forward but not backward:

If villages are such a great idea, why don't we already live in them one oft-suggested response is that, in fact, most people already do live in "villages" that is, the best model for an village is the traditional agricultural village - and to regain harmony with nature and with each other, all we need do is return to that traditional way of life. While it is true that there is much to be learned from these villages (they still contain about half the world's population), few people today - including most traditional villagers! - Would describe these villages as either full-featured or supportive of healthy human development. The work is hard, life expectancy is short, opportunities for personal development and education are few (almost non-existent for women), and the diversity of livelihoods is small.

In addition, the harmony between these villages and the natural environment has often depended on low population densities - a luxury we no longer have. Traditional villagers around the world use three main types of agriculture: slash-and-burn, dry land rain-fed, and irrigated. Of these, slash-and-burn is the most environmentally demanding and requires the lowest population density. But even irrigation, which supports the highest population density, can be environmentally damaging, as the ecological collapse of many past irrigation-based civilizations attests.

And finally, traditional villages are hardly paragons of harmony between humans. Village life is often, from a modern point of view, painfully patriarchal. Beyond the household there is feuding and mistrust within villages, between neighboring villages, and toward the world beyond.

True villages, in contrast, are a distinctly post-industrial (and likely even post-agricultural) phenomenon. While they draw on lessons from all of human experience, they are not a return to any previous period or way of life.

Villages grow out of the needs and opportunities caused by:

- New ecological constraints - which grow out of high levels of population and technological capability;
- New techniques and technologies, from better understanding of ecosystems to more diverse channels of communications; from efficient technologies for renewable resource use to new forms of human organization; and
- New levels of consciousness and awareness,

symbolized in part by the picture of the Earth from space, with all that means in terms of global consciousness and an awareness of the many-billion-year history of life on this one small planet in the vastness of the Universe.

In spite of its increasingly evident lack of sustainability, industrial society has the momentum of hundreds of years of institution building and capital development. Given the enormous infrastructure and social patterning in place, it has so far been much easier for people to keep living in the same old unsustainable ways than to pioneer sustainable communities.

The answer, then, to why we aren't living in villages yet is fairly simple: these needs and opportunities are so new we have not had time as a society to adjust to them. We are at the very beginning of a new era, and we can expect much of the development of technique and awareness that will characterize this era to be still ahead of us.

CONCLUSION:

Villages are like trees and plants, they are nonpolluting systems- we have to preserve and nurture our villages. Lakes and ponds are driving force of our villages. They are the proven methods of water management at micro scale. Millennium development goals can be achieved by proper valuation of achievements achieved by existing human settlements.By proper policy initiatives we can reduce the present migration to urban areas in search valued jobs. Villages fulfill Sustainable Development Properties in terms of Poverty reduction: Monetary scale, Knowledge scale, Consciousness scale and Governance: Democratic, Pluralistic, Decentralized, Just, Equitable, Human Rights. We have to give enough emphasis for Rural Infrastructure so as it results in Reverse Migration.

Every village should be provided with a development package for sustenance, Micro credit should be utilized. Individual and group entrepreneurs in the villages need to be heavily supported with micro-credit, and funding and advice to develop small and large-scale industry and business using a balance of the service motive and the profit motive.

National and international business needs to recognize that the largest potential consumer market the world has ever known exists in the poverty-stricken areas of the world and strongly support the funding of village development programs and simultaneously solve other world problems. Villages are nonpolluting biomes of humanity, they are like Plants and trees, we have to preserve and nurture every village. Hence Ergopolis can be considered as an appropriate Clean Development Mechanism Model for Sustainable Rural Development.

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