

# Chapter 2

## Theoretical Construct

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This Chapter mainly deals with the conceptual framework used in this study in order to provide a theoretical base for the empirical investigation and guidance for the selection of relevant predictor variables as well as to envisage a set of hypothesis for testing. This chapter includes the following-

### **Disillusionment: A Threat to Progress in Agriculture**

Literally “Disillusionment” means a feeling of disappointment resulting from the discovery that something is not as good as one believed it to be. We are here to discuss over the unwillingness of Indian Farmers to be attached with farming activity. Thoroughly chased by the stress factor they are not all doing their farming with a interest rather as a compellation.

This gradually leads them to the migration towards the other sectors apart from agriculture that is off farm migration is taking place as those are seeming lucrative to them.

The issue included in that schedule that their growing unwillingness towards the farm practices. Some questions related to their satisfaction, profit level, encouragement for the next generation also asked to get an idea to the extent of their disillusionment

### **1. LACK OF SELF EFFICACY**

Self Referent thoughts play a very important role in various psychological aspects. Bandura (1977) introduced the concept of perceived self efficacy with reference to cognitive behavior modification. Self Efficacy is a key contract in social cognitive theory.

Wood and Bandura (1989) defined self efficacy as “beliefs in one’s capabilities to mobilize the motivation, cognitive responses, and courses of action needed to meet given situation demands”. Exposition of different information and adoption of new technology are assumed to develop farmer’s self-efficacy. Self-efficacy of farmer refers to judgment of his capabilities to organize and execute courses of action required to attain designated types of agricultural performance. Self-efficacious farmers have belief that they are more competitive, challenging, recognized, curious to know farming practices, able to perceive environmental uncertainty, motivated to learn new skills for adaptation and able to understand social needs easily. When farmers have lost such belief, his self-efficacy system deteriorates and prolonged deterioration leads him to commit suicide or to take some other profession. The studies related to farmer’s suicide provide conceptual base to understand different correlates of self-efficacy.

## **2. OFF FARM MIGRATION**

So it is well understood that they were not at all satisfied with farm practice. Rather gradually a hidden unwillingness and repulsive factor accrued within. Which were to be erupted in front of interviewer when they were questioned.

Following this disillusionment farmers discourage their next generation to go for farming rather they would like to go for any job which would provide them with liquid cash instant. In this way off farm migration took place. The alternatives in which frequent migration is evident those are

- Artisans
- Pottery work (specially making earthen god of Hindus)
- Masonry work
- Even working as casual laborers

In some extreme cases the situation becomes more devastating, where they could not help but committing suicide.

### **Stress in Agriculture**

The very nature of farming itself is the cause of many strains for farming families. Farming can be an isolating profession, as farmers traditionally

work long hours, outside, often in bad weather and alone. A farmer takes all the necessary steps to insure proper nourishment of the attempts that he raises and then sells the items to purchasers.

A spokesperson for the Samaritans, which handles many calls from stressed farmers, says: 'There is the fortress farming mentality – work is home and home is work. There is nowhere to get away from it all–nowhere to escape from the same mindset.'

An additional stress for many farmers is the speed of change within the industry over the last 10 years. Now government and EEC regulations have brought with them mountains of paperwork which many farmers find stressful. At the same time, farming families have faced critical public opinion and press coverage in recent years. Caroline Davies, director of the Rural.

Stress Information Network (RSIN), says: 'Farmers are at a very vulnerable stage, they are exposed to a lot of criticism, and they do feel that society is against them.'

A state of stress exists when unusual or excessive demands threaten a person well being or integrity. Extraordinary efforts are needed to master the situation and there is the danger that coping capacities will be overwhelmed with the consequence of disturbed functioning ,pain or anxiety , illness or even death. Stress defined neither by the person (coping resources ego strength etc.)Nor by his reactions (stress responses, but rather by the inter play of the three.)

Stress can originate in physiological, psychological and social condition and threaten the integrity of in its body the personality or the social system. Threat can disturb psychological well being and psychological functioning. Social institutions produce psychological stress.

## **CONFLICTS**

### **1. Farmer's suicide : The Extreme/worst form of Dissonance**

Farmers suicides are the most tragic and dramatic symptom of the crisis of survival faced by Indian peasants. Two factors have transformed the positive economy of agriculture into a negative economy for peasants –the rising costs of production and the falling prices of farm commodities.

Paradoxically, Burdwan, where most of the deaths have been reported, is known as the ‘rice bowl’ of the East. The farmers are unable to meet the 16 per cent interest on loan charged by the public sector banks. The West Bengal Left Front government’s much eulogized programme of land reform – a key to its electoral success for more than two decades, is regressing under the impact of liberalization. Small and marginal farmers, who were the main beneficiaries of land reform, are victims of the fallout. The gradual withdrawal of state subsidies for inputs such as fertilizer and seeds and the rising irrigation costs are making farming unaffordable for small and marginal farmers, who form 76 per cent of the agricultural population and operate 60 per cent of the cultivable land.

## **2. Class Caste conflict**

M.N. Srinivas has analysed the new form of Caste as the “20th Century Avatar.” **In relation to class and caste, there are two schools of thought:**

- (i) Caste is breaking down and class is taking its place.
- (ii) Caste and class are not opposite to one another rather class comes within the caste system. For example – Brahmin is a caste and within Brahmins we find rich Brahmins and poor Brahmins.

Andre Beteille in his article “Class Structure in an Agrarian Society” argues that some of the castes In rural society, particularly in West Bengal (where he had conducted his study) are moving towards the formation of class but the procedure of movement is clear.

When a caste is transformed to a class, the caste-class conflict emerges in a particular social condition and we find caste wars. For example: In U.P. and Bihar etc. caste wars are very frequent. In Kerala also there is a mobilization of power which is based on both caste and class.

Caste and class nexus implies observation of two as mutually inherent areas. Tension and contradiction between caste and class are not only recognizable but also bring their differential consequences on different castes and classes. This nexus between caste and class also implies going beyond caste and going beyond class in understanding social reality.

### **3. Traditional knowledge vs Modern knowledge: The non-compliances and conflict.**

Indigenous knowledge is what has made the agriculture sustainable in all parts of the world for many centuries. The new technologies induce an external dependency that kills the scarce resources these small farmers have. So a conflict arises which in turn adds dissonance to the farmers mind.

### **4. Decrease in Land man ratio but not increasing productivity**

Cultivable Land is not increasing in such a geometric progression as the number of land holders are jumping day by day. As a consequence of it the fragmentation of land is inevitable as well as the Land- Man Ratio is falling abruptly but the productivity is not getting its way ahead. So a conflict arises.

### **5. Information Overload/Meta-cognitive stress**

The farmers are continuously provided with a lot of overload information that that of a recurring information. The information are sometimes provided without such amenities to carry out those which in turn create agitation within the farmer. These created a gap between motivation unleashed and work done. That is social entropy and produces Dissonance.

### **CHAOS THEORY: an innovative tool for contemporary issues**

Chaos theory is the study of complex, nonlinear, dynamic systems. The field was pioneered by Lorenz (1963), who was studying the dynamics of turbulent flow in fluids. Although we all recognize the swirls and vortices that characterize turbulent flow, the complexities of turbulent flow have confounded mathematics for years.

Chaos theory, which is the study of nonlinear dynamic systems, promises to be a useful conceptual framework that reconciles the essential unpredictability of firms/Industries with the emergence of distinctive patterns (Cartwright, 1991). Although chaos theory was originally developed in the context of the physical sciences, Radzicki (1990) and Butler(1990) amongst others have noted that social, ecological and economic systems also tend to be characterized by nonlinear relationships and complex interactions that evolve dynamically over time.

Proponents of chaos theory enthusiastically see signs of it everywhere, pointing to the ubiquity of complex, dynamic systems in the social world and the resemblance between patterns generated by stimulated nonlinear systems and real time series of stock exchange or commodity prices. From a theoretical perspective, chaos theory is congruous with the postmodern paradigm, which questions deterministic positivism as it acknowledges the complexity and diversity of experience. While postmodernism has had a profound influence on many areas of social science and the humanities, it has been neglected by organization theorists until very recently (Hassard and Parker, 1993).

Despite its attractions, the application of chaos theory to the social sciences is still in its infancy, and there are those who think that expectations are too high (Baumol and Bnhabib, 1989)

- **Chaos and Indian Farming**

Literally chaos means complete confusion and disorder: a state in which behavior and events are not controlled by anything.

In particular, a chaotic dynamical system is generally characterized by -

1. Having a dense collection of points with periodic orbits,
2. Being sensitive to the initial condition of the system (so that initially nearby points can evolve quickly into very different property sometimes known as the **butterfly effect**, and
3. Being topologically transitive.

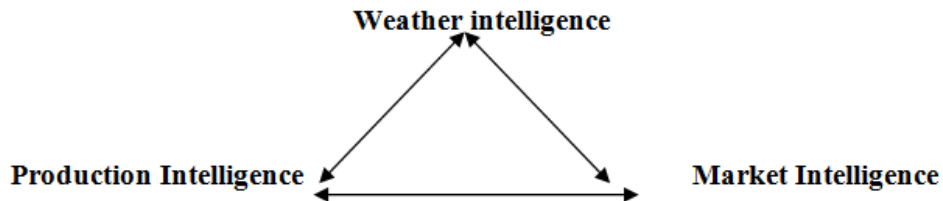
Now we will discuss why we are considering the Indian Farmers a Chaotic system nowadays.

Mainly Two types of chaos are found within farming system

- ***Institutional chaos*** is being emphatic nowadays. According to Horton(1964) “an institution is an organized system of social relationships.....”. any disorder in that system produces chaos.
- ***Social chaos*** is another type in which the social system and the interrelationships amongst its various components get hindered due to some dysfunctions.

The **Reasons of Chaos** are following

- If we consider agriculture as a whole system then its elements produce a **undirected rather to and fro movements** which is a symptom of a chaotic system.
- **Lack of market negotiator** they are not getting market access in spite of production.
- **Product process negotiation is also lacking** which is making them compelled to face a unrest condition within them.
- **A huge uncertainty is prevalent in farm income** whereas the cost is certain which leads to an imbalanced situation in agriculture.
- **An intelligence trio** can be formed among weather intelligence , Market intelligence and Production Intelligence



- Any disturbance in that trio produces chaos. And it is well understood that any of these combination has a huge possibility to a negative correlation with the other. Then the whole system gets disturbed.
- **Relative value of agriculture** industry is comparatively lower than the other industries which is a major cause of disillusionment and in turn make it a chaotic system.
- **Lack of demand and supply projection** ia an another aspect of the farmers unrest which leads them to a problematic situation.
- **Farmers are lagging behind far in the race of service holders** versus farmers. Which are the causes of social unrest also
- **Amenities are becoming essential** for everyone nowadays but farmers theseare becoming hard to get.

## **SOCIAL ENTROPY: THE CONCEPTUAL BREAK THROUGH**

Farming system in India has been characterized with high level of adoption, rejection and discontinuance. Agriculture in India demands transfer of technology, external supply of inputs as well as knowledge, where rural people have become mere recipient of input and technology. In India in general and West Bengal in particular through the continuous imposing of knowledge and motivating the rural people a gap has been found between motivation unleashed and accomplished made and there is a gradual dissolving of the most advance societies due to intrinsic disorder that may be referred to as social entropy.

Social entropy is a macro-sociological system theory. It is a measure of the natural decay within a social system. It can be defined as the decomposition of social structure or of the disappearance of social distinctions. Social entropy is the amount of motivation unavailable for performing in system. Mitchel (2009) studied on a village (Jacobs) in 1998 through creative destruction developed and predicted the fate of communities that became the base of their development on the co-modification of rural heritage.

Farming systems deals with production system and production function, it is load based, crop based, and natural resource base and thus crop productivity is a function of physical, biological and social subsistence. The stage of equilibrium, physical, biological and social is the prime concern of any system, it is more important for extension system because it aims at adding disequilibrium to a depletive function e.g. (Poverty) in order to invite neo- equilibrium (sustainable livelihood). People are more concerned about the conservation of energy that to in terms of fuel energy or electricity, power etc but seldom we speak out conservation of social energy and recycling of motivation. Methodology for conservation of social energy: Training; education; meditation; simulation; psychotherapy; stimulation.

The lack of sustainability of the industrial approach to agriculture is not a matter of personal opinion. It is a direct consequence of the most fundamental laws of physics, the laws of thermodynamics. The sustainability of agriculture, like the sustainability of any other type of development, ultimately depends upon the use of energy, because anything



that is useful in sustaining life ultimately relies on energy. All useful material things – food, clothes, houses, automobiles – require energy to make and energy to use. And all human energy – working, managing, and thinking – comes from the energy in things people eat, wear, or use. Physical scientists lump all such useful activities together and call them “work.” All work requires energy. And most important, each time energy is used to perform work, some of the *usefulness* of the energy is lost. In performing work, energy is always changed from more-concentrated to less- concentrated forms.

However, the total energy contained in matter and energy always remains unchanged. This is the first law of thermodynamics, the law of energy conservation, as in Einstein’s famous  $E=MC^2$ . At first, it might seem that energy could simply be recycled and reused forever. If so, sustainability would be inevitable

However, once energy is used to perform work, before it can be used again, it must be re concentrated and restored, which inevitably requires energy. The energy used to reconcentrate and restore energy, is simply no longer available to do anything else. It has lost its usefulness; meaning it has lost its ability to perform work. A sustainable agriculture must be fundamentally different from the mechanistic paradigm of industrialization. Sustainable agriculture must be based on the paradigm of living systems. Living things are self-making, self-renewing, reproductive, and regenerative (Ikerd, *sustainable capitalism, chapter 5*)

Entropy is a measure of the disorder or chaos coming from the second law of thermodynamics.

“Main Entry: en.tro.py

Pronunciation: ‘en-tr&-pE

Function: noun

Inflected Form(s): plural-pies

Etymology: International Scientific Vocabulary 2en- + Greek trope change, literally, turn, from trepein to turn;

**1:** A measure of the unavailable energy in a closed thermodynamic system that is also usually considered to be a measure of the system’s

disorder and that is a property of the system's state and is related to it in such a manner that a reversible change in heat in the system produces a change in the measure which varies directly with the heat change and inversely with the absolute temperature at which the change takes place; broadly: the degree of disorder or uncertainty in a system.

**2 a:** The degradation of the matter and energy in the universe to an ultimate state of inert uniformity; **b:** A process of degradation or running down or a trend to disorder.

As the universe goes on expanding towards infinity following the Big Bang, the time starts happening. The extreme grace and glory of energy-matter dialect has made the universe beautiful and formidable, infinite and extremely finite in the frame of a 'horribly consolidated' mass that did not allow even a photon particle to jump out of a 'Black Hole'. In this travel, matters keep rushing towards infinity by favoring its transformation into energy and at the same time leaving behind energy entropy, altogether, the hitherto unaccounted for residual energy. The history of expansion of space is the history of birth and death of stars and in between there lays a trajectory of equilibrium to non-equilibrium and non-equilibrium to neo-equilibrium.

**Thermal entropy to social entropy:**

Extension science deals with energy flow in a confined social energy which always keeps trembling with 'lost energy', the energy apparently goes unaccounted for.

The second law of Thermodynamics postulated this residual energy retained in the form of entropy, a gap between energy lost and work done. Since it has been irreversible transformation from matter to energy, the entropy can never be reduced or eliminated, but can be kept at least at a manageable level. This will go exponential while no measure would be taken to control the unabated transformation of matter into energy.

In one social system, motivations are unleashed through education, training, stimulation and simulation. This motivation has got a gene base as well as physiological nature. When one is motivated he/she is supposed to unleash latent energy base. But many a time, the motivation released and goal accomplished is creating a chasm in itself.

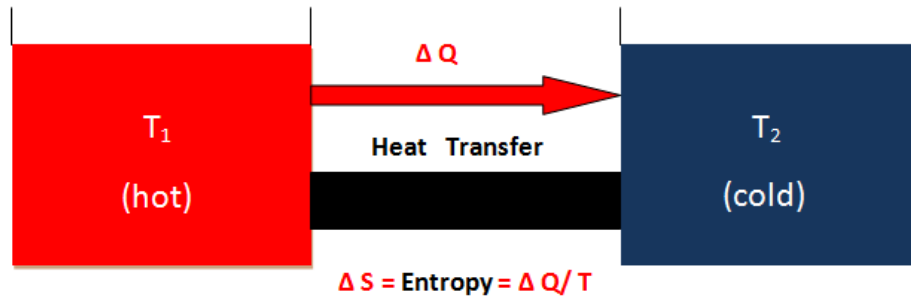
Every social system is spiraling from a present equilibrium to non-equilibrium and from a given non-equilibrium to a neo-equilibrium. Between two phases, there is 'lost energy' to add to entropy. Entropy begets innovation and chaos both. When green revolution occurred in early seventies in India, marginalization for poor farmers did happen; every step of mechanization in agriculture has invited drifting of surplus agriculture labor force to create a new livelihood crisis. But modernization in agriculture can't go stale, on the other hand, a perfect, synergy between traditional agriculture and 'modern agriculture' seems to be a 'utopian'. Hence, in any kind of rolling transformation, there must be 'jerk', 'chaos' and 'disorder'. The idea is how well we are equipped to handle the situation.

Right now in West Bengal, the highly developed agriculture goes by social evolution to have industrialization. At a stage of growth agriculture is must to dispose of diminishing effect. The fragmented and tiny holding, teeming population, beaming desire to access modern urban amenities by the rural people, unabated unemployment and lastly, the declining profitability...all have to set a ground for industrialization. But, while doing this, the rural mass was not graduated properly and the policy of land acquisition was not scrutinized properly either. All this have fuelled the rural people, also being backed by myopic political vision and mission, with furious opposition and chaos. Poor governance and objectives blurred to go for industrialization in typically improved and farming situation together invited serious social entropy in some parts of West Bengal. This kind of social entropy is increasing leaps and bounds in several parts of India, especially among the ethnic minorities, jungle dwellers and peripheral populace.

When the 'exotic concept development' goes dejected and an indigenous idea of empowerment denies governance and democracy, a serious chaos is to cripple in between, which is turning exponentially violent. The idea of 'honour', sanctity of ethnic culture', 'happiness and self-respect', 'livelihood and social security', 'dignity of local knowledge and institution' should/must be re-examined and re-looked, otherwise the conflict between 'conventional concept of development' and 'self-esteemed idea of getting empowered' shall lead to a simmering and igniting violence, the horrendous Social Entropy.



## Second Law of Thermodynamics



There exists a useful thermodynamic variable called entropy ( $S$ ). A natural process that starts in one equilibrium state and ends in another will go in the direction that causes the entropy of the system plus the environment to increase for an irreversible process and to remain constant for a reversible process.

$$S_f = S_i \text{ (reversible)}$$

$$S_f > S_i \text{ (irreversible)}$$

**Figure 1: Second Law of Thermodynamics; Thermal Entropy**

### THERMODYNAMIC ENTROPY:

The term “entropy” was coined by Clausius in nineteenth-century thermodynamics, and is the subject of the Second Law of Thermodynamics, which states that in an isolated thermodynamic system, entropy will either remain constant or increase toward its maximum, but cannot decrease. This means that in an isolated system, the system will gradually become more and more disordered, until it reaches maximum entropy. This is a complete state of rest or dissolution, with an absence of available energy for doing work

The phenomenon of entropy was originally observed in thermodynamic systems such as heat baths. An isolated system is one that is closed to inputs of both matter and energy.

This means that since no new heat energy can be added, the system can never become hotter, but can only remain the same temperature, or become colder. As it loses heat over time, its entropy increases, until finally it reaches its maximum.

This state of maximum entropy is called thermodynamic equilibrium. This is sometimes described as the state “system death”. Such thermodynamic systems, as found in nature, are “irreversible systems,” where heat cannot flow from colder to hotter parts of the system, but only from hotter to colder areas. Thermodynamic entropy is denoted by the symbol  $S$ , and the formula for change in entropy is:

$$dS > dQ/T \quad \text{.....(1)}$$

Where  $S$  is entropy,  $Q$  is heat, and  $T$  is the temperature of the system. The difference in two entropy states,  $S_1$  and  $S_2$  is:

$$S_2 - S_1 > \int dQ/T \text{ (irreversible process)} \quad \text{.....(2)}$$

Entropy( $S$ ) can only remain constant or increase, until it reaches a maximum. When the system is in thermodynamic equilibrium, then:

$$dS = 0$$

In Physics, work and entropy are inversely related. The principal way to decrease entropy is to do work through the expenditure of free energy. If free energy is available, and is expended to do work, then the system becomes more orderly and entropy decreases. But if all available energy has been expended, then no more work can be done, and entropy will either remain constant or increase.

In the 2001 paper “Social Entropy”, Peruvian engineering professor Alfredo Infante argued that **social entropy** is the quantity that measures the effects of the **second law of thermodynamics** in human social behavior and that the “**state**” of a human society as a “**system**” is described by the degree of dissatisfaction or satisfaction with the social, political and **economic** rules. He states that in social systems, the **Gibbs free energy** is the total energy in the system less the energy that is unavailable and that this difference represents the ‘state’ of the social system.

$$dH = G + T.dS$$

$$\text{or, } dS \geq dH/T$$

“=” stands for a reversible process and “>” for irreversible process.

dG = Gibbs free energy

dS = Entropy

dH = Enthalpy

T = Absolute temperature at which the process is occurring.

### **BOLTZMANN’S ENTROPY:**

Boltzmann’s presented statistical or probabilistic study of entropy.

$$S = K \ln w \quad \dots\dots\dots (4)$$

Where S is entropy, K is Boltzmann’s constant and w is the probability that the system will exist in the state it is in relative to all the possible state it could be in. Boltzmann’s equation differs from ‘Clausius’ thermodynamic formulation in that former yields a value of entropy (S) while the latter yields only a value for the change in entropy (dS). Boltzmann equation was developed for research on gas molecules. It focuses on microstates, and introduces the question of relationship between macrostates, the context for the probabilities.

### **INFORMATION THEORY ENTROPY:**

The information theory is also known as communication theory. This newer specification of entropy is denoted by a measure known as Shannon’s H. For Sample of N objects or persons and a variable containing K categories

$$H = \sum P_i \ln p_i \quad \dots\dots\dots (5)$$

Where H is entropy and  $P_i$  is the probability of being in category I out of k possible categories. Examination of H reveals that the measures varies from a minimum value of zero to a maximum value of  $\log K$  (Where K is the number of categories). For a sample of N objects (Such as persons), the minimum value of zero is attained when, all N objects occupy a single category. The maximum value of H ( $\log k$ ) is attained when all N objects are evenly distributed among the K categories, so that each category contains exactly  $1/N$  of the total sample.

In this case maximum value of ‘H’ is not a fixed value, but is dependent upon the number of categories, ‘K’. The degree to which this is problem

depends upon the particular variable or subject matter to which 'K' is applied. For example if 'h' is applied to sex, only two values (female and male) are recognized, then sex is seen to be a natural dichotomy, and its maximum value will be fixed. However, if one wishes to compute 'H' for social class, then there may be disagreement, for example, about whether social class comprises of three categories (lower class, middle class and upper class) or five categories (lower class, lower-middle class, middle class, upper-middle class and upper class). While minimum 'H' is fixed at zero in both cases, maximum 'H' varies, depending upon whether the number of categories chosen is three or five. Information theory equation of entropy includes both population or sample size (N) and category size (K), and both of these are used in computing the probabilities  $P_i$  whereas, Boltzmann's equation does not identify the population size and categories, but is instead written in terms of the probability that an event may occur out of all the ways it could occur. If one wishes to predict the social class of an individual, the prediction is certain for the case where H equals zero, as all persons have the same income. Therefore, when 'H' is the maximum, there is no uncertainty, and social class is perfectly predictable. But, when 'H' is the maximum, the probability of assignment to each category is basically random, resulting in an even distribution of individual across class categories. This means that uncertainty is maximized, and it is difficult to predict a person's social class.

Since, 'H', was developed within information theory, it is often referred to as a measure of information. The conundrum here is that minimum uncertainty (high information) while maximum 'H' represents maximum uncertainty (low information). If one interprets this 'H' equation as information and uncertainty, then 'H' can be termed as a measure of information. Whereas, when one is comfortable with 'H' as a direct measure of uncertainty of disorder then it is better to term 'H' as a measure of entropy.

#### **ECONOMIC ENTROPY:**

Classical economics was largely built on the analogy to mechanics, as it was known in the time of Adam Smith; particularly the idea of mechanical equilibrium. But Macroeconomic system is in some ways more like a thermodynamic system than a mechanical one. On the economics

thermodynamic analogy the failure of Keynesian and Monetartist mechanism to account for recent economic behavior would be attributed, at least in part to their failure to recognize the entropy factors that must ultimately control economic change and equilibrium, just as they do in thermodynamics. Macroeconomic system simply move in the direction of increasing entropy as constrained by conservation laws imposed by nature and government just as a thermodynamic system makes it approach to equilibrium in the direction of increasing entropy as constrained by the conservation of mass and energy.

In Physics thermodynamic entropy of a macro state (defined by specifying pressure, volume, energy, etc.) is essentially is the logarithm of number of microstates (quantum states) consistent with it, i.e. the number of ways the macrostate can be realized. Likewise the “economic entropy”  $S$  referred to as entropy is a function  $S(X, Y, Z \dots) = \log W(X, Y, Z \dots)$  of whatever economic variables ( $X, Y$  and  $Z$ ) our theory recognizes. Here  $W$  is the multiplicity factor of the macroeconomic state (number of different macroeconomic ways in which it can be realized).

#### **ENTROPY IN GENERAL SYSTEMS THEORY:**

The General Systems Theory (GST) movement in the 1950's defined a system broadly as a set of interrelated parts, generally within a system boundary. One of the goals of GST was to eliminate redundancy in science, and to search for similarities in concepts and procedures across disciplines, ultimately perhaps leading to an integrated science of systems. The term “system” had been in use for many years, both in disciplines dealing with non-living systems such as physics and chemistry, and in those dealing with living systems such as biology and sociology. However, before GST there had never been a co-ordinated attempt to broadly integrate and connect the study of all systems including both nonliving and living systems (General Systems Theory).

One of the first anomalies encountered by GST in attempting to combine the study of living and nonliving systems centered on entropy. The Second Law of Thermodynamics stated clearly that entropy in an isolated system cannot decrease overtime, but must either remain constant or increase. This law holds well in Thermodynamics and in Physics and Chemistry in general. Yet the analysis of living systems such as plant or



animal systems, and human social systems, generally revealed that most of these living systems did not “run down” or dissipate over time as the Second Law would seem to predict, but in fact they seemed to become more orderly and organized (and thus less entropic) over time, rather than less orderly (more entropic).

### **CONTRIBUTION OF GENERAL SYSTEM THEORY IN ENTROPY THEORY**

General system theory (GST) explains the contradiction between the second law of thermodynamics and increasing complexity of organization which can be observed in living systems such as bureaucracies.

General System Theory establishes link between entropy and information. It specified that entropy was inversely related to information. This means that information to the system can lead to the more efficient and productive use of energy in the system has been depleted, the system reaches in maximum entropy or a stable system. The system can also be referred to as “dead system”. If the system is truly an isolated system in thermodynamic terms and is closed to inputs of matter and energy, then there is no way to revive the system to make it viable again.

### **THE SYSTEM THEORY:**

Systems Theory is interdisciplinary theory about the nature of complex systems in nature, society and science.

- Systems Theory originated in 1920’s to explain the interrelatedness of organisms in Ecosystem.
- More specifically, it is a framework by which one can investigate and describe any group of objects that work in concurrency to produce some result
- This could be a single organism, any organization or society or any electromechanical or information artifact.

### **SOCIAL ENTROPY IS THE MANIFESTATION OF ENTROPY:**

- The amount of energy (motivation) unavailable for doing a work (performance) in a given process, in a given social system.

- Distinguished by models of negative behavior, alienation, anomie and deviance.
- That functions to instill a disordering effect in given social structure or order.

### CONCEPT

The main concept encircles two points:

- 1) The energy of the universe remains constant.
- 2) Entropy in any system increases overtime.

That means any closed or open system overtime will tend to slow down, run down, get cooler, fall apart, unless energy outside the system is applied.

Stephen Hawkins in his book, 'A Brief History of Time' explaining about black holes in universe, rightly stated that: It is a matter of common experience that disorder will tend to increase if things are left to themselves.(One has only to stop making repairs around the house to see that). One can create order out of disorder, for example, one can paint the house, but that requires expenditure of effort or energy and so decreases the amount of ordered energy available. A precise statement of this idea is known as the second law Thermodynamics. It states that the entropy of an isolated system always increases, and that when two systems are joined together, the entropy of the combined system is greater than the sum of the entropies of the individual systems.

Modern complex societies remain organized by large inputs of energy to mitigate the natural progression of increasing entropy (disorder), according to second law of Thermodynamics, a fundamental law of Physics. This effectively states that entropy (disorder) increases with time. As the system becomes more complex, through access to energy, it becomes more susceptible to changes that may occur if one were to remove this source of energy. Think of your everyday kitchen. On any given day, it remains messy, unless work is performed on the system (kitchen). The same goes for societies at large. Take away the energy inputs (largely from fossil fuels) and organization (for instance, blueprints, databases, etc.) corrodes, thus society becomes less cohesive and tends toward anarchy.

**Anarchy is the maximum state of social entropy.**

Social entropy is a macro sociological systems theory. Social Entropy is a measure of the natural decay within a social system. It can refer to the decomposition of social structure or of the disappearance of social distinctions. Much of the energy consumed by a social organization is spent to maintain its structure, counteracting social entropy, e.g., through legal institutions, education and even the promotion of television viewing.

**DOMAIN OF ENTROPY:**

- Human being: The high end recipient and generator of social warming in the form of conflict, non-compliance, anomie, deviance etc.
- Interactions of institutions: Alienation, conflict, withdrawal, disagreement, domination.
- The surrounding of the entropy: The domain of social entropy in context of small and micro society delineations.
- The internal energy state: The enthalpy in context of social warming is related as internal energy state.
- Energy transfer process: The social kinetics and movement of information in random motion (Brownian motion is related).
- Movement present to changed equilibrium: Present equilibrium, gradually to non-equilibrium then to neo-equilibrium.

**SOCIOLOGY AND SOCIAL ENTROPY:**

Entropy has been widely applied in sociology, but this was primarily a late twentieth-century development. Nineteenth and early twentieth century, social systems models generally utilized the companion concept of social equilibrium, rather than the concept of social entropy. In Thermodynamics, equilibrium occurs when is maximized, so that change in entropy (entropy production) is reduced to zero, as in equation (3).

Entropy is generally maximized as a result of all of the system's energy being dissipated, so that the system is now in a state of rest or stability, with no energy remaining for doing work. It is possible to have a condition of equilibrium when entropy is below the maximum. In Thermodynamics, the

extensive variables of an isolated thermodynamic system are energy, entropy and volume, and the intensive variables are temperature and pressure. Equilibrium can be defined for non-maximum conditions of entropy if the values of the other variables are changed so that the system properties are mathematically equivalent to the condition of maximum entropy. For example, for a given (non-maximum) entropy value and a given volume, equilibrium exists when energy is at a minimum.

If equilibrium occurs because all of the energy in the system has been depleted, resulting in maximum entropy, the result is certainly a stable system. More appropriately, the result is a “dead” system. If the system is truly an isolated system in thermodynamic terms, and is closed to inputs of matter and energy, then there is no way to revive the system to make it viable again, and thus it remains essentially a dead system. Equilibrium is representative of a system that has essentially met its demise; it hardly seems an attractive application for social science. However, sociologists during the later nineteenth and early twentieth century’s were interested in approaches to systems theory that connoted stability and system integration and equilibrium seemed an appropriate concept.

The notion that, a society was in equilibrium, and that the effects of external disturbances would be short-lived, had great appeal to many sociologists, but also faced heavy criticism. Critics who favored social change charged that the equilibrium model was conservative, favored the status quo, and showed little ability to facilitate the analysis of even a modest amount of healthy social change within a society. Another criticism was that the equilibrium model did not hold empirically.

**Social Entropy Theory** is not strictly speaking a non-equilibrium model; but it can incorporate the notion of equilibrium. SET recognizes that whether a given society is actually in equilibrium or not is a matter to be empirically determined at any given point in time. If the existence of equilibrium can be documented, then SET can accommodate this, and can study the society in its current state of equilibrium (perhaps without predicting how long equilibrium will continue).

However, if the existence of equilibrium cannot be supported with data, SET can still study the society in its non-equilibrium state. Thus, SET can be seen effectively as a broader formulation than equilibrium theory; SET

subsumes equilibrium as one of the many states of entropy (maximum entropy) that can be studied by it.

### 3. SOCIAL ENTROPY THEORY (SET):

- Is a very general macro sociological system theory.
- Entropy is discussed as a **measure of system**.
- Macro-sociology is a sociological approach that analyzes societies, social systems or populations on a high level and large scale.
- Macro-sociology is considered as main foundations of sociology, alongside micro-sociology and meso-sociology.
- **Meso-sociology** deals with analysis of concepts like stratification by income, gender, race, ethnicity; organizations and communities.
- It, thus, lies between economy or human societies (macro-sociology), and everyday human social interactions (micro-sociology).

#### **Social Entropy Theory defines a society as:**

A population (p) situated within a given bounded spatial area (S), and possessing a certain level of information (I), technology (T), level of living (L) and organization (O). Together, these comprise of a set of six interrelated umbrella concepts that can be represented alternatively by the acronyms of PILOTS or PISTOL.(see fig.2)

The classic definition of a society is that of a population within boundaries that possesses a certain culture (beliefs, values, language, and so forth), including “material” culture such as technology (television, computers, and so forth).

Thus, the basic definition of a society is accommodated by P, S, I and T. Information (I) is an important component, as it includes not only information (communication) theory, but also cultural elements such as beliefs, values, religion and other cultural components. These six macro components are all interrelated, so that no single one of them is the independent variable all the time. Rather, they can be presented as a set of equations such that each variable serves alternatively as the independent

variable in one equation, and as a dependent variable in all of the other five equations:

$$P = f(I, L, O, T, S) \dots\dots\dots(4)$$

$$I = f(P, L, O, T, S) \dots\dots\dots(5)$$

$$L = f(P, I, O, T, S) \dots\dots\dots(6)$$

$$O = f(P, I, L, T, S) \dots\dots\dots(7)$$

$$T = f(P, I, L, O, S) \dots\dots\dots(8)$$

$$S = f(P, I, L, O, S) \dots\dots\dots(9)$$

These six variables can be seen as “globals”, or macro-sociological properties of society that can be defined and measured with minimal knowledge of the individual members of the society (with the exception of population (P)), which is measured by simply summing the existence of all individual members of the society.

In addition to these global properties of societies, two additional levels of properties exist, mutable and immutable. The mutable properties are distributions that are formed by distributing the population P (one of the six global properties) across the range of values of the remaining five globals (I, L, O, T and S) to create five mutable distributions. These distributions are macro-properties of the whole society, but are not global. Rather, they remain as aggregated macro-properties, and can be computed by summing the respective values for all individuals in the society. The mutables are dual macro/micro properties. In addition to being societal properties, the mutables are also micro properties of individuals, inasmuch as each individual is linked to each of the five mutable distributions.

Consider the example of wealth. A society has an absolute total amount of wealth within its boundaries, and this is a global value of level of living (L). In addition, a distinct mutable distribution of wealth can be computed by determining the wealth of each individual (a micro or individual property) and then using this value to determine the individual’s position in the wealth (class) distribution. This wealth distribution can yield five classes, for example lower class, lower middle class, middle class, upper middle class and upper class. There is also a given amount of wealth possessed by the individual, which identifies his or her position in the

mutable distribution. For example, the wealth variable can be seen as an indicator of the level of living (L) component. It can be measured at three levels: **the global level**, as an absolute macro-property of society, for example, the society possesses wealth of certain amount; **the mutable level** (the distribution of wealth into five classes); and **the micro level** (the individual's wealth).

#### **THE SOCIAL CHAOS:**

- Entropy has been loosely associated with the amount of order, disorder and/or chaos in a thermodynamic system.
- Entropy is a measure of molecular disorder and the amount of wasted energy in a dynamical energy transformation from one state or form to another.

#### **SOCIAL BOND:**

Social entropy is said to be one of the elements or components of the social bond which according to American sociologist (Robert Nisbet) mediates a part of the force that enables biologically desired human beings to stick together in the social molecules (Human Molecular Aggregates) in which we actually find them from the moment, quite literally of their conception.

The etymology of Social Entropy is said to trace back to philosopher-historians Brook Adam and Henry Adam who applied the concept of entropy of human affairs, viewing it a tendency sun in the histories of whole nation or civilization a tendency characterized by running down of human energy of diminished capacity for meeting the problems set by that nation or civilization.

In 1968, Ametai Etzioni described social entropy as a state of society in which no social bonds are present. In 1990, American sociologist Kenneth Bailey published Social Entropy theory, a non-equilibrium approach of societal analysis using a mix of Luudwig Bertalanffy's general system theory, Claude Shannon's entropy and Rudolf Clausius Entropy. Bailey defines an isomorphic complex system as being comprised of human individuals as the components, interaction of these components and the national political border of the country, with the latter serving as a boundary for social interaction, Bailey Kenneth, D. (1990). Bailey also included a

section titled the History of “Social Entropy” in which he traces the use of thermodynamics and entropy in sociology from (Pregogine to Samuelson) and other in literature. ( Bailey 1990).

In 2001, Peruvian Engineer Alfredo Infante wrote short article entitled “Social Entropy” as determined by the second law mandates the spontaneous direction of all processes of nature and society and the generation of greater complexity and disorder (Waller, Thomas P. 2009)

### **SOCIAL FREE ENERGY:**

In sociological thermodynamics, social energy is the quantification of the free energy (or more accurately Gibbs Free Energy) of a social system or verbal description of it.

The first it seems to have used the term “Social Free Energy” is Croatian mechanical Engineer, Josip Stepanic in as early as 2004. In 2006 for instance, he reasoned that a part of socio-economic activity is expressible and measurable by way of social free energy as a measure of resources which can be transferred for a given purpose within a social system without changing its structure. (Stepanic Josip, 2004).

### **SOCIAL ENERGY**

In sociological thermodynamics, social energy is a general term referring to any of a number of types of energies in a social system modeled as a thermodynamic system, connecting or driving people. A famous demarcation on the topic of social energy is the 1910 argument by American historian (Henry Adams) on the applicability of the second law to human history, who commented on the lack of physical rigor in the thermodynamically understanding of social energy in contrast to the adamant adherence to entropy in the social context (e.g. Psychic entropy or social entropy). In a noted humorous statement Adams tells us:

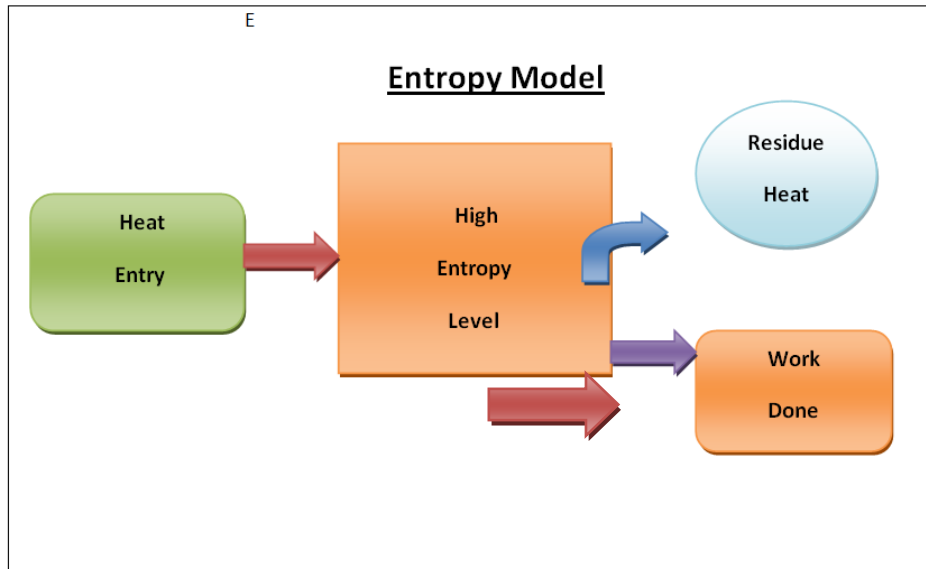
“Although the physicist are far from clear in defining the term vital energy, and are exceedingly in treating of social energy they are positive that law of entropy applies to all vital process even more than to mechanical.”

In 2000, Iranian born American electrical engineer Robert Kenoun outlined a social internal energy minimization theory arguing that the key



type of social energy is the internal energy of thermodynamics and that exchanges and equilibration of this energy between system and societies overtime is the key governing process of history and social evolution.

In 2009, American physical chemist Thomas Wallace argued that, in a thermodynamics sense, social energy is interrelated with labor power and has something to do with energy consumption.



**Entropy Model**

### **MEASURE OF ENTROPY (Peter Landsberg, 1984)**

This theory relates that it is a combination of thermodynamics and information theory and arguments that:

$$\text{Disorder} = \text{CD}/\text{CI}$$

$$\text{Order} = 1 - \text{CD}/\text{CI}$$

CD is the disorder capacity of the system. The entropy of the parts contained in the permitted ensemble.

CI is the information of the system.

**Increasing differential entropy:**

- Less faith in governance
- Policy would be fractured
- Extreme choices will dominate to achieve social goal
- Withdrawal from mainstream social process
- Increase of uninformed communities
- Communication jeopardy
- Technology and community conflict
- Deculturation and core periphery conflict
- Conflicts will hit consensus
- Indecisions turmoil organizational function
- Productivity will go down seriously
- With the squeezing of social spaces, the impact of ‘unutilized energy’ or ‘excess motivation’ shall be disordering the equilibrium to a real state of social distortion.

**THE PROBABLE REASONS FOR SOCIAL ENTROPY:**

25-30% of technology is reaching the farmers (75% of which are elite, rest of 70-75% are getting insulated, its decay of money material and motivation.

Of 1 rupee sanctioned for the poor, only 20 paisa is reaching the target level, 80 paisa is consumed by the non target agency/system.

Heavy metals/ toxic ingredients are unconsciously/consciously allowed to enter chains at an alarmingly increasing rate to coast physiological, metabolic, anatomical (embryos) and psychological disorder, isn't it an entropy for physical and social health system.

Almost 370 million go hungry almost without food at night in India, hunger is a dangerous proposition for destroying any kind of created social equilibrium. Please mind that a human being is also a biological entity.

Extraneous or attempted extension system fails to consider comprehensive social perspective while transferring / translocation idea, know-how, do-how and material inputs to the target group. Without socialization, the act transfer, a delivery, may sometimes become imposition mooted by business drive, personal career building, desperately accommodated and ingressed into a domain of non compliance and is certain to create entropy.

Some 10,000 years of agrarian knowledge system has been a subject sheer negligence or thrown away with against a 50 years cultivated knowledge by the policy.

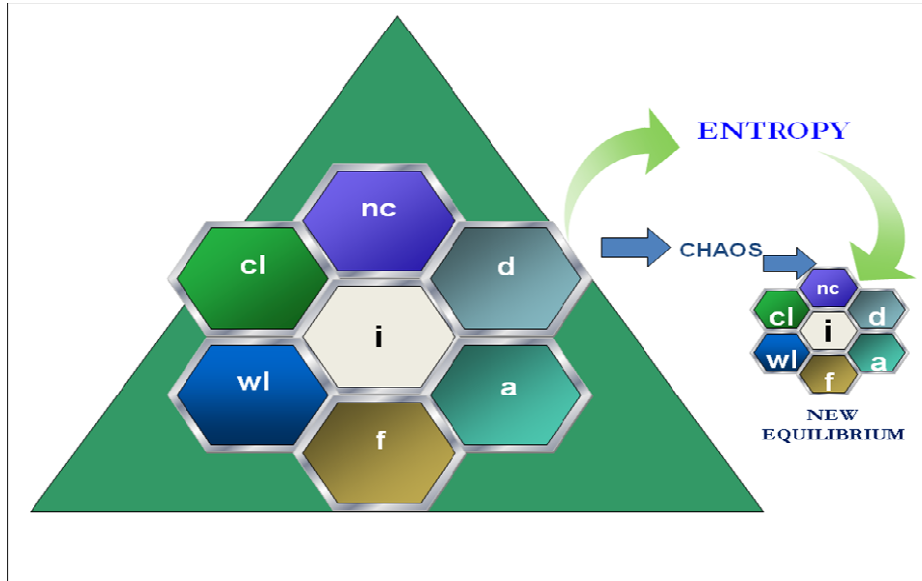
**FACTORS ADDING SOCIAL ENTROPY:**

- Disarrangement (d)
- Non compliance (nc)
- Conflict (cl)
- Withdrawal (wl)
- Frustration (f)
- Aggression (a)
- Inefficiency (i)

**MODELLING SOCIAL ENTROPY:**

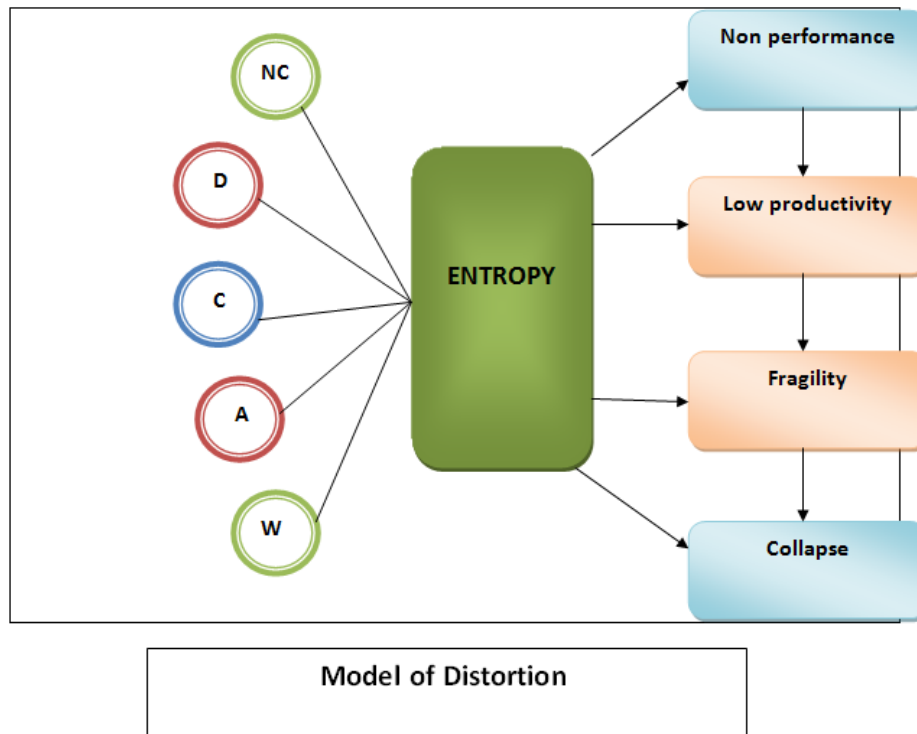
Social Entropy can be clearly explained by some of the key models. These models are basically derived from by correlating the key theories from the field of Social Science, Archaeological and Physical Science (i.e. Physics, Chemistry and Biological Sciences).

**Equilibrium Model:** This model describes how the basic factors of Social Entropy are responsible for increasing the same within a system, works.



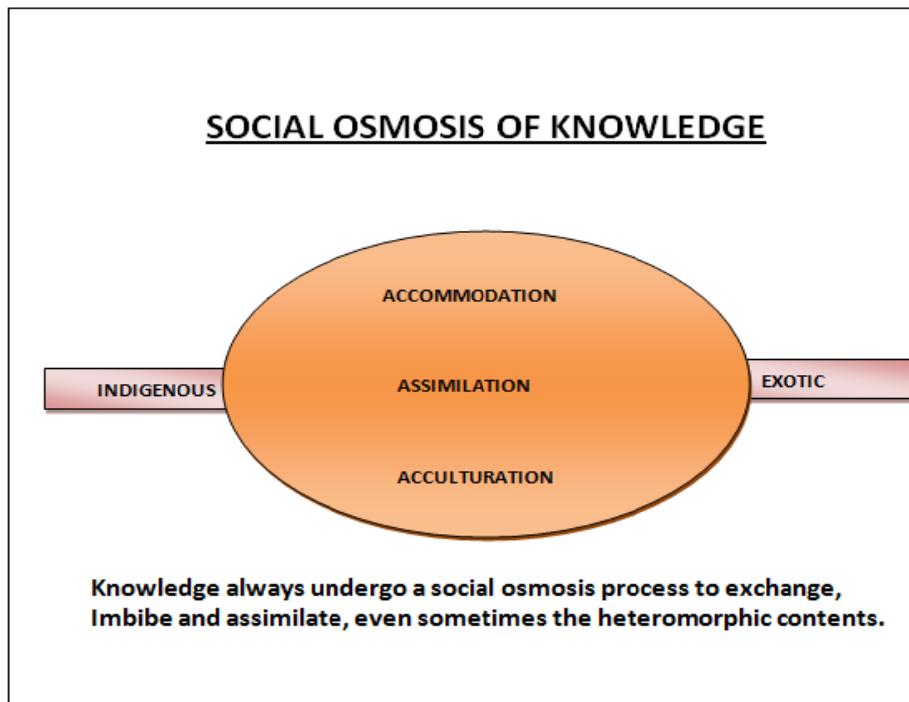
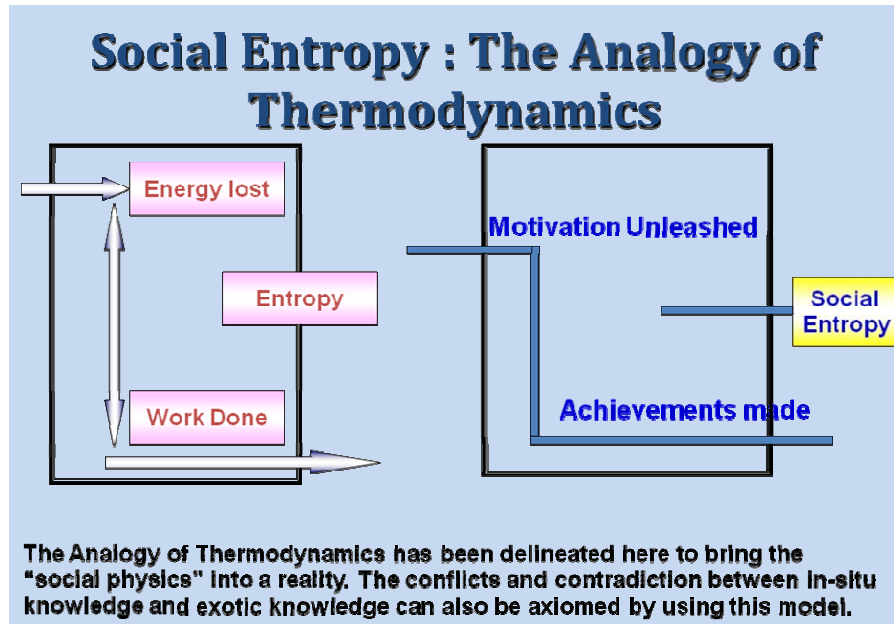
Moreover, in any social structure, the complex changes brought down by the society brings about disorder/chaos/dissatisfaction due to, may be, negative behavior, anomie, alienation or deviance. These all leads to a new equilibrium and the gap between the two equilibriums represents best the Social Entropy.

**Model of Distortion:** When, in a system (organization), due to anomie, negative behavior, alienation or deviance, there is Disagreement (D), Non-Compliance (NC), Conflict (C), Aggression (A) and Withdrawal (W), the inherent Entropy rises to a level, such that, it is rendered unmanageable. In such a situation, the level of non-performance is visible in the system (organization) leading to low productivity (which is, anyway, the ultimate goal of any organization) which ultimately leads to fragility and collapse.



**MODELS OF SOCIAL ENTROPY:**

1. Social Entropy: The Analogy of Thermodynamics: The gap between motivation unleashed and accomplishments made, gives rise to, so called, Social Entropy.



2. Social osmosis of knowledge.
3. Knowledge Evolution.
4. The dialectical process of knowledge synthesis.

### **POST MODERNISM: AN ELEMENTAL SUPPORT TO SOCIAL ENTROPY**

Post modern society is considered to have begun in 1980's and may be characterized as a rejection of absolutes such as structuralism. The advance of computer technology, has contributed to a dissolving of the myths and traditions under which societies used to live. Post modern individuals are no longer thrall to "the group", can indulge in cultural, social and ideological zapping.

The implication of post modernist theory for the actual conduct of sociological analysis and research are best understood in relation to an (all too rarely) encountered concrete illustration. For example, the field class analysis has been subjected to a sustained post modernist critique, most notably in a series of critical essays by Jan Pakulski and others (see J. Pakulski and M. Waters, *The Death of Class*, 1996; S. Crook et al., *Postmodernization*, 1992). The authors maintain that, even under the organized capitalism, the various class categories begin to decompose and fragment, as social inequalities come progressively to be structured by more patterns of consumption than production. This results in hypo-commoditization of products in which they are consumed not in terms of use of values but in terms of semiotic capacity to establish unequal relationships.

Mitchell, 2009 studied on a village (Jacobs), ten years ago (1998) the model of creative destruction was developed to predict the fate of communities that base their development on the commoditization of rural heritage.

In this paper, it is demonstrated that creative destruction has continued to unfold in the village (Jacobs) over the course of the past decade. The evolutionary path taken is assessed in the light of current literature on rural space. It is concluded that to fully understand the transformative process, one must integrate the demands of myriad subcultures, whose social

relations, ideologies and actions will contribute to the development of a contested landscape of consumption.

This finding necessitates that modification made to the model and its various stages. The most significant is recognition that the “heritage scape” is an interim stage.

**THE CONCEPTUAL INPUT:**

Post modernization concept unveils the theory of creative deconstruction. If prevailing structures are not analyzed in a social system and the functionality (underneath) is not scrutinized, the structures are slowly and gradually surpassed by the modern era technologies.

The core periphery contradiction in arena of development has been replaced with unstructured chaos and dissonance. This is deleterious both to individual and organization, social fabrics and societal equilibrium. The curve of change and context of formation are both inculminatingly coupled. In this grand discourse social entropy has been conceived as a corollary to deconstruction theory, the spearheading concept of nuances of post-modernism.

Keeping the above in view, the following specific objectives are to be undertaken:

- To study the manifestations of Social Thermodynamics in Sociology, Social Entropy and Post Modernism.
- To study the factors adding to disorder in the society and to find out probable solutions to reduce disorder and dissatisfaction in Social System.
- To manage disorder before adding any new order to the existing system of capacity and function.
- To derive some meaningful implication for managing institution and organization in terms of structure configuration and function customization.

**Social metabolism:**

Recently social metabolism has been defined as “the particular form of societies establishes and maintains their material input from and output to



nature environment”. It was one concrete way in which society was embedded in cosmic evolution, which simultaneously offered models to help understand how the social system functioned; for others it was a way of describing the exchange of energy and matter between society and nature.

### **Limitation**

The following limitations of the study have figure up on the completion of the present research. These are-

- Number of variables could have been more.
- The size of respondents should have been higher than the present one.
- Since the area of research is very new, the methodologies followed are certain to phase some slices of redundancy.
- Specific issues including gender, parastatal behavior, energy and motivation recycling, befitting heuristic approach could have been there to egg on better outcome.
- Participatory mode of data generation could go a long way could support the imperial analysis and ultimately it would help develop a participatory mode of data generation and analysis.
- More new models could be developed by having a blend between classical approach and modern approach for data generation and analysis thereafter.

### **Technology Socialization: A Paradigm Shift in Agriculture**

Acharya et. al, (2012) considered as a complete level of technology socialization when it gives freedom to the farming community in respect of adoption, non-adoption, rejection and discontinuance and also as per there level of suitability they cope with or decide to select.

Socialization is a process to provide an individual with skill and habits necessary for participating within their own society; a society itself is formed through a plurality of shared norms, customs, values, tradition, social roles and languages.

The socialization has been christened as an alternative social process to purvey the transfer process in multi way channel and to a multi-dimensional projection. In the same study, the adoption, discontinuance, rejection and reinvention have been conceived as socio-psychological polymers against a single stimulus i.e. technology exposure.

Socialization is thus, the means by which social and cultural continuity are attained ( Clasusen, John A. 1968).

Many a time we make mistake in understanding the differences between concept and commodity, need and devices to meet the need. A bag of fertilizer thus presents some inputs, not the concept of nutrient management for getting desired yield, a tractor, on the other way, is just a machine of horror the land, not exactly in the concept to get the drudgery eliminated substantially and done the work with less of error.

Then, what is left is the socialization process that would combine the concept with commodity techniques tools, technology with culture. After having a technology socialized we can accept a complete social process in place. So, technology socialization process can be conceptualized a comprehensive process thought with a technology, the combined concept and commodity has to undergo accommodation, assimilation and accultural process and ultimately it would be transformed into the social character e.g. a TV set in an electronic shop is just a commodity, after being purchased and placed in a drawing room of any home, has become an ingredient of family process. The family member now start socialization with this TV set by ascribing family status, talking it as marriage negotiation item, getting informed and entertained, deriving pride and galore by possessing it and so on. This kind of commodity inflow into a social system through acculturation is called **creatization**.

Acculturation has been happening to every farm families with any exotic technology has been attempted to be diffused in a social system. Once a technology is being introjected, on may adopt, reject or reform it and in the passage of ts subsequent adaptation, one may discontinue or reinvent it. This whole lot of process undergoes, again, a social osmosis process.

A social osmosis IS basically acultured screening process for desired assimilation and also decided rejection over a proposed technology. It is just

like a socialization process that a new born baby undergoes, some he/she undergoes an experiential learning process.

It is our cliché and convention, we seldom take the logic of rejection and go happy to brand the rejector a 'laggard' a category of non-adopter to be branded as an 'offender' for not adopting anything prescribed by 'experts'.

A technology socialization process logically includes all possible outcome or response to technology prescription, i.e. adoption, rejection, discontinuance, reinvention, elimination and alienation too. These all being done by a farmer( or any individual in this world) to get his existence adapted to the change process through a perfect thought process and concluding in the most intelligent manner as well. In most case we are not enough ready to catch up with this thought process happening in the mind set of a farmer in congruence with the change process in market, climate, social echelons, group dynamics, leadership, policies and politics in all levels viz. micro, meso and mega.

In understanding socialization process, some of sociological terms need to be conceived interalia.

#### **Different types of Socialization:**

**Primary socialization:** Primary socialization occurs when a child learns the attitudes, values and action appropriate to individual as a member of a particular culture.

**Secondary Socialization:** It refers to the process of learning, what is appropriate behavior as a member of a smaller group within the larger society.

**Development Socialization:** It is the process of learning behavior of social institution or developing your social skill.

**Anticipatory Socialization:** It refers to the process of socialization in which a person "rehearses" for future positions, occupation and social relationships.

**Re-socialization:** It refers to the process of discarding former behavior patterns and accepting new ones as part of a transition in one's life. This occurs throughout the human life cycle. ( Schalter and Lamm, 1992).

Re-socialization can be an intense experience, with the individual experiencing a sharp break with their past and needing to learn and be exposed to radically different norms and values.

**Gender Socialization:** Gender socialization is the learning of culturally defined gender roles.

**Racial Socialization:** It refers to the process of learning ones culture and how to live within it; but refers more specifically to the socialization of ethnic minority group.

**Natural Socialization:** It occurs when infants and youngsters explore, play and discover the social world around them.

**Planned Socialization:** It occurs when other people take actions designed to teach or train others – from infancy on. Natural socialization is easily seen when looking at the young of almost any mammalian species (and some birds). Planned socialization is mostly a human phenomenon; and all through history, people have been making plans for teaching or training others. Both natural and planned socialization can have good and bad features; it is wise to learn the best features of both natural and planned socialization and weave them into our lives.

**Positive Socialization:** It is the type of social learning that is based on pleasurable and exciting experiences. We tend to like the people who fill our social learning process with positive motivation, loving care, and rewarding opportunities.

**Negative Socialization:** It occurs when others use punishment, harsh criticisms or anger to try to “teach us a lesson” and often we come to dislike both negative socialization and the people who it on us.

**Agents of Socialization:**

Agents of socialization are the people and groups that influence our self-concept, emotions, attitudes, and behavior.

**The family:** Family is responsible for the youth and among other things, determining one’s attitudes towards religion and establishing career goals.

**Education:** It is the agency responsible for socializing groups of young people in particular skills and values in society.

**Religion:** Religions play a major role in socialization, in that context often synonymous with ‘indoctrination’.

**Peer groups:** Peers refer to people who are roughly the same age and/or who share other social characteristics (e.g. students in a college class).

**The Mass Media**

**Other Agents:** Work Place, Public institutions.

**Technology Socialization: The Analogy and Application**

**Primary Socialization:** Farmers start learning the benefits of a technology.

**Secondary Socialization:** Farmers start splitting the general benefit of the technology in terms of his own farm situation.

**Re-socialization:** Farmers reject a conventional technology to adopt a better alternative and get ready to absorb the shock o change.

When society is getting increasingly restless owing to a series of non-compliances, conflict, comprehensive direction, mutual denial, disagreement between what we call the imposed knowledge versus inherent knowledge; exotic knowledge or exotic idea versus in-situ idea; protected needed versus felt need and so on, the “social entropy or disorder” is expected to simmer. Before adding new skills or useful technical knowledge, we need to study residual disorder, already created by malfunctioning of previous technology.

That is why; the technology socialization model is an inevitable development over transfer of technology concept, to critically analyze the sub process and sub consequences like adoption, discontinuance, rejection and reinvention with the esteemed analogy that every human mind is a complex disposition of didactic behaviors, forming what you call diodes of adoption-rejection, adoption-discontinuance, invention-reinvention, and creation-culmination.