Optimizing Asymmetries for Sustainability:

Design Issues of Producers' Organization

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Abstract

The paper provides some conceptual clarification on the design defect of traditional firm for long term sustainability of the society and then proposes design variables for developing a community enterprise system for sustainability. The paper is divided into three sections. **Section 1** focuses on the traditional firm design and its strategy. It discusses the concepts and fundamentals on which the traditional firm exist and the key control variables on which the traditional firm is founded. This section discusses how under the market capitalism and innovative inclusive capitalism, the various forms of organizations have remained within the asymmetry generating and sub-optimal design parameters. The engagement of the traditional firms to seek advantages of asymmetries through these variables has been argued to be at the root of growing un-sustainability.

Based on the understanding of the asymmetry generating characteristics of firm architecture, **Section 2** discusses the questions of optimal design of firm for sustainability. While recognizing that the optimal positions of the design variables would change for a given community, its ecology, nature of industry and technology; this section raises several issues of research on ***size, scope, technology, ownership,*** and ***management*** from the sustainability perspective. **Section 3** presents an on-going action research in an Indian rural-agricultural setting, where the attempt has been to identify the optimal positions of the key design variables for achieving a sustainable community enterprise system. Based on the experiences of the action research, the paper suggests that for a marginal producer based enterprise system to be sustainable, the enterprise system needs to be community based, community paced, community owned and managed by the farmers/producers and operated by local professionals or community workers.

Key Words:

Asymmetries, Size, Scope, Technology, Ownership, Management, Sustainability

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Optimizing Asymmetries for Sustainability[i]

Design Issues of Producers' Organization

The key deficiencies in both the classical economic group and the alternate group is that both ignore the inherent asymmetry generating characteristic of the key agent of the economic systems, the firm and the subsequent control exercised by the very large firms, MNEs. The works of Marx (1976), Kalecki (1971), Keynes (1936, 1997), Robinson (1969), and John Hicks (1972) were to resolve some of these problems by pointing to the deficiency of (static) equilibrium concepts of Smith (1776), Ricardo (1817), Pigou (1933, 1968), Marshal (1997), Friedman (1976) and others in a free market system. While the asymmetry of information has been addressed by many today, the asymmetries of size, scope, resource, capital, technology, management, and ownership arising out of the firm's focus on efficiency of the firm as a closed unit to achieve profit and growth of the firm for its shareholders have not been adequately addressed.

Transaction cost economists recognize the asymmetry of information and asset specificity. Williamson (1975) argued firms operate at different levels of information, assets, and opportunism. The differences in these conditions lead to differences in their transaction costs and their respective efficiencies. So Williamson argues that the higher efficiency of the firm based on these asymmetric conditions is the reason for the existence of the firm. Ghosal & Moran (2005) argued that using the opportunistic behavior of managers in the firm, Williamson's argument seemed to be a self fulfilling argument to establish that a market based economy is possible.

While the transaction cost analysis captures the economic nature of human beings and it leaves out the other aspects of human beings, social, political, psychological, and value system. Institutional economists like North (1993) recognize the weaknesses of the free market system of the classical economists, where some large players can disturb the balance and hence justify the provision for strong institutional set up for regulation and norm setting. Both transaction cost and institutional economists use the framework of free market without defining the size of the enterprise and by assuming that the whole world can be a single market, ignoring the issues of distance that could reduce the participation and ownership of the various stakeholders.

In fact, the key frameworks of capitalism, communism and socialism are based on the grand design of the world as a single homogenous market and society. Except for the economic nature of human beings, these frameworks ignore the varied nature of human beings. In fact, most economic analysis is not based on people but on materials (product, technology, capital, efficiency of operation, surplus, etc). Hence, none of the frameworks captures the holistic nature of human beings and the models thereof are incomplete and appear to be unsustainable.

Sen (1998) developed his argument of the possibility of social choice from the works of Arrow (1972), who argued for the impossibility of social choice. Sen argued the possibility of social choice by making information available to the society at large. While, Sen addresses the issue of asymmetry in information, he ignores the other sources of asymmetry generating variables like size, scope, resource, capital, technology, management, and ownership that lead to control and minimizes freedom of the majority. Most importantly, in Sen's analysis, the issue of size of the society at which social choice is possible has not been addressed. In his arguments, Sen presumes that social choice is possible at a larger society; say a country like India or China with the appropriate regulation, institutional arrangements and control by the national government.

The arguments within the economics of static equilibrium, dynamic equilibrium, transaction cost, institutional economics, and social choice are valid for theoretical debates and but they do not fully address the issues of sustainability as each theory is only an 'attention of concentration' as John Hicks described. The notion of the possibility of general application of these theories to the society at large helps the policy makers and bureaucrats to retain power and control through a myriad of centralized taxation, planning and administration mechanisms.

The empirical evidences and signals of un-sustainability with regard to the approaches of the Governments and international agencies based on the above theories are however, downplayed or only partial corrections are made to retain the same old approach. No amount of historical evidences of the problems and atrocities recorded by the historians, or the social scientists (Bagchi & Dymski, 2007) have made much dent on the market based economic thinking; rather it has been reinforced and administered through complex neo-classical institutional arrangements.

The New Trade Theory has empirically shown the deficiencies in the assumptions of the traditional trade theories in economics. Krugman (2008) and others have argued that the assumptions of decreasing return to scale is invalid and there is indeed an increasing return to scale. As a result of which, there is increasing concentration of global production. The outcome of inherent asymmetries among players in the market and the institutional arrangement appear to get expressed from these observations.

In the context of firms or multinational enterprises that have been perceived to be the key engines of growth and development since the seventeenth century, the asymmetries are most pronounced vis-à-vis the larger society. The asymmetries in the purpose and design between the traditional firm and the marginal producer/consumer at the base of the social pyramid appear to be at the root of un-sustainability under the current structure of production & trade relationships. Irrespective of the larger frameworks of capitalism or socialism or communism, historically; the basic design of the firm has revolved around enhancing all or some of the asymmetry generating variables such as size, scope, resource, capital, technology, management and ownership. Further, the existing management practices, the liberalization-privatization-globalization policies and the emerging institutional arrangements are not reducing the asymmetries but adding to asymmetry generation. The increasing perpetuation and scaling up of asymmetries between the traditional firm architecture and the marginal producers/consumers at the base of the social pyramid, under the neo-liberal institutional arrangements appear to be at the core of overall un-sustainability.

Today, the issues of sustainability are being seen from the triple challenges of climate change, global economic recession and cultural changes. It is also believed that the issues of un-sustainability can be resolved by negotiating with science and technology. While these macro issues are indeed significant in order to address the issues of un-sustainability, macro level institutional arrangements and greening the neutral agents of science and technology will bear little fruit until the micro agent-the traditional firm, the key 'engine of growth' and change in our industrial economies undergoes an internal transformation.

The firm or enterprise is a single entity that integrates all fields of logic, language, and philosophy in its pursuit of commerce. It may be appropriate to understand whether the nature and characteristics of the firm / enterprise have had significant impact on the triple challenges of climate change, global recession and cultural changes. If the so called 'engine of growth' (Jones,

1996), the large multinational enterprises were at the root of un-sustainability, a review of the design of the traditional firm becomes essential.

From the basic axioms of inherent asymmetries, the paper analyses the steps and the processes by which the asymmetries of the traditional firm design reinforce un-sustainability over time. The six steps from the basic axiom of asymmetry to un-sustainability are:

1. Asymmetry is inherent in the nature, human beings, organizations, and institutions.
2. A traditional firm with its objective of profit and growth is designed with different asymmetry generating control variables like size, scope, resource, capital, technology, management, and ownership.
3. Each asymmetry generating control variable has direct relationship with other asymmetry generating control variables.
4. The asymmetry generating control variables, individually and jointly perpetuate asymmetries infinitely.
5. Perpetuation of asymmetries through the asymmetry generating variables of the Firm scale up the economic-social-environmental asymmetries in the society.
6. Scaling up of asymmetries within the society forms the basis for overall un-sustainability.

The above observations lead to an enquiry process to search for the optimal positions of the asymmetry generating control variables in an enterprise. The hypotheses of action research for optimizing the positions of asymmetry generating variables are (a) optimal position of each control variable will be different for a firm (b) optimal positions of control variables of a firm is likely to be different for different industries, and (c) simultaneous optimization of the asymmetry generating control variables of the firm is needed for the socio-economic-environmental sustainability.

Based on the above issues, research question and hypotheses, the paper has been presented in three sections. **Section 1** focuses on traditional firm design and strategy. It discusses the concepts and fundamentals on which the traditional firm exist and the key control variables on which the traditional firm is founded. This section discusses how under the market capitalism and innovative inclusive capitalism, the various forms of organizations have remained within the asymmetry generating and sub-optimal design parameters. Further, this section highlights that

even under different socio-economic-political frameworks viz.; capitalism, communism, or socialism, the basic design variables of the enterprise or firm have largely been similar. The engagement of the traditional firms to seek advantages of asymmetries through these variables has been argued to be at the root of growing un-sustainability.

Based on the understanding of the asymmetry generating characteristics of firm architecture, **Section 2** discusses the questions of optimal design of firm for sustainability. While recognizing that the optimal positions of the design variables would change for a given community, its ecology, nature of industry and technology; this section raises several issues of research on size, scope, resource, capital, technology, management, ownership, and purpose from the sustainability perspective. This section also introduces the overall framework within the community or an ecological system that could lead to an optimally sustainable enterprise system.

Section 3 presents an on-going action research in an Indian rural-agricultural setting, where the attempt has been to identify the optimal positions of the key design variables for achieving a sustainable community enterprise system. Based on the initial action research experiences, the paper suggests that for a marginal producer based enterprise system to be sustainable, the enterprise system needs to be community based, community paced, owned and managed by the producers and operated by local professionals or community workers.

1. 0 Asymmetries in Traditional Firm Design

A firm means a company or a business partnership. It originally denoted a signature and later the name under which the business of a firm was transacted. By traditional firm, the paper refers to the various forms of present business organizations like company, partnership, enterprise, multinational enterprise, multinational company, etc. A firm can be best understood from the purpose for which it operates and the fundamental variables on which it is designed. An appreciation of the overall economic-market system and the basic assumptions of the system in which the firm operates would also be vital to understand a firm.

A firm is essentially to increase the profit of its operation and enhance the wealth of its shareholders. The nature of a firm is to grow and expand over time. Indeed, growth in terms of size and market share helps the firm towards its objective of profit maximization. These

characteristics of a traditional firm are best captured by Penrose (1959). The whole body of literature on industrial organization, resource based view and dynamic capabilities of the firm have been developed based on these basic understanding of a firm.

Firm Strategy has revolved around four intellectual roots of competition, viz.; attenuating competitive forces, conflict strategy, resource based strategy, and dynamic capability strategy (Teece, et al, 1997). Competitive strategy is best captured by Michael Porter (1980, 2008). In the five forces model of competitive strategy of Porter, all the actors with whom a firm engages with, viz., suppliers, buyers, existing producers, new entrants, and substitute producers are perceived to be threats in business. The intellectual roots of the above view of competition are in Mason (1949) and Bain (1954) that are based on the paradigm of 'attenuating competitive forces'. The second stream of competitive strategy emanates from a conflict perspective, the roots of which go back to the 17th century military strategies and political strategies (Curry & Zarate, 1995). The present day Game Theoretic analysis based on zero sum game is also based on the conflict perspective.

During the last five decades, competition has been viewed through the 'resource based perspective'. The competitiveness of a firm's product or services was seen in the light of back-up resources, processes, systems and capabilities. This view has been essentially based on the Ricardian nature of rent seeking. To keep up with the fast changing and competitive business environment in the recent years, firm strategy has evolved to view competition from the dynamic capability perspective. This view is based on the Schumpeterian nature of rent seeking. While the 'resource based perspective' and the 'dynamic capability perspective' have provided insights into what gives a firm the competitive advantage, their engagement remains within the domain of competition and suffers from the problem of viewing competition as external competition alone.

Transaction cost theory has been an integral part of economics and management theories. Ghoshal & Moran (2005) argue that this theory has badly influenced the managers of thousands of firms by suggesting that opportunism is a key element to transaction cost. Of the three key assumptions of transaction cost theory, while the first two, viz., asset specificity and bounded rationality well represent the real world, the third assumption that human beings are opportunistic is an over simplification of human behaviour. Unfortunately, the opportunistic description of human beings has been constructed to authenticate the opportunistic behaviour of

the managers in a firm. However, in the context of free internet services, social networking and social capital of communities, the assumptions of transaction cost theory are not tenable.

While the traditional trade theories beginning from Ricardo (1817) have argued for global trade, the New Trade Theory empirically proved that due to increasing return to scale instead of decreasing return to scale as assumed in perfect competition and free trade, international production and trade has been limited to a few regions of the world (Krugman, 1980). Contrary to these understanding, the World Trade Organization (WTO) has over the years emerged stronger from it weak position as International Trade Organization (ITO) in 1944. It has advanced the idea of free global trade and investment by arguing that it will benefit everyone in the world. However, the current progress of global trade and investment has indeed excluded a majority of the world from the benefits of international trade.

In recent past, the external competition in the field of business management has taken a new turn and it offers inclusive strategies under the tag of 'inclusive capitalism'. The firms in Japan had indeed adopted this strategy long back. Through their paternalistic strategy, the Japanese firms have successfully instituted systems of employment, employee salary system and employee union that obtains a life-long commitment of the employees to the company (Kuwahara 2009, Abegglen 2005). Over the years, these business policies have given significant stability and competitive strength to the Japanese firms. Along with the internal control mechanisms of employees, the Japanese firms have effectively tuned the external competition and the Government through the financial cross-holdings among the business houses. Toyota Motor Corporation's paternalistic strategy with reference to its employees, component suppliers, partners and its strategy of financial cross-holding of various players in the industry is an exemplary case of inclusive strategy. Tata Group, the Indian business conglomerate came closer to the inclusive strategy of Toyota Motor Corporation.

The concepts of co-production, co-creation and co-opetition (Budney & England, 1983, and Prahalad, 2004) are other types of arrangement to include the players in the supply chain to enhance the competitiveness of the leader, the traditional large firm in the chain. The argument of Prahalad (2006) on 'Fortune at the bottom of the pyramid' has been critiqued much (Ramachandran, 2008, Karnani, 2007, Srinivasan, 2005) on the above reasons. The consumption based argument of Prahalad is actually towards increasing the marketing potential and earnings

of the traditional firms. Corporate Social Responsibility (CSR) and the Strategic CSR (Porter, 2006) are also some shades of 'inclusive capitalism' within the value chain of a company such that the company gets the strategic advantage. For a while, the 'Blue Ocean Strategy' (Kim & Mauborgne, 2004) that caught the imagination of many corporate executives as an alternative to competitive strategy is indeed a competitive strategy that only redefines a new market where competition has not yet begun and the early entrant could make the maximum before the market becomes bloody competitive. Public-Private Partnership has been much in vogue in the developing countries like India. In the Indian context, this arrangement in most cases serves as a means to transfer public assets in the hands of private hands.

Complementation Strategy of multinational enterprises like BAT, Unilever, and Suzuki Motors (Nayak, 2008) is yet another mechanism that firms have adopted to harness the capabilities of the local communities and industries. For instance, Hindustan Lever Limited (HLL), in 1975, after unsuccessful attempt to get milk supplies from the villages in Etah district even after providing cows to the villagers, it had to inject more capital in the form of micro-finance to the villagers. Once HLL complemented the credit and nutritional needs of the families who the company had offered the cows, milk started to find its way to its dairy and the dairy business of HLL took off in Etah region. Similarly, BAT and Suzuki complemented and strengthened their respective industry value chain and gradually took control of their respective markets in India.

Social Entrepreneurship has evolved as another model of business in the recent times. This model generates profit for the firm employing the abundant factor endowments of production in capital poor communities. Several Non Government Organizations, Trusts and Foundations across the world have been active in such entrepreneurship. Most of the communities and their produce of social entrepreneurship are increasingly being linked to the traditional large firms that have several asymmetries of control over the marginal producers and smaller communities.

The different strategies under inclusive capitalism move from the view that the stakeholders are not to be perceived as threats but actors who could help towards creating value for the firm. It has been argued that while creating value for the shareholders of the firm, the poor participants of the community would also gain economically in the process. Inclusive capitalism has been quite appealing indeed. Even the Governments of several countries have tried to abandon the welfare state mechanism in favor of market mechanism as a means to inclusive growth. In

welfare state mechanism, the government took an active part for the growth of the firm and intervened for the well being of the society as a whole. In market mechanism, the society including the poor and marginal producers is expected to achieve well being through their engagement with the firm in a free market system. However, with several asymmetries of size, scope, resource, capital, technology, management, ownership, and purpose various between the traditional firm and the marginal producers or smaller communities, how equitable will the relationship be between the two in the neo-liberal free market system?

Today's business models appear to have several problems of sustainability as they seem to be based on weak theoretical foundation and unrealistic assumptions. As Sethi (1986) would argue; a society is simplistically converted to a market. It presumes that because the market is inefficient, firms come into existence (Williamson, 1975). In this process, it assigns a pessimistic role to the society. It is devoid of vital elements like political philosophy and normative content. Through its elaborate organizational structure, business organizations create distance as the organizational and institutional structures are inherently based on arrogance, coercion and conflict.

Further, Sethi argues that the assumption of automaticity in the structure and the distance between people due to many hierarchies appear to dehumanize the people in the traditional business models. The unnatural rate of growth often leads the firm to adopt environmentally abusive practices that makes the firm unsustainable in the long run. While values, ethics, and morals are inherent part of a human being, the present business models ignore these aspects. Fundamentally, individuals devoid of spirituality are unlikely to run the enterprise in a sustainable manner as they themselves are not complete. Indeed spirituality could help the owner cum co-producer/co-worker in an enterprise to cross the barrier of the general notion of competition.

The current firm structure and function is essentially designed for seeking profit for the select shareholders of the firm and to grow endlessly to meet this profit objective of the firm (Penrose, 1959). The profit motive of the shareholders could create a conflict of interest between the owners and the others associated with the firm viz., employees, retail investors, suppliers, and the society at large in the traditional firm. If the firm did care for these other stakeholders as much as it did for the owners, issues of firing employees, shutting down of factories, creative

destruction of valuable product/service, drumming hard on corporate social responsibility while spending less than 1% of the profit on it, devising mechanisms to avoid paying taxes, and etc would not occur as have been much noticed among the large companies in the recent years.

In the final analysis of the traditional firms within the capitalistic framework, it appears to me that whether it is competitive strategy or inclusive strategy, the firms have been modeled around the same set of variables viz., **size, scope, resource, capital, technology, management,** and **ownership** that create asymmetries between the large traditional enterprise and the marginal producers or consumers. On the one hand, the large traditional firms usually operates or is designed to operate with large scale, minimum scope or high product specialization, large resource base, large capital, high-end technology, complex management structure and concentrated ownership. On the other hand, marginal producer/consumer (say a farmer or an artisan) and consumer operates on small scale, large scope and limited product specialization, meager resource base, smaller capital, low-end technology, simple management, and limited ownership. The above design and architecture of the traditional large firm is more efficient for the purpose of profit and growth of the firm. An enterprise model based on these 'clan variables' will benefit more to a select group of investors; say the major owners of the firm than the majority engaged in the process.

The traditional design and architecture of the firm therefore invites the question of whether an enterprise based on these fundamentals will be sustainable in the long run; as the design is to control the majority; employees, suppliers, intermediaries, buyers, competitors, international agencies, governments, and public opinion. This controlling nature of firm is indeed against the human spirit of freedom and the democratic principles.

The early signals of un-sustainability of the capitalist system say in USA or in Japan with the traditional firm design are visible today. The rise and fall of Enron is a case of high expectation of growth and profits of the firm under severe competition in a capitalistic setting. Enron's 'mark-to-marketing accounting' approach, where it inflated its return on investment to showcase its growth and profitability was central to its collapse. The intense pressure that Toyota production system have been exerting on the component suppliers in Japan, the closure of plants and layoff of employees by Nissan and Toyota have raised questions on sustainability of the 'robust' Japanese business management systems. The legislation on temporary employees, viz.,

Rodo Haken Ho in Japan in 1991-92 and the fallout of Haken Mura Incidence in Japan in 2008 has been a shocking experience for many in Japan. The social and psychological tensions arising out of the free market dynamics and regulatory policy changes has lead the Japanese population to vote out of power the Liberal Democratic Party in 2009; a party that was in power for over the last 50 years.

In the process of seeking continuous growth and profits for its shareholders, the firm adopts various processes and mechanisms in terms of say, tax evasion, collusion among institutions, regulators and the firm, and tactful conversion of public property to private property, especially in a developing country context (Nayak, 2009). Firms also adopt deceptive accounting methods to acquire capital from the general public through market capitalization. Firms also take advantage of imperfect regulatory mechanisms in the developing country settings (Khanna & Palepu, 2004). While firms may have financial cross-holdings in multiple firms that are unquoted but they may report only on the listed companies. Further, the top management comprising of a few major shareholders virtually control all decisions of the firm. The story of growth and fall of an Indian company, Satyam Computers is only the tip of the ice-berg of the nature of large firms from the developing countries. The story of growth of large Indian companies like the Tatas (Nayak, 2009) the Birlas (Nayak, 2009) and the Reliance (Nayak, 2009) is quite revealing on the design and the asymmetry perpetuating nature of traditional firms.

While the traditional large firms seek resources and incentives from the society/nation through the industry-government institutional mechanisms, firms in the transforming economies tend to take further advantage of the institutional deficiencies in the fast changing economy. In the fast transforming countries like India, China, Russia and Brazil that have quickly moved from a largely public ownership system to a free and private ownership system; the private firms in these countries have also grown very large in a short span of about ten years. Russia experienced this in the 1990s during its fast transformation process, when its currency, Rouble had a free fall and depreciated by over 2000%, leading to easy transfer of public property including the huge state-run enterprises to private firms.

With the global financial crisis, crash of stock markets and recessionary tendencies in the most advanced countries in the recent past, the question of whether the paradigm of competition is sustainable has been elusive. The present global financial crisis has led many to wonder about

the old argument whether capitalism or communism or socialism is a viable alternative. While the firms in the capitalist system have had high asymmetries on all design parameters of the firm, the firms in both the communist and socialist systems have had similar asymmetries in **scale, scope,** and **technology** between the firms and the marginal producer or consumer in their respective settings. Respective government acted as the intermediary of the people and the state to **control ownership** and **management** of the firms. Further, the same firm design and architecture seem to have been proposed for different types of industries, whether agriculture or aero space industry. Moreover, with economic reforms being enforced across the world, private firms both in the communist and socialist framework have come to take charge of economic activities in these settings and the asymmetries of traditional firms and marginal producers/consumers have risen in the recent times.

Are there ways to remove the asymmetries between the different types of producers/firms and the marginal consumers? As has been long argued under capitalistic framework, do key innovations take place only under private incentives and external competition? Can we differentiate common understanding of private profit from efficiency? Given the inherent asymmetries, are we likely to find sustainable model(s) within the competitive strategy framework? Do we need to look beyond competition to find alternative frameworks for effective and sustainable means of economic engagement in the future?

2.0 Asymmetry creating variables & optimal positions for sustainability

As noted in the previous section, high degree of asymmetries through tight control on the key design variables of an enterprise viz., size, scope, capital, technology, management and ownership towards the profit objective of the major shareholders and financiers lead to an un-sustainable system and society. While the basic fundamentals of a traditional firm, viz., size, scope, capital, technology, management, ownership and purpose will be applicable to a sustainable enterprise system, the nature of these variables in terms of position, path and process (P-P-P) might have to change for a sustainable system.

A sustainable model of economic engagement may be possible when the design variables of an enterprise have universal application and not just profitable to a select clan say the capitalists, the technologists, large traders or some business conglomerates through the advantages of

asymmetries. The overall approach to managing an enterprise and the purpose of the enterprise may also significantly change to make the variables universally applicable. The differences between the producer and the consumer may diminish and differences between the producer and owner may undergo transformation. All these changes might demand a significant shift in terms of ideas, tools, techniques, systems, terminologies, production system, technology, type of research engagements, management methods & principles, marketing focus and the institutional arrangements. On a broader scale, competition now viewed from the lens of external competition might need to review from the prism of internal competition (perfection) and high levels of external cooperation. Profit will be used to assess the operational efficiency of the firm and not to assess the success of the firm.

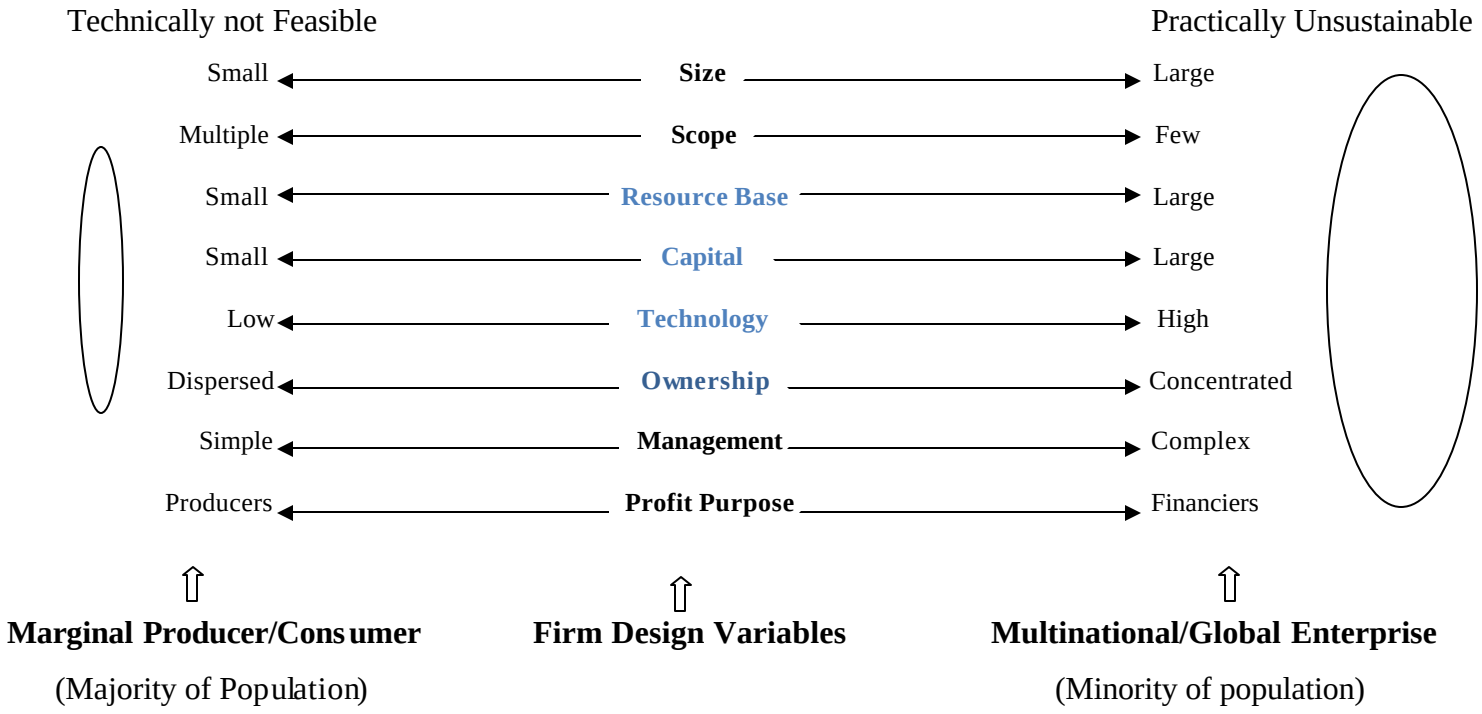
While the business-as-usual model seeks control of both ownership and management, a universal model might have to allow for common ownership and common participation in the decision making process. Instead of intensive use of capital and technology, a process that clearly alienates the majority (Sethi, 1986 & Schumacher, 1975), the sustainable model probably have to seek equal proportion of capital of the co-workers of the enterprise and that each owner cum co-worker will have equal decision making power in the enterprise. As against economies of large scale of an individual enterprise, many small enterprises could produce enough for all (Schumacher, 1975).

It appears that to achieve sustainability of the enterprise system, determining the optimal control positions of the key design variables of the enterprise, viz., size, scope, capital, technology, management, and ownership are crucial. Let us look at it graphically (see **Figure 1**) to appreciate the direction and control positions of these key variables of a typical large multinational enterprise and a marginal producer/consumer, that form the majority of the population. While the large multinational and global enterprises of today are at one end of the spectrum, the marginal producers or marginal consumers are at the other end of the same spectrum.

While logical deduction show that the large firm architecture that is high on each of the firm variable is un-sustainable for the society, the empirical observations show that the marginal producer (say individual marginal farmer or Self Help Groups in India) architecture, designed with the same variables lying on the other end of the spectrum is technically not viable. Is the optimal position of the firm variables therefore, somewhere in the middle of each scale?

Figure 1

Direction & Position of Firm Design Variables for Sustainability



At this stage the reader may encounter some questions whether the suggested ideas would work in real world in different conditions. For instance, how would this work for industries like airlines, telecommunication, power, heavy industries, etc? One may also wonder that while the ideas in the paper may be applicable to industrially less advanced economies, it will not work for industrially advanced economies. While advanced market economies like USA, Britain and Japan might be going through a rough patch now but the Scandinavian economies modeled on the market economy system have done well through good government regulations. One may even argue that a single world system or a single world government may resolve all the problems of institutional arrangements and the triple challenges (economic-social-climate changes) of sustainability under the market based economy.

While there are no clear answers to these questions at this stage, it is only logical to observe that the optimal position of the variables of enterprise systems for different industries would differ. For example, the optimal positions of the variables for environmentally friendly agricultural

activities will largely lie towards the left of **Figure 1**. For technology indivisible industries and intensive technology driven industries, the optimal positions on variables viz., size, scope, technology, and capital will lie on the right side of **Figure 1**. However, the optimal positions of other variables viz., ownership, management and profit purpose of such industries has to lie on the left side of **Figure 1**. Given the strategic nature and security issues, this logic looks appropriate for industries like Nuclear, Missile, Space, and Military industries. Large size of firms or large government institutions automatically create different types of distances such as information, knowledge, capabilities, culture, trust, etc and minimize the participation of the majority of the people engaged in the process.

If asymmetries in the design parameters of the traditional firms are at the root of an un-sustainable system, what are the optimal positions of the enterprise design variables for sustainability of the overall system of enterprise and the society? Indeed, these are probably the key research issues for scholars of management, economics, law and public policy today. While we are aware that the optimal positions of the variables would largely depend on the context and the nature of industry, either of the extreme positions is sub-optimal. We observe that on the one hand, the small and marginal enterprises are technically not feasible and on the other hand, the large multinational / global enterprises are un-sustainable in the society without coercion. The answer for the optimal positions of the firm design variables lies somewhere in the middle. The challenges for researchers today are to identify the optimal positions of the design variables given a social-ecological-economical-political context of a community.

The sustainable enterprise systems would demand scholars to appreciate and understand the logic of two other fundamentals issues of sustainable systems, viz. (a) the structuring of society in externally driven competition and the locus of sustainability in that structure and (b) logic of strengthening the weakest link in a system to strengthen the whole system; applying the theory of constraints (Goldratt, 1992).

Typically, with the industrial development, our societies have restructured to a pyramidal structures, where the majority of the population is the base of the pyramid and the rest of the population are layered at different levels of the social pyramid with a minority at the top of the pyramid. The whole social structure has been geared to serve the minority at the top. The inclusive strategies have been only to seek the participation of the majority but not to share the

management control and ownership. However, the weight of the whole social structure remains at the base of the pyramid and hence the sustainability of any enterprise system depends on the sustainability of the majority of the people at the base of the pyramid.

The second logic of sustainability of a system is to sustain the weakest link in the system that is to be able to sustain the weakest person in the society in order to achieve the sustainability of the society. How can the present business models deliver or work with the 4 billion people at the base of the pyramid? The concerns for developing appropriate business models to fit the context of the base of the pyramid have been raised by many including Ricart, et al (2004). If a new set of variables contrary to the traditional variables of firm design were to be the basis of management for newer systems of economic and enterprise engagements, how would the design and structure of traditional firm / organization change? Would it demand a paradigm shift in the philosophy, theoretical frameworks, systems, methods, tools, terminologies, etc of present economics and management fields?

What should be the unit of our analysis for measuring sustainability? Would it be the enterprise or the family? Should we care about designing an enterprise alone or care about designing a complete enterprise system that includes the producers, consumers and all stakeholders in the enterprise system? Should we follow the traditional, top-down institutional arrangement with the trickle down approach or take up the challenge of a bottom-up capacity based optimal production approach? How do we resolve, if at all, the issues of size, scope, resource base, capital, management, and ownership with regard to the asymmetry generating characteristics of the firm that undermines sustainability? If the basic entity of economic engagement in society were designed optimally for sustainability; at what size of community and institutional arrangement will social choice be possible?

3.0 Sustainable Community Enterprise System

This section presents an on-going action research in an Indian rural-agricultural setting, where the attempt has been to identify the optimal positions of the key design variables for achieving a sustainable community enterprise system. The action research for sustainable community enterprise system in Naugada GP of Orissa, India is underway with the support from Sustainable Trust, Xavier Institute of Management, Bhubaneswar, India, and the National Bank for

Agriculture and Rural Development (NABARD), Government of India. Before we look into the sustainable community enterprise system; it may be worthwhile to look at the existing models within the same context of Indian rural-agricultural settings.

3.1 Intervention from a traditional Firm Perspective

While the needs of the poor and marginal farmers in terms of building production capacity, marketing capacity, and financing capacity have been well understood, the approach has been in the light of the traditional firm. Rural India is considered as rural sector like other sectors, viz., steel sector, pharmaceutical sector, etc. The so called rural sector is characterized by low income consumers as compared to middle and high income consumers living in towns and cities. Rural India is also seen as 'under developed market' that could be developed for future expansion of products and services of the traditional firm.

In the above light, there have been different types of intervention by the national and state governments. Capacity building of the marginal farmers and the poor has been attempted through various means, viz., programme awareness, production capacity, marketing, value addition and micro-financing. Similarly, several Government and non government agencies have intervened on marketing and financing issues. Several innovations in the form of cooperatives, self help groups (SHG), common interest group (CIG), and micro financing institutions (MFI) have also come about. The various SHGs and CIG are increasingly being linked to private micro-financing institutions (MFI).

Often, the traditional firm tries to find opportunities in a rural setting and builds a business around it. Further, the attempts in the traditional firm perspective have been to link the various producers and intermediaries to the firm / corporation. For example, link the farmers of cotton to a multinational company through a system of 'contract farming' or link small vegetable farmers to Reliance Fresh through supply contract. Please see **Figure 2** for the structure of intervention from a traditional firm perspective.

Empirical evidences of such market-linkages show that while such arrangements yield handsome profits to the marginal producers/farmers in the short run, they destabilize most marginal farmers in the long run. Crop failure, debt burden, unemployment, migration, separation from family and finally the loss of dignity of the marginal producers have been common in the above structure &

process. Indeed, large number of farmer suicides has been reported in the recent years of liberalization and globalization in India.

The structure of intervention from a traditional firm perspective therefore appears to be untenable because of the inherent asymmetries and contradictions in the fundamentals on which a traditional firm and an individual marginal producer are based on. Traditional firm is based on large economies of scale, minimum scope and product specialization, large capital, high end technology, ownership of large assets, and complex management structure. On the contrary, an individual or a few marginal producers taken together operate on: small scale operation, season based multiple cropping, smaller capital, traditional technology, ownership of fewer assets and simpler management systems.

3.2 Producer Company & Gandhian Village Model

The administrative difficulties faced by the cooperatives like the National Dairy Development Board that was under the State Cooperative Act led the movement towards creation of Producer Company in 2002. Putting the producer cooperatives as Producer Company under section IXA of the Companies Act 1956 gives the producer cooperatives flexibility to operate and have access to bank credit like a company. A Producer Company (PC) is a company of the primary producers of any kind, like that of agricultural produce, forest produce, rural artisans, and any other local produce, where the members are actual producers. While each member can have only one share and one vote, he/she can contribute any amount of produce to the PC. Contrary to the traditional firm, the shares of the PC members cannot be transferred without the special approval of the board of the PC. As against the traditional company, a PC should have a minimum of 10 members but can have any number of members.

While the issues of ownership and management control with regard to sustainability have been resolved in the PC, the other enterprise design variables have been left unattended. The asymmetry generating capacity of each variable is so large that even a single asymmetric variable can gradually turn a highly community oriented model to the traditional asymmetry generating firm.

Over 150 Producer Companies (PCs) have been registered in India today. Of these registered PCs, the 17 PCs set up by the District Poverty Initiative Programme-Madhya Pradesh (DPIP-

MP) are more close to the intent of improving the earning capacity, livelihood, and sustainability of the marginal producers. The PCs through the arrangement of contract marketing sell their produce to processors or any other large national and international buyers. In its attempt to aggregate the produce from the marginal producers, the above PC model focuses on the common interest groups or self help groups as the basic units for aggregation. Village, block and district serve as geographic spaces from where these producers' groups come from. Marketing has been understood and applied from the traditional firm perspective. In other words, the enterprise architecture of these PCs largely appears to serve the purpose of aggregation of agricultural produce.

The current structure of Producer Company allows for ownership and management control by the primary producers and operated through the professionals. It has also taken the community perspective rather the firm perspective on the above two accounts. However, on the issues of size, technology, efficiency, size of capital, and purpose, it is not clear whether the PC would adopt the traditional firm perspective or some other perspective. Empirical evidences from PCs of DPIP-MP, Aharam-CCD of Madurai and Fab India suggest that these PCs are following the traditional structure of intervention from the traditional firm perspective.

Adopting the Gandhian Trusteeship and ideals, BAIF Development Research Foundation has been working on the various parameters of community organizations and business platforms. Through the support of BAIF about 40,000 families in different clusters across 16 states in India have adopted the Gandhian village model. However, interviews with a Director of BAIF revealed that BAIF is not clear and unaware of the issues of size, scope, technology, and capita on the sustainability of the economic system at the family level or village level.

3.3 Concepts of Community & Sustainability

Understanding the community in the light of a sustainable community enterprise is important. In the context of rural India, the basic unit of community is the family. A number of families staying together with some common bonding among them would constitute a village. While a village meets the social, cultural and emotional needs of the families, it does not fully meet the economic or resource needs of all families. A number of villages with geographical contiguity and sharing some common natural resources that possibly meet the needs of the villages include the community in our analysis. Ecology of this community consists of the land, forest and its

resources, water resources, and the whole natural habitat on which the people in the community depend for their livelihood. Depending on the resource base of the ecology and the surplus generated from the ecology of the community, the geographical size of the community can be estimated for a sustainable community enterprise.

The focus is on the individual family and not on the organization or enterprise or firm per say. We presume that if the individual family, the basic unit of the community enterprise system is sustainable; the community and the society will be sustainable. Our initial measure of sustainability will therefore be the amount of revenue earned and the level of socio-cultural-political security that an individual family receives from their engagement with the community enterprise. The community of people should also feel that they own this enterprise. The feeling of ownership would possibly depend on the level of participation of the members in the day to day operations of the enterprise. Location of the enterprise and the pace of change in the enterprise will determine whether the members can see the activities and participate from time to time. So besides the issues of economic viability, sustainability of the community enterprise will depend on the location, decision making, participation and the pace of change in the community enterprise.

3.4 Understanding the Institutional Settings in Rural India

The historical and traditional institutional structures are deep rooted, complex and dynamic in nature. The complexities arise from the interrelationships among the several institutions viz., social institutions, economic institutions, political institutions, and cultural institutions (Bingen, 2000). Social institutions evolve over time based on the people's concept of social relationships, community, social groups, individual roles and responsibilities, perception of the function of the social group, and the overall social life of people in a village. Similarly, the economic institutions in the community levels could be based on the local perception of materials, their system of valuation of the materials and the production relationship among various people in the village. The cultural institutions would be similarly based on the local beliefs, faiths, trust, and the philosophy. Further, the political institutions are a result of the power relationships and the very concept of power as conceived by the people.

While the policy and development project implementer are aware of the deep roots of historical and traditional institutions in a village settings and the various socio-economic problems, they

are often bound by the target fixed by their respective departments of the Government. The existing government institutional mechanisms do not fully recognize the strength and capacity of a village and its institutions. The knowledge and wisdom with the people, their techniques and technologies either in farming, production, storage or construction have not been properly leveraged by the existing government institutional mechanisms. The government and its different agencies have often adopted a top-down approach that ignores the capacity of the primary producers and stakeholders. The government institutional arrangement inadvertently leads to achieving annual financial targets and misses its own planned development objectives (Nayak, 2008).

3.5 Search for optimal positions of design variables

In the proposed community enterprise system, the marginal producers form the core of the system. The producers are not only owners of the enterprise system but also are the major consumers of the produce. Considering the concept of individual, the basic unit within the capitalistic framework, as an abstract concept from sustainability perspective, this approach takes the family as the unit of analysis; a realistic and holistic concept. Hence sustainability of the producer-family is the prime concern and not the enterprise per say. The concept of village seems small and sub-optimal and hence the community (consisting of a few villages) as a relevant operational unit from the point of view of optimal size of ecology; where the people can share and exchange goods, services, joys and sorrows by cooperating, complementing, and supporting each other.

Size indeed plays a significant role on the level of participation and nature of democracy at the grass root level. As the size of a system increases, the distance between the actors within the system increases; which tends to reduce the participation among the various actors within the system. With increasing size, the complexities within the system also increase. Hierarchy becomes a necessity to maintain order in the system. As a result an indirect representation within the system evolves and direct democratic processes gradually reduce. As the distance between actors increases, the rules and procedures take over, control mechanisms begin to guide the processes and the human element of the actors in the system distances from the operations.

While growth in size in terms of sales and revenue turnover form the basis of a traditional firm, the community enterprise system based on agricultural and allied products is being designed for

an **optimal size** in terms operational size of the community and the number of producer members. For geographical contiguity, ease of communication among the producer members, transport and logistics, the members could be drawn from the villages within the ecology of a Gram Panchayat (GP). In the first iterative step of determining size of the community, GP, the basic unit of the Indian political system has been used. Depending on the size of a GP, the geographic spread, natural resource base, and potential surplus produce; the size of community can be revised in the subsequent iterative steps of the action research.

On **scope**, while the traditional firms focus on a few products or services for higher efficiency of the firm, the community enterprise system will seek economies of scope on the produces from the small producers or farmers. Aggregation of small surplus produce will be important in the early stages of the community enterprise system. Given their small land holdings, smaller resource base, and the environment friendly attitude, the marginal producers can only produce small quantities of items. The surplus after consumption by the family is still smaller. Further, the production relationship is linked to the natural resources and the seasons of the year. Therefore, they are best suited to produce a variety of items during the different seasons of the year. However, every ecological system has a variety of resources for sustaining its inhabitants and hence adopting greater scope of produce for community enterprise system appears to be viable.

Technology in the given context could mean that the process of farming, the type of farm inputs or the type of farm machinery being used. Technology intensity may be relevant in industries where the issues of indivisibility and technological compatibility could arise. However, given the nature of production and consumption patterns in agriculture, farm produce, and the marginal farmers, technology intensity may not be appropriate. While intervention with appropriate technology would be effective in the complex, diverse and risk prone (CDR) agricultural settings, the current nature of technological interventions have been found to be largely deficient. (Chamber, 2005)

Technology intensity would invariably exclude the marginal producers from the production system. Instead of being technology intensive as in traditional firms, appropriate technology with improvisation of local technology wherever available could be used for achieving better efficiency of the community. Leveraging the technical capabilities of the people and creating a

mechanism to complement the local knowledge and capability would help. Adapting appropriate and people friendly technologies could enhance the efficiency of the community enterprise system. Indeed, the age old tradition of integrated agriculture following organic principles viz., on farm seed production, biomass and organic input generation, and in-situ water and soil conservation have been rediscovered to be the most sustainable agricultural method.

The size and source of **capital** employed in the proposed community enterprise should be carefully chosen. Optimal levels of capital should be employed as capital intensity would again exclude majority of the people in rural community because of the high asymmetry of resource base in the community. Professional guidance to organize in the first few years and untied seed capital from the Government to the community enterprise would substantially remove the capital asymmetry among the marginal producers and help put the community enterprise system into action.

With regard to **ownership** and **management control**, the community enterprise system should not only be community owned and managed but also be based in the community and not far away from its producer-members. Being aware of these institutional issues and other problems in a village setting, the proposed enterprise system should also be appropriately paced such that the people in the community can appreciate and accept the processes to form and develop their enterprise system for themselves.

While community enterprise will be owned by the primary producers, it will be managed by a team of local community workers and facilitators for marketing, logistic, book keeping, value addition, planning and coordination. In other words, based on the initial action research experiences, for a sustainable community enterprise system, the enterprise system has to be community based, community paced and community owned and operated by local community workers. Please see **Figure 3** for the design variables and the structure of operation.

Efficiency of a firm is estimated based on the output of and input to the firm. In such an analysis, while the firm may be efficient, the community of producers need not remain efficient while trying to make the traditional firm efficient. Efficiency in the above community enterprise system is the efficiency of the producer-family of the enterprise system and not the enterprise itself as in the traditional firm approach. Further, the efficiency of community takes precedence

over the enterprise itself. While in the traditional firm perspective, produce of the primary producers are aimed to be traded where ever the firm can maximize profit or produce wherever it can efficiently add value, the community enterprise to be sustainable will need to focus more on the local value addition and local marketing.

The objective of the local value addition and local exchange of produce is to reduce the cost of the produce by reducing the number of intermediaries in the process of value addition, total cost of transportation, packing and unpacking cost, taxes, and cost of certification by an external agency, etc. Reducing the cost of the produce and making them locally available would also increase the internal consumption of these produce in the local community; thereby increasing the nutrition levels in the community. After fulfilling the nutritional needs of the local community, the surplus produce/products could be sold at the local, district, national or international markets. Keeping the market place closer to the site of production could stabilize the local demand and supply situation and reduce the risk of fluctuations of the global markets for the smaller producers.

The early experiences of action research with the above tentative model show that the model is acceptable with the people in the community. Within a period of three months, over 220 marginal producer-families have joined the community enterprise, local community workers have been able to motivate people, carry out the baseline surveys, collect surplus produce, and quality checking. Producer members in one village have restrained from selling their produce to traditional local traders and have preferred to market their produce through the community enterprise system. People from villages in the adjacent Gram Panchayats have also approached to be members/shareholders of the community enterprise that has been started in one Gram Panchayat. The model also seems to be appreciated by the local Naxalites as it has been perceived to have the potential to liberate the marginalized people and be sustainable.

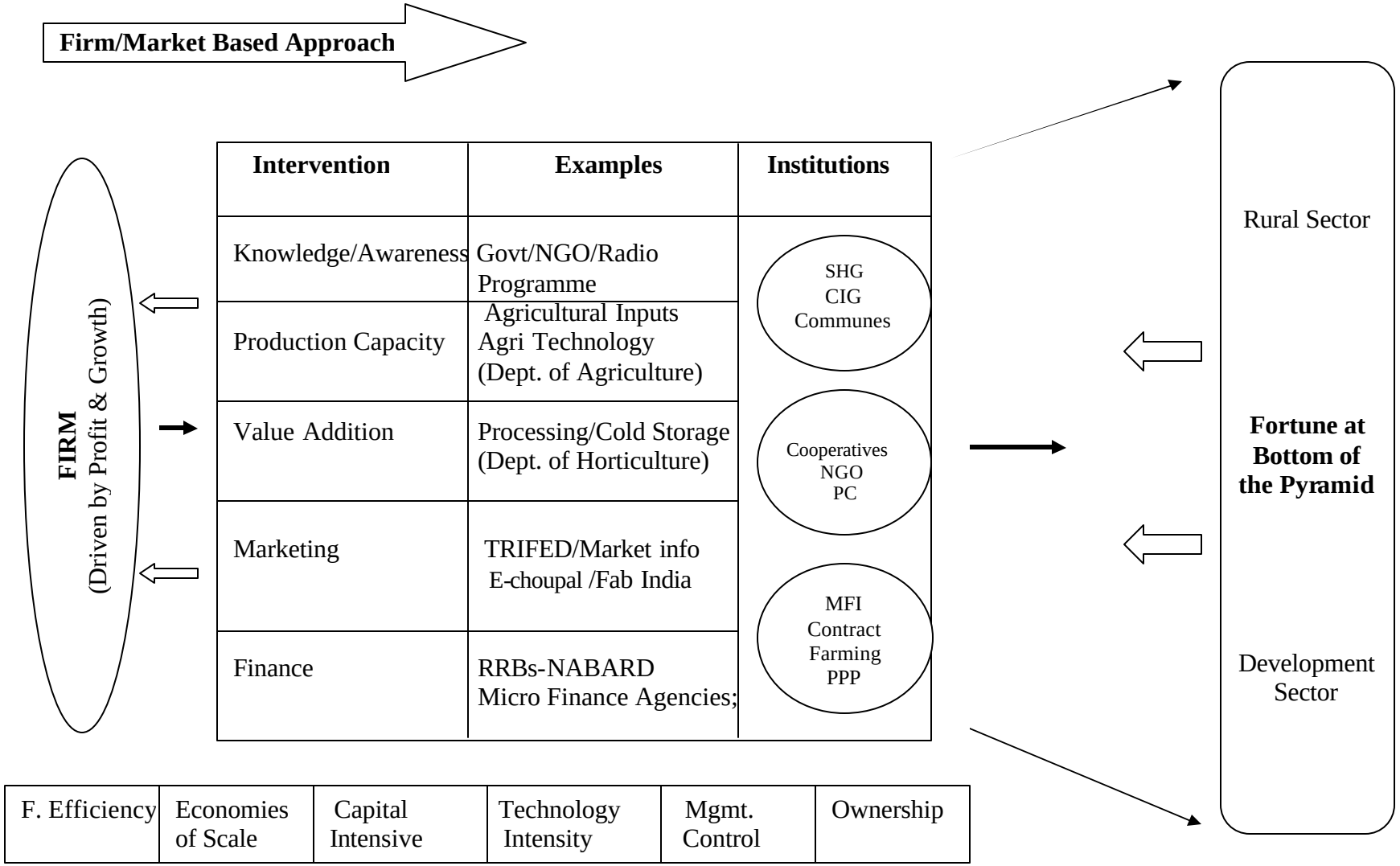


Figure 2: Structure of Engagement-Intervention from a Traditional Firm Perspective

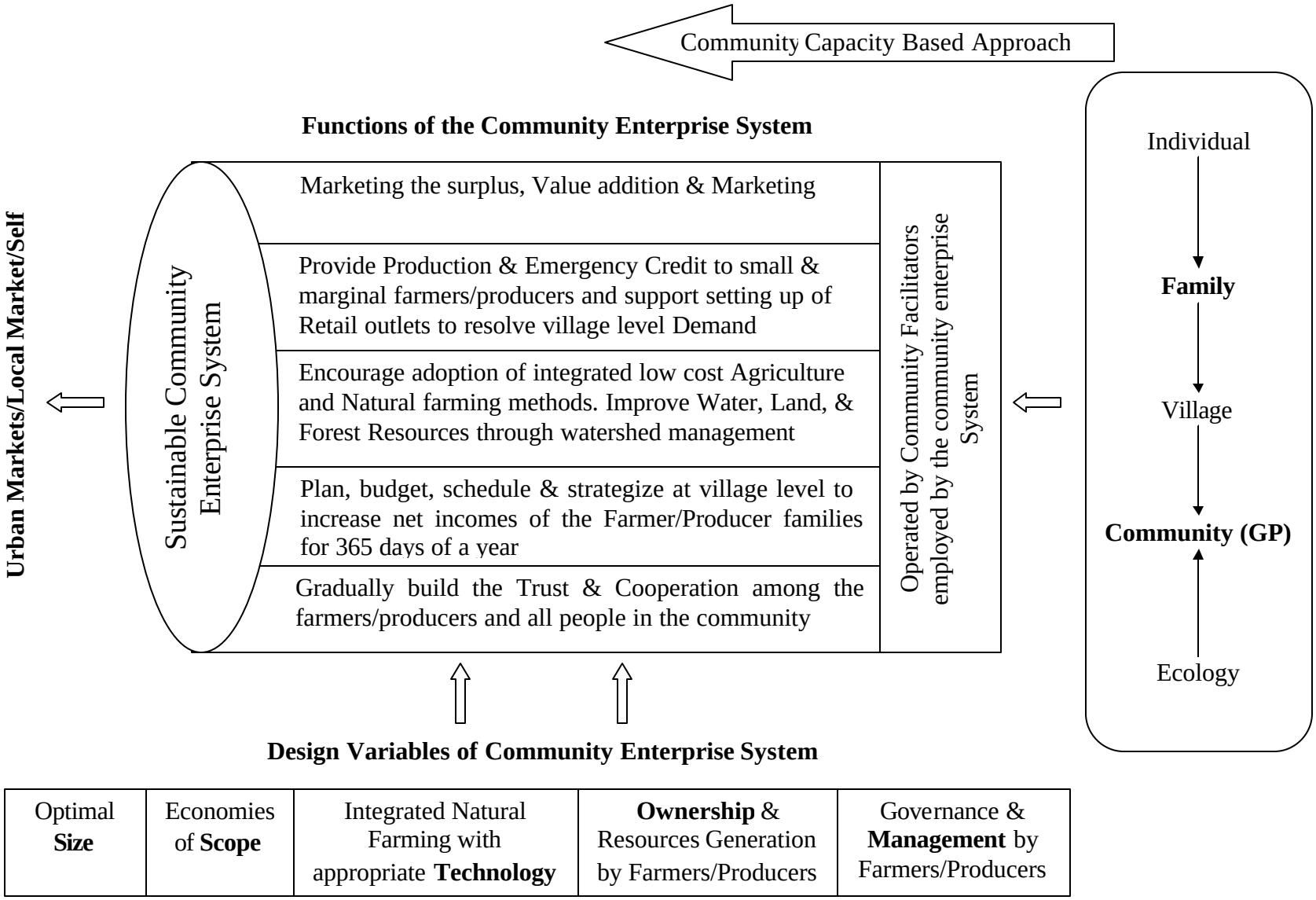


Figure 2: Design and Structure of a Sustainable Community Enterprise System

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