

**Topic:     The Small Town and Peri-Rural  
          Enclave Economies: an inclusive,  
          feasible, affordable alternative to urban  
          industrial breakdown**

Prepared

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## **1. INTRODUCTION**

The urban-industrial path to socio-economic development, derived largely from Europe and the USA, is at this very moment failing in South Africa to create meaningful employment for between 40 to 50% of the population. In Transkei, the economy needs to generate some 30 000 new work opportunities annually to absorb the new job seekers coming into the market each year. It is estimated that less than 10% of the required new jobs are in fact being created through the New South Africa.

The formerly viable rural economy in the Eastern Cape Province is now moving rapidly toward terminal collapse. The worsening degradation of the natural environment, scarred by dongas and progressively more de-vegetated, mirrors the gradual disintegration of the subsistence economy in rural areas as the demands of an ever growing population increasing exceed the carry capacity and the biomass production potential of the land base.

The displaced subsistence farmers and farm workers have been slowly collecting around the towns and cities of the country for many years. Originally these urban migrants came to perform paid work in the mines, industrial enterprises, construction, etc. Today these first, second, and third generation migrants now constitute an unemployed multitude without the land, capital, organization or the skills needed to transform their peri-urban townships into wholesome, employment generating little enclaves.

## **2. FAILURE OF THE EURO-AMERICAN URBAN INDUSTRIAL PARADIGM IN SOUTH AFRICA**

In the opinion of this observer, the failure of urban industrialism in today's South Africa is massive and probably irreversible, regardless of how much foreign investment gets injected into the urban industrial sector over the coming 20 years. The cost of creating modest housing, minimal urban infrastructure (water, electricity, telephones, roads and sewers, garbage disposal, transportation, hospitals, etc.), commercial centers and services (supermarkets and shopping centers) and employment opportunities at a First World standard in the urban and peri-urban zone of development will turn out to be prohibitively expensive, on the order of R250 000 for each family of five (5) stabilized an 'acceptable' lower middle class standard of living. That comes to +/- R50 000 per family member.

If we assume that 4 000 000 families need to be fully urbanized over the next decade, at a cost of about R500 000 per family, then approximately R2 000 000 000 000 or two trillion Rands (+/- \$250 000 000 000) will be required. That comes to +/- R200 000 000 000 a year which is equal to about 25% of the total expenditure by the national, provincial and local governmental units in South Africa in 2001. Today the GOSA collects about R800 billion from the tax payers of the country and South Africans save +/- R50 billion a years. If the entire capital expenditure of the GOSA – estimated at no more than R50 billion Rands a year - plus all private savings (+/- R 50 billion) would not be sufficient to finance the cost of such a gigantic urbanization process.

It is highly unlikely there will be R75 billion available from all sources for industrial, infrastructure, and housing development in the urban centers of South Africa during the rest of the first decade of 21<sup>st</sup> century (appreciated for inflation). To put matters

crudely, the promise of a comfortable home and employment inside the First World standard urban industrial zone of the South African economy for the aspiring multitudes is a cruel deception.

It is my estimate that less than 30% of the awaiting urban and peri-urban migrants who are already waiting at the gate for 'placement' inside the First World part of the economy will- in fact - be accommodated inside the urban industrial metropolises and satellite towns with a complete ensemble of urban necessities: housing, water, sewerage, school, shopping center, hospital, transportation, police protection, employment, etc. The rest – the vast majority – will remain trapped in a growing, chaotic, and unwholesome peri-urban fringe zone between a collapsed rural subsistence and farming economy and a terribly oversubscribed urban industrial economy.

From the perspective of a failed semi-traditional subsistence economic system, on the one side, and an unaffordable urban industrial system, on the other side, it becomes possible to appreciate the potential for small towns and their peri-rural satellite communities to play a vital role in breaking the stalemate between rural stagnation and urban industrial 'gridlock' and public sector bankruptcy. To unlock the regenerative forces latent within the small town and its peri-rural enclaves, it is necessary to replace the destructive interactions which exist today between rural and urban systems with more constructive interchanges.

To achieve the conversion of negative urban/rural interactions into positive interactions, the focus needs to be placed upon the high potential of the whole small town/peri-rural enclave system as an identifiably separate micro-economy in its own right. Small towns must not be viewed as a decentralized agent of the urban industrial system. It is far more useful to conceptualize a small town like Stutterheim, together with the surrounding formal and informal townships and the farming community as part of an integrated enclave economy. Such a peri-rural enclave economy has potential to differentiate itself from the national and metropole economies as a dynamic, internally efficient, and wealth generating complex of inwardly facing producer and consumers in its own right.

By rationally deciding which social and economic functions to 'internalize' within the enclave and which to 'externalize' into the national and metropolitan economy, the managers of peri-rural and small town enclave economies can gain control over what happens to the wealth their labour and savings produce. They can begin to ensure that enough wealth and economic functions are retained inside their enclave to ensure that full and meaningful employment can be 'designed' into a more human scale local economy in which the productivity of not one active citizen is wasted through idleness.

### **3. HISTORICAL CAUSES FOR THE BREAKDOWN OF SELF RELIANT, WEALTH CREATING RURAL ECONOMIES**

If we go back in time to 25, 50 or even 75 years ago, and then come forward to the present time, we will witness a gradual collapse of many small productive enterprises that used to create wealth and employment within the Stutterheim enclave. If we go further back to the pre-colonial era, it can also be argued that there was full employment within the traditional economy of the Xhosa people. What has caused the historical disappearance of the local resource based, small scale production and

commercial enterprise that once existed in Stutterheim and which – together with farming – probably created near full employment at relatively low wages?

The following sequence of shifts in the national and regional balance of economic actors can be noted over the last 50 to 75 years:

### **1.) Big Producer Monopoly Factor**

The bureaucratization of the national economy through commodity and industrial control commissions which gradually shifted the balance of power in favour of large scale operatives with more political muscle, who then monopolized the market

### **2.) Opportunistic Urbanization Factor**

The growth of a consumer mentality based upon a nationally standardized life style and a highly materialistic concept of the 'good life', whereby specialized wage and salary earners living on small residential plots purchase all their life requirements from retailers and other specialists.

### **3.) Economies of Scale Factor**

The capacity of mass producers in the urban industrial centers to produce higher quality products and to market these products at lower prices than competitors situated in the smaller towns.

### **4. Big Technologies for Mass Markets Factor**

The application of technology and machine power at a level of productivity which required large capital investments which in turn necessitated larger markets to turn a profit. The dominant financial interests evolved the technology of mass production away from small scale, diversified production systems.

### **5. Cheap Fuel Factor**

The availability of cheap petroleum derived fuels to power production systems and the massive transportation networks needed to aggregate raw materials, people, technology, energy, etc. into factories and then to disaggregate the finished products to wholesalers and retailers at the national and international scale of distribution.

These five factors favouring economic centralization and bigness, left to operative unchecked over the 50 year period between 1925 and 1975, resulted in the progressive displacement and/or amalgamation of many dispersed small producers and marketers into a decreasing number of ever larger urban centered manufacturers and marketing enterprises. **The transfer of wealth, employment, and economic control functions from Stutterheim, Cathcart, King Williams Town, Alice and Middledrift to larger urban centers like East London and Port Elizabeth – with more diversified industrial and marketing systems – was due to the deteriorating terms of exchange between the urban and the rural/peri-rural economies.**

#### **4. COUNTERACTING FACTORS SUBTRACTING VALUE FROM THE URBAN INDUSTRIAL ECONOMY**

At the same time the centralizing and agglomerating factors were producing more value added to urban goods and services, due to concentration of larger and more competitive markets, there was also a **value subtracting process**, which can be described as the dis-economies of scale, that was coming into play. These diseconomies of scale were not very noticeable at first, but later the value subtracting trends became more powerful and – in my view – in the latter part of the 20<sup>th</sup> century have over powered the value adding factors.

The major factors subtracting value from the performance of the urban industrial economy in South Africa can be summarized as follows:

##### **1. High Tech/Urban Biased Standard Setting**

Special interest groups of many different kinds gained enough influence to impose very high standard for the built environment (particular architects, engineers, quantity surveyors, professional builders), medical services, product standards, food supply, sanitation, etc.

##### **2. High Population Densities Necessitate High Technology/High Cost Infrastructure**

There is a rapid increase in the value of land, cost of: basic services (water, electricity, sewerage, waste disposal, police protect, etc.), transportation time and cost, urban infrastructure (as it becomes more complex and maintenance intensive); also, there is a rapid deterioration of the quality of the natural, rural and urban environments as a result of population 'densification'.

##### **3. Greater Complexity, Transactional Costs and Inefficiencies of Centralized systems**

There is a gradual increase in the cost – and decrease in the quality - of government services such as police protection, firefighting, maintenance of public works, running of the courts and legal services, medical services, education, etc. The increase in cost is not compensated by a comparable increase in benefits.

##### **4. Calcutta Effect**

The influx of economic refugees from a collapsing rural hinterland, who are desperately seeking a survival niche on the margins of the metropolitan system, gradually exceeds the 'technological and organizational carrying capacities' of the existing urban infrastructure, public sector services, and tax base of the metropolitan system.

##### **5. Commercialization/'Commodification' of Previously Voluntary Services and Exchanges**

The shrinkage of voluntary community and family services which were traditionally freely given in the rural community are now converted into commercial commodities which have to be paid for with money. As a consequence, the cost of living radically increases in the urban and peri-urban areas.

The combined effect of these five benefit reducing and cost increasing factors at work in the metropolitan centers of commerce and industry is that the cost of an URBAN ECONOMIC BENEFIT UNIT (UEBU) gradually increases to the point where it is perhaps five (5) times more costly than a comparable RURAL ECONOMIC BENEFIT UNIT (REBU)

More than 15 years of research and demonstration by the Eastern Cape Appropriate Technology Unit (formerly the Transkei AT Unit) carried out in hundreds of rural communities has conclusively documented that **on average comparable levels of benefit in housing, school classrooms and clinic, irrigation systems, road construction and maintenance, and employment creation can be achieved in rural communities for 1/5<sup>th</sup> to 1/10<sup>th</sup> the cost of similar products, services and benefits 'delivered' to the residents of densely occupied metropolitan and peri-urban areas such as Port Elizabeth, Durban, Cape Town, Johannesburg, and East London.**

## **5. THE FIVE FOLD HIGHER COST/BENEFIT PERFORMANCE OF PERI-RURAL ENCLAVES COMPARED TO URBAN INDUSTRIAL ENCLAVES**

In this paper, it is my thesis that the principal cause of the loss of traditional economic functions and the growing collapse of rural and small town economies in South Africa is due to a process of systematic disinvestment over the last 75 years. The surplus wealth generated by rural residents, farmers, and small town dwellers has been transferred from their small enclave economies over to the increasingly more powerful '**Exclave**' or metropolitan economies. This process of transferring wealth from the rural to the urban economy was professionally and politically facilitated by the inappropriate imposition of urban standards and development strategies on small communities like Stutterheim.

The already advanced breakdown of the rural hinterland economies of the Eastern Cape and the rest of South Africa is today precipitating a reactive or secondary collapse of the First World standard, urban industrial metropolises. The hordes of displaced persons seeking to escape from dying rural communities, hunger, and joblessness, are now rapidly exceeding the carrying capacities of existing urban infrastructure. The millions of landless refugees are now unintentionally driving up the cost to the state and the national economy of assisting them in meeting all of their legitimate aspirations for development and modest prosperity. They are desperately trying to insert themselves into the national economic system on the margins of the high tech/high cost urban industrial economy where costs are highest per unit of benefit and the system of functions is most complex and fragile.

Why must the national and provincial governments chase after the displaced rural masses who are cramming themselves into the metropolitan systems where they parasitically encumber the national economy where the cost of delivering the full spectrum of development benefit they need and deserve are the highest? The investment of more and more scarce public and private sector resources to expand metropolitan systems and infrastructure to accommodate millions of refugees from

moribund rural communities is not, in the end a viable solution to the development *problematique* of the New South Africa. It simply costs too much. South Africa will never have enough resources to provide full employment and modest prosperity to all of its citizens if it tries to make a place for everybody in the urban and peri-urban zones of the country.

It is the thesis of this paper that the sustainable long term development strategy open to the leaders of the country to invest the lion's share of all surpluses in the radical reanimation of collapsed rural and peri-rural economies. It is argued that the return on each unit invested in deep rural and peri-rural development stimulates 5 to 10 times more development benefits than investing those same limited resources in the urban and peri-urban development zones. If the facts and interpretation upon which my thesis is based are in fact correct, becomes imperative for politicians, the government, the private sector, professionals, NGO's and the institutions of civil society, and the people themselves to turn the commonly accepted First World/urban centered development paradigm upside down.

In place of rural and peri-rural communities obtaining trickle down benefits from urban investments, it now makes political, economic, humanitarian and environmental good sense to **systematically concentrate scarce development Rands and resources on those development processes, technologies, products and zones of opportunity which guarantee the greatest quantity and quality of development benefits to greatest number of people in the shortest period of time.**

The return on R1 invested in the revitalization of Stutterheim and its peri-urban enclave economy will be at least 5 times greater – in my view – than that same R1 invested in peri-urban community somewhere on the margins of Mdantsane or Johannesburg. Thus, for the cost of constructing the First World urban infrastructure and employment needed to establish one family from the Stutterheim area in the Soweto/Joburg urban zone it would be possible to establish +/- 5 families in new settlement in a deep rural or peri-rural area with opportunities for self-employment as small scale farmers or micro enterprise producers of goods and services.

Today there is an abiding faith among the masses that the new majority serving government will miraculously be able to provide all South African citizens with a First World urban standard of living and employment. It is a de facto South African 'cargo cult' with the ANC assuming the role of the ancestors in the Cattle Killing Movement of the last 1850's. In today's South Africa, it is the well off and well educated technocrats and professionals who are uncritically perpetuating the false expectation that in the end they will somehow or other figure out how to accommodate everyone safely inside the First World urban industrial zone of the national economy. It appears that today politicians, engineers, economists, and high level administrators are all in absolute collective denial of the view that the First World metropolitan and global economies are too weak to serve as the primary engines to revitalize the masses of unemployed rural refugees and dwellers.

There is much ideological and economic momentum pushing South African society into ever more unsustainable urban concentrations of workless and landless people, families and communities. It has become very difficult, almost impossible, to get South African professionals, politicians, civil servants, union leaders, businessmen and women, etc. to critically interrogate the economic feasibility of delivering on the promise of government,

business and organized labour that it is possible to expand the First World part of the national economy to accommodate all citizens who seek admission. There will be enough development capital and dynamism in South Africa to admit everyone into the First World 'land of milk and honey'.

There are a few critical development theorists and activists who have come to the conclusion that the promised urban industrial revolution cannot complete its evolution until the country first completes the less costly revitalization of the rural and peri-urban zone of the country. How do the critical few awaken our colleagues and comrades from their First World fantasy that the national economy can be transformed from the top down and the outside inward using imported models and borrowed resources? Perhaps village level demonstrations and comparative cost benefit assessments will help the dreamers to discover the economic necessity for preceding their urban industrial revolution with a long preparatory process of bottom up social and economic revitalization that is centered in small towns and surrounding peri-rural communities.

## **6. THE ADVANTAGES OF DE-LINKING THE PERI-RURAL ENCLAVE ECONOMY FROM THE URBAN INDUSTRIAL EXCLAVE ECONOMY**

The thesis advanced in this paper needs to explore how and describe some of the processes by which the presently deflated and under-invested peri-rural enclave economies of the country can be awakened and transformed into the dynamic engines of wealth and employment creation. What are the practical changes which small town and peri-rural residents can make that will help to launch the proposed process of internal and self-sustaining development within their enclaves?

It is common knowledge that the small towns and peri-rural communities of the country are today far too dependent on the urban dominated national economy to be able to separate their economic interests from those of the metropolises and pursue an independent development strategy of their own. The small towns and peri-rural communities are trapped within a system of mass production and consumption that integrates in the First World cities of the country. This urban mass economy is channeled and controlled by politicians, managers, professionals and institutions who consciously and unconsciously place the interest of First World oriented urban elites above the interests of Third World majorities.

The miniature First World cores of the small town economies and their extension agents in the surrounding peri-urban communities are themselves victims of the high product, services, transportation, and other 'transactional' costs which characterize the national economic system in the metropolises. If the urban industrial metropolises are systematically undermining the development potential of small towns, peri-urban and rural communities in South Africa, then some powerful antidote our counterflow strategy will have to be invented and widely implemented to 'liberate' the enclave economies from the alienating domination of the regional, national and global exclave economies. Although it seem against the flow of the neo-colonial or 'catch up' orientation of most development thinking and policies of the first majority serving government of the country, it follows that small towns, peri-urban communities and deep rural areas must be assisted to de-link themselves from all those 'value subtracting' and disadvantageous exchange relationships (identified in section 4) between itself and the Exclave Economy. In place of these value subtracting economic exchanges, the Enclave Economy needs to make a unilateral declaration of its 'limited' independence from the larger regional,

national and even global economic systems. The whole point of this limited UDI is for the Enclave Economy to discriminate between those exchanges which create internal wealth and employment and those exchanges and activities which export wealth and employment elsewhere.

For the full benefits of the proposed 'delinking' of the Enclave Economy from the debilitating control of the Exclave Economy, it will be necessary for a functional majority of the leadership of the Enclave to understand and agree to apply the following bottom up revitalization policies to the management of their relations with the Exclave:

### **1. Positive Balance of Trade**

It is necessary to maintain a positive net balance of trade and economic interchange between the Enclave and the Exclave economies which means that wealth is being accumulated internally rather than leaked back into the external system.

### **2. Local Production for Local Consumption**

It is essential to implement professional and democratically supported campaigns to maximize local consumption of locally produced goods and services; as part of this campaign, it is also necessary to encourage the production of those products and services within the Enclave Economy for which (i.) a comparative advantage exists, (ii.) the greatest value can be added locally, and (iii.) strong local demand exists.

### **3. Systematic Reinvestment of Local Savings**

Steps must be taken to create local institutional mechanisms that will capture and reinvest any net surplus developed by the Enclave Economy into those enterprises which further delink the Enclave through 'import substitution' or the production of goods and services for export into the Exclave Economy.

### **4. Intensification of the Multiplication Effect until Full Employment Is Reached**

Ways and means must be discovered whereby to increase the rapid circulation of goods, services and money within the Enclave Economy, with minimal leakage into the Exclave System, so as to maximize the creation of local employment until a generalized condition of full employment has been achieved. As a general rule of thumb, all idleness, underutilization, frustration, and boredom are to be treated as indicating that human potential and productivity is being lost from the Enclave Economy. The managers of the Enclave Economy are charged with inventing new ways to harness this underutilized potential productivity.

### **5. Protective Nucleation of the Enclave and Aggressive Outward Colonization of New Semi Independent Satellite Peri-Rural Economies**

Planning for success (and nothing fails like success), it will soon become necessary for dynamic small town and peri-rural economies to protect

themselves from invasions by unemployed refugees from surrounding rural communities and depressed towns and cities seeking relief from poverty and joblessness; instead, counter-flow measures are needed that will stimulate parallel Enclave Revitalization processes around Cathcart, Hogsback, Alice, Middle Drift, Kei Road, Komga, etc.

## **7. EXAMPLES OF HIGHPERFORMANCESMALLTOWN AND PERI-RURAL ENCLAVE ECONOMIES**

Several examples may help us understand why the small town and peri-rural enclaves are today in a position to economically outperform the metropolitan exclave system.

Arthur Morgan, the first Chairman of the Tennessee Valley Authority (TVA) under President Roosevelt, once asked his engineers to determine how much of the economy of the USA in the early 1930's was avoidable waste from a radical engineering perspective: maximum efficiency with no concern for culture, status, consumer preferences, etc. The answer came back a couple of weeks later that if the American economy was re-engineered for sheer efficiency it would be possible to deliver the same basic benefits to the American people for a mere 20% of the capital investment, technology, resources, organizational systems, professional expertise, labour, etc.

That is a mind boggling bit of feedback on the unnecessary wastage of the celebrated efficiency of the American industrial, commercial and distribution system from nearly 70 years ago. In those days, the US dream machine was judged by hot shot engineers to be 80% waste; today it would be more than 90% wastage if a minimum cost/maximum function 'systems approach' were taken to delivering all the benefits required to secure a modest American style 'good life' of energy, housing, food, water, transportation, medicine, education, protection, communication, clothing, recreation, etc. (see A Morgan's **Dams and Other Disasters**; also, Elting Morrison: **From Sense to Nonsense: a history of engineering in America**).

When A Morgan told a group of students at Antioch College back in the 1950's about the judgment by his engineering staff that the American economy was 1 part necessary production and 4 parts avoidable waste, he called our attention to two implications of this discovery. First, there is no justification for the continued existence of poverty in American society. Poverty is entirely the result of inefficient use of resources already in circulation within the economy. What happens if houses, clothing, automobiles, durable consumer goods such as TV, refrigerators, irons, etc. are designed not to fall apart after a few years of use but instead are designed for 50 years of service with periodic maintenance and updates? He also pointed out that if the American economy were run with humanistic efficiency and a commitment equity, it would be possible for all of us to work only one day a week to earn our income as professionals and workers; the other four days of the conventional 5 day work week would be left free for family activities, gardening, walks in the woods, making music, writing poetry, visiting with friends, contributing to good governance, gardening, etc.

If the engineers at the TVA applied these same efficiency tests on the use of resources, technology, expertise, and labour to the present day economy of South Africa, what kind of overall efficiency assessment are we likely to be given? In my off the cuff judgment, more than 70% of the monetized SA economy is avoidable waste from a radical engineering perspective: for example, substituting an efficient mass transit system for

privately owned automobiles with a vast network of four and six lane highways circling and crossing the urban landscape. **If +/- 50% of the SA economy is avoidable waste then can we not finance the development of a full employment economy by gradually reducing systemic wastage and reinvesting the savings in the revitalization of rural, peri-rural and small town economies?**

The Amish farmers in the state of Ohio in the Midwest of the USA live well by farming 100 to 150 acres (45 to 68 hectares) without the aid of petrol or diesel powered machinery. By religious principles and life style preference, the Amish have chosen to cultivate a very simple way of family and face to face community life which consciously minimizes their involvement in the 'fast track' worldly life styles of the 'Englishmen' (the Amish speak a variant of German). They refuse to have pipes bringing water or gas, and wires bring electricity and telephones or TV's receiving electromagnetic waves transmitting a materialistic and ungodly recreational culture into their homes from the outside world. They leave part of their farmhouses and barns unfinished so that the taxes levied on the buildings remain low since the structures are unfinished and under construction.

The aim of the Amish is to minimize their linkage with the big and inherently wasteful economic system of modern America. They build and maintain their own schools, look after their own aged, preserve (can) their own surpluses, transport themselves by horse and buggy (or public transport), and take strenuous steps to minimize the outflow of their small income from their comparative tiny and under technologized mixed farming systems of dairy, livestock, maize and vegetables. Amish families manage to live 'well' by their own definition on 1/5<sup>th</sup> to 1/10<sup>th</sup> of the cash income of modern machine powered farmers who are also terribly burdened with mortgage, crop and equipment loans. Every Amish father and his extended family is responsible for assisting the next generation purchase land and establish themselves as Amish farmers on the land. Money is saved to finance the establishment of new families on the land.

The overhead, equipment, operational and input costs of an Amish farmer are less than 1/4<sup>th</sup> that of his debt burdened and machine powered English neighbors. Amish farmers can still make money from selling maize and livestock when the price has fallen by 50% and all the other bank financed and machine powered farmers are declaring bankruptcy and howling for government bail outs. When required, a congregation of Amish families will join hands to raise a house or a barn, often over a long weekend, for a family in need as an act of collective charity to their co-religionists. They also participate in the larger world in interesting and appropriate ways. For example, they will contribute surplus home grown foods for canning and then send the canned foodstuffs to famine relief programmes around the world. Sometimes they send seasoned farmers to provide development assistance in the Third World to small farmers. Often the small farmers they are assisting could be earning the same kinds of incomes earned by the Amish in the USA except for the fact that they are trapped in exorbitantly expensive patterns of farming which cause them to lose money hand over fist. The Amish, using a modest input cost, low technology, and family and community centered approach to small scale commercial farming would be earning a healthy profit on the same farm because of much lower farming input costs and their radically lower cost of living on the land.

## **8. THE TURNING POINT: DEGENERATIVE AND REGENERATIVE CYCLES OF SOCIO-ECONOMIC DEVELOPMENT**

The late arrival of South Africa society to an urban centered stage of mass production and consumption was in large part due to the dual development strategy followed by the mines and the national government whereby the families of workers were forced to live in subsistence based homelands. The predictable explosion of population in South Africa due to the wide spread availability of Western medicines to both urban and rural residents meant that only a small percentage of the African population had managed to fully stabilize themselves as skilled members of the national workforce before the sudden collapse of the apartheid system and the removal of all controls on the free movement of South Africans back and forth between their urban and rural homes. The rapid breakdown of the ability of the apartheid state to enforce influx control during the late 1980's and early 1990's resulted in a tidal wave of urban migration which has completely overloaded the capacity of the existing First World infrastructure of the cities of the country to accommodate the new arrivals from the hinterlands. What we are now experiencing in Durban, E London, Port Elizabeth, Johannesburg, Cape Town, Bloemfontein, etc. is the beginnings of the 'Calcutta Effect' when the urban and peri-urban population exceeds the carrying capacity of existing urban infrastructure and the overall functionality of metropolitan systems starts to degrade through under maintenance, lack of expansion, and capital starvation.

The cost the national economy to construct the infrastructure package of housing, schools, water, schools, medical care, etc. that needed by a typical family of 5 members to establish themselves with in the different development zones - from the deep rural through to the urban industrial - needs to be objectively researched, reported, and publicly debated. It is the thesis of this paper that the national economy of South Africa simply cannot afford to pay the much greater per capita and per family cost to create a total infrastructure and employment package in the urban industrial and peri-urban zones. The present brave efforts of the new government to create all the new First World standard infrastructure needed to accommodate the recent migrants to the cities and their fringes is – in our view – doomed to failure. The effort will surely bankrupt the central government during the coming decade.

The small town and peri-rural zones of development - in sharp contrast with the much higher costs of urban and peri-urban development - appears to offer the state and aspiring families a better opportunity to construct 'appropriate' infrastructure and create jobs within the limitations of a severely constrained capital development budget. Small town and peri-rural zones of development have the advantage of being able to make use of both outward (modernizing) and backward (traditionalizing) linkages and adaptations and thereby to combine the strengths of both the land based subsistence and commodity production economic systems. The 'synergistic' or value adding combination of rural and urban economic systems within an intermediate Enclave Economy allows planners and entrepreneurs to radically reduce the capital and recurrent costs of infrastructure and employment creation while at the same time promoting the selling of products and services on favourable terms into the high price metropolitan markets. The proposed small town/peri-rural centered Enclave Strategy - instead of entering the metropolitan economic zone at a disadvantage - opens up a new development frontier where producers and consumers are in fact advantaged because of the radically lower costs of all forms of development.

**Each development Rand spent in the small town/peri-rural zone of development stimulates the construction of more infrastructure and the creation of more jobs than that same Rand spent in the urban industrial and peri-urban Enclave Economy** (see Ted Turner, **Developed to Death**, for a

description of how the global system gradually undermines and destroys the capacity of rural communities to maintain their own standards and to continue to create value and employment within their own framework of production and consumption).

In Gunnar Myrdal's terms (for instance see his **Rich Lands and Poor Lands**), we are in search of how best to counteract the negative consequences of 'circular causation' which has caused an accelerating urbanization process to take place all over the developing world as subsistence and small town economies are destructively incorporated into regional, national and global systems of production and exchange. The deteriorating terms of exchange between rural Enclave Economies and urban Exclave Economies means that machine made products from the high technology economy become ever more expensive when compared to the market value of a basket of rural products, raw materials, and labour. The value of the products and services sold by the rural Enclave Economy into the Exclave steadily weaken and the value of Exclave product and services steadily become more and more expensive. The low technology, land and labour based rural and peri-rural economies end up exporting labour in a futile attempt to recover enough cash income from the Exclave Economy to import all the new products which are not produced locally.

The proposed Enclave Development Strategy seeks to capture and make use of two economic trends to equalize the relationship between the Enclave and Exclave Economies:

- (i.) the growing 'back pressure' exerted by refugees from stagnant rural communities who find it more difficult to penetrate into the urban and peri-urban zones because the rate of influx is absolutely exceeding the financial and organizational capacity of the First World industrial system to absorb the new comers (the Calcutta Effect), and
- (ii.) the comparative advantages of rural areas and small towns due to the radically lower costs of labour, land, and raw materials which makes it possible to build infrastructure, create new jobs, and produce many products and services at much lower unit costs than is the case in the urban industrial and peri –urban zones of development.

In order to exploit the latent comparative advantages of small Enclave Economies in the South African setting, it is necessary for the partisans of '*bottom up*' development to collect and access sufficient low interest investment capital to finance the step by step re-inflation of the presently largely collapsed little Enclave Economies of the country.

Since we are entering the new and unknown domain of the post Urban Industrial Economy, it is necessary to make haste slowly and to learn from responsible hands-on experiments about what works and what fails in the South African context. As in all things, 'praxis makes perfect'. The demonstration, critical assessment, and the publicizing of successful rural and peri-rural Enclave Economies will give politicians, government officials, professionals, private sector managers, the unions, foreign donors, overseas and South African investors, NGOs, and anybody else with eyes to see living examples of the higher returns and benefits delivered by investments in small scale Enclave development compared to comparable investment in large scale Exclave development. The people and their political leaders will become responsible for deciding how the scarce development budget is divided between urban industrial, peri-urban, small town, peri-rural and deep rural zones of development.

It is obvious that develop is needed in all of these zones. The political and economic challenge is to get the right mixture of investments so as to actively involve the residents of all zones in the efficient conversion of limited development resources into the greatest quantity and quality of development benefits. (see Leopold Kohr, **Overdeveloped Nations** and **Development without Aid**).

## 9. THE ESTIMATED SIZE OF THE STUTTERHEIM ENCLAVE ECONOMY EXPANDED TO PROVIDE FULL EMPLOYMENT TO ALL WORK SEEKERS

If we assume a total population size of some 50 000 and a total of 10 000 families of 5 members each, then we will need approximately 15 000 employment opportunities to achieve full employment within the Stutterheim Enclave. If we further define full employment as 1.5 employment opportunities per family, then we will need to create and/or discover 15 000 jobs and self-employment opportunities within both the Enclave and Exclave Economies.

Any long terms strategy committed to achieving full employment and equity (FEED Strategy) within the Stutterheim Enclave will need to create a full spectrum of income generating opportunities such as the following (in Rands):

Per Month	Annual Income	No's of Income Generation Ops	Total Income
400-600	6 000	2 500	12 500 000
600-800	8 400	4 000	31 500 000
800-1200	12 000	3 000	42 000 000
1200-1600	16 800	2 500	50 400 000
1600-2400	24 000	2 000	48 000 000
2400-4000	38 400	1 000	38 400 000
4000-8000	72 000	750	54 000 000
8000-16000	144 000	250	36 000 000
<b>Totals</b>		<b>15 000</b>	<b>312 800 000</b>

Average income per job opportunity:  $R312\ 800\ 000 / 15\ 000 = R20\ 853$

The size of the total projected income of a full employment Stutterheim Enclave Economy – under the above assumptions about population, number of families and required employment opportunities – comes to R312 800 000 from all sources: jobs, pensions, self-employment, sale of products, piece jobs, etc. The actual incomes, number of families, family sizes, etc. all need to be empirically determined before we can get a starting point for the Stutterheim full employment model. The estimated average income per employment opportunity comes to +/- R21 000.

With an estimated total population of 50 000 inside the Stutterheim Enclave, the per capita income comes to only R6 256 which is well below the estimated per capita income for the national economy of +/- R12 000 in 2001. The PCI of the proposed full employment Stutterheim Enclave Economy is +/- 50% of the national PCI. On the surface, it would appear that the members of the Stutterheim Enclave are 50% poorer than the average participant in the larger Exclave Economy and that it is in the best economic interest to migrate as quickly as possible into one metropolitan centers.

## 10. ESTIMATING THE POTENTIAL REDUCTIONS IN COST OF LIVING LIKELY TO BE ACHIEVED BY THE STUTTERHEIM ENCLAVE ECONOMY

If members of the Stutterheim Enclave Economy are to achieve parity with the national Exclave Economy, how do they compensate for the +/- R6 000 per capita difference between their internal PCI of R6 250 and the national PCI of +/- R12 000? How is it possible for Stutterheim residents to enjoy a comparable or a higher standard of living on an Enclave PCI that is R6 000 lower than the national PCI?

Let us take another approach to understand and resolve the apparent lower cash income of people residing and working in the Stutterheim Enclave Economy. It is argued here that the higher cash income of residents of urban and peri-urban communities is only an apparent disadvantage. We will show that the Stutterheim resident in fact enjoys a real standard of living that is equivalent to, if not higher, than the national standard of living which averages the incomes of a few very wealthy families with a large number of very poor families to create a false average.

Scott and Helen Nearing in their back-to-the-land classic, **Living the Good Life**, show by their life long example that it is possible for modern Americans to drastically reduce their cost of living by 'homesteading' on a small holding in a deep rural area in the state of Maine (USA). By living on their own rural small holding they have a big enough land base to meet most of their food, water, housing, energy, medicines, recreation, etc. requirements using their own 'bread labour'. Using the same knowledge and technologies used by the settlers from Europe of the last two hundred years they have created their own life support system. With a modest investment in land, housing, and simple, hand powered tools and equipment they report that they can meet their own basic needs for shelter, energy, food, and water by working on average three hours a day.

The same point was made by Ivan Illich in his study of the cost/benefit performance of the US transportation system based on privately owned automobiles and publicly financed roads (**Energy and Equity**). Illich discovered that the owner of an automobile could save money if they sold their automobile and walked, if walking is valued at the going minimum wage. Therefore, the amount spent annually by the average American to own and operate their automobile is more than enough to pay them at the minimum wage to walk everywhere they presently travel by private transport and still save money. If the cost of the federally financed network of four lane highways, the human and medical costs of carnage on the highways, the huge capital investment in oil exploration, extraction, and refining, the cost of cleaning up the air of US cities so that it is fit to breathe, etc. are all added into the cost of private transportation then - according to Illich - as much as 20% of the total US economy is tied up with the automotive economy.

The point being made in this section of the paper is simply that not all expenditure is an indication of wealth. Does it make sense to add both the economic activity to produce sugar and sweets on the one hand and the cost of having dental carries filled by a dentist on the other as two separate contributions to the GNP of a country, or should the cost of the dentist, like the health costs of smoking, be subtracted from the benefits of producing sugar and sweets and tobacco and cigarettes?

It is important to pay attention to the higher costs of living which a family of 5 would have to pay if they lived in Mdantsane or Soweto rather than in a peri-rural community outside of Stutterheim. There is an in kind/self-help economy operating in all of the deep and peri-rural areas of South Africa which is invariably undervalued by urban biased First World economists for whom money mediated exchanges are more real than in kind exchanges of services and subsistence benefits like gathered greens from the veldt and firewood from the forests. In the case of the Stutterheim Enclave, we are interested in is knowing the size of the potential cash 'savings' available to an average family of 5 members residing for 12 month in a peri-rural community in the Stutterheim area with free access to land and water:

1. Self Help Savings on Basic Needs (the **Subsistence & Self Help Benefits**):

	Month	Annual
Reduced transport costs (walking, bicycling, public transport)	200	2 400
Home grown foods (including large & small livestock and livestock products)	400	4 800
Reduced energy costs (heating and cooking using wood and charcoal)	75	900
Appropriate standard low cost housing (core units incrementally expanded)	150	1 800
Reduced water supply cost	25	300
Sundry – foods, building materials, and free benefits harvested from the environment	150	1 800
<b>Total</b>	<b>1 000</b>	<b>12 000</b>

**R12 000**

2.) Enclave Discount:

By encouraging people to purchase more locally produced goods and services, the bona fide Enclave residents should be given a discount on all purchases equal to VAT plus – say 5%, or 20%. Thereafter, if each resident spends a minimum of 80% of his or her R6 250 PCI inside the Stutt Enclave, then we get the following savings:  
 $R6\ 250 \times .80 = R5\ 000$  x .20 (Stutt discount) = R1 000 x 5 family members = R5 000

**R5 000**

3.) Repair and Recycling Benefit:

By deliberately promoting and rewarding a wide range of public and private initiatives aimed at repairing and recycling used goods and equipment (vehicles, lawn mowers, kitchen appliances, sewing machines, bicycles, furniture, buildings, etc.) the Stutt Enclave could provide its residents with an across the board 10% reduction in the Enclave cost of living:  $R6\ 250 \times .80 = R5\ 000$  x .10 (savings thru recycling) = R500 x 5 family members = R2 500

**R2 500**

4. Local Tax Reductions:

There would be a further savings on local taxes of +/- 10% on the R5 000 = R500 x 5 family members = R2 500; these savings would be through voluntary work performed by the teenage youth of the Stutt Enclave which reduces the tax burden of rate payers

**R2 500**

5. Reduced Cost of Capital Investment in Appropriate Scale Employment Creation:

It is also reasonable to propose that the local banks, credit unions and/or publicly funded employment creation schemes will provide loans to employment-intensive enterprises and to self-employed producers and business men and women; the savings on technology and plant by using lower tech production systems and the preferential interest rates given to Stutt based enterprises will produce a savings equivalent to 15% of R5 000 = R750 x 5 family members = R3 750

**R3 750**

6. Estimated Value of combined Savings Gained by a Family of 5 Members Living and Working in the Stutterheim Town and Peri-Rural Enclave:

**R25 750**

**11. SCHEMATIC ORGANIZATION OF EMPLOYMENT WITHIN THE STUTTERHEIM ENCLAVE ECONOMY**

If 80% of the R313 000 000 income earned by all the working members of the Stutterheim Enclave Economy is spent in purchasing internally produced and/or sold good and services, then a total of 20% of that amount or R62 000 000 will have to be earned by residents who work out of the Enclave or through the sale of products and services into the Exclave Economy. The following breakdown between the major different components of the Stutterheim Enclave can be postulated as a possible distribution of the internal work force between different occupations:

	% Employed	Number Employed
1.) farming/dairying/horticulture/livestock rearing and food production: milk, cheese, butter, cooking, oil, broilers, eggs production, cattle, pigs, fruit, nuts, veggies, canning and preserving (drying), fish farming, milling, fodder and feed production, feed mixing, baking, pickling, slaughtering, herding, bee keeping, tree & plant nurseries, etc.	20%	3 000
2.) local commerce, banking, professional services, farmers markets, merchandizing, spaza shops, hypermarkets, etc	7.5%	1 125
3.) clothing, leather products, spinning, weaving, dyeing, ceramics, wood working, sewing, etc.	5%	750
4.) forestry, saw milling, finished products: wood furniture, doors & windows, flooring, prefab housing, cabinets, boats, toys, resins, charcoal making, firewood cutting and selling	10%	1 500
5.) public services and government: teachers, nurses, police,	10%	1 500

maintenance of public works, telephone, electricity, water, etc.; renewable energy utility; garbage collection and recycling, local infrastructure construction and maintenance, etc.		
6.) transportation services (taxis, buses), filling stations, vehicle servicing and repair,	5%	750
7.) domestic services, child care, garden services	7.5%	1 125
8.) small scale manufacturing, cottage industries and craft production, metal working engineering services, equipment repair, house construction, building material fabrication (bricks and blocks), recycling, painting, computer services, etc.	10%	1 500
9.) commuters and migrants working permanently outside the Sutt Enclave but with their families resident inside the Enclave	20%	3 000
10.) production and services for 'export': specialty products from all sectors targeted for export; tourism; old age homes; schools;	5%	750
	100%	15 000

## 12. RECOMMENDED PRACTICAL STEPS TO START THE 'VIRTUOUS CYCLE' OF ENCLAVE DEVELOPMENT

1.) years ago Peter van Dresser in **Landscape for Humans** and Ian McHarg in **Design with Nature**, and much later Bill Mollison in his **Permaculture** volumes (particularly the **Designer's Manual**) have given practical examples and methodologies of how to objectively analyze local environments and patterns to identify environmental advantages and disadvantages, prioritize development options in relation to resource endowments and local, national, and world markets, and integrate these assessments into complex development strategies which respect both socio-cultural preferences and environmental imperatives. In the end these **overlay models make it possible to objectively score and prioritize different, often competing uses of the same land so as to optimize an integrated socio-economic development strategy involving a particular cultural community on relation to a particular natural environment within a larger regional and national socio-economic context.**

The methodology is essentially a process of superimposing alternative land use mappings on top of each other to allow planners and politicians to discover the land uses which maximize the greatest number of objectives. Applying these mapping techniques to the Stutterheim Enclave will encourage public and therefore democratic review of alternative uses of municipal and privately held land to allow the majority of the citizens to participate in the design and execution of a systematic and long term process of revitalizing the town and its peri-rural satellites.

2.) Mahatma Gandhi was one of the main originators of the **appropriate technology critique of the inefficient, humanly alienating and environmentally destructive nature of the Euro-American system of urban centered mass production and consumption. Gandhi was scathingly critical of what he perceived to be the inherently totalitarian, dehumanizing, and impoverishing nature of the Western factory system when combined with the impersonal market.** He observed that the urban market together with the Western factory morally delinked producers from consumers, the owners from the workers, the governors from the governed so that in the end none of these agents were morally accountable to each other for the positive and negative consequences of their individual and collective actions.

Gandhi coined the popular slogan that what is needed is “**production by the masses not mass production**”. In honour of Gandhi’s commitment to stabilize, strengthen, and protect the capacity of India’s 1 000 000 villages to produce a major part of their basic requirements from the land and the skill and labour of their members, Nehru and the first government of the new India created the Khadi Village Industries Commission with the mission of sustaining the millions of small craft producers. Through legislation and government regulations the KVIC reserved several hundred products – including a broad range of items such as cement, molasses, cloth, shoes, matches, soap, crushed stone, vegetable oil, ceramic utensils, etc. – for ‘craft’ production by village artisans using both traditional and modern forms of labour intensive fabrication. The objective of KVIC was for the government of Indian to structure the market into urban and village domains.

In theory the KVIC would be able to prevent capital intensive factories in the cities, using expensive equipment, lowly paid workers and new synthetic materials such as molded plastics, from invading village economies, under selling village sandal makers and forcing them into unemployment and poverty. In practice the KVIC has discovered that it is impossible to insulate the village economy and its human scale industries from the urban factory system. Normally the prices of mass produced products are significantly less than the handmade craft products. Today in most of rural India, the lower priced sandals made of extruded plastic have replaced buffalo hide sandals made by village cobblers resulting in the loss of self-employment by hundreds of thousands of sandal makers.

In the case of India, the future of +/- 1 000 000 village sandal makers has been decided by the national level decision to permit extruded plastic sandals to come into the market. The benefit to the public of lower priced sandals must be weighed against the heavy costs to be borne by the community, national economy and the government of 1 000 000 unemployed sandal makers.

In the Stutterheim context, the potential value of the KVIC approach needs to be carefully studied and adapted to South African and Eastern Cape conditions. **It may be possible for the municipal and provincial governments to reserve certain types of services and products for locally companies and self-employed artisans. By instituting a preference for companies and artisans within the Enclave, it will be legally possible to ensure that tax revenues are used to stimulate the internal economy.**

- 3.) A **campaign to buy local products and services** should be aggressively promoted and institutionalized. Perhaps the Stutterheim Enclave should develop its **own brands and packaging** to assist in competing with produce and products ‘imported’ from the national and international zones.
- 4.) Marketing Institutions like a **Small Farmers Market** need to be established, either privately or by local government, which **aggregates the small and odd lot produce for many small farmers for sale** to the public, local hypermarkets, and to large outside buyers.
- 5.) An aggressive **global search** needs to be financed and sustained – if need be – over a period of years **to find proven appropriate technology products and systems of production** from anywhere on the planet which are capable of cost

effectively converting the human and natural resources of the Stutterheim Enclave into products of acceptable quality and price for both internal sale and for export outside the Enclave.

- 6.) A **system of fair taxation** of the members and enterprises operating within the Stutterheim Enclave is needed **to generate locally controlled 'seed capital' for financing the startup of new 'knowledge based' enterprises.** This seed capital is potentially very powerful. It can be used **to attract matching funds from both private venture capitalists and the provincial/national public sector sources to help pay for the adaptation and/or innovation of products and production processes that uniquely suit the Stutterheim Enclave and/or the South African Exclave market.** If the right products and technologies are identified for the Stutterheim Enclave, it will be possible to convert knowledge drawn from the world knowledge base into 'knowledge industries' and 'knowledge products' that will generate an expanding stream of revenue for local entrepreneurs and companies.
- 7.) **Local, that is Enclave wide, banking and/or credit union institutions are needed that will reinvest all the savings of Enclave residents in the further development of the individuals and communities actually generating the savings** (no more export of savings from rural communities to finance the further concentration of wealth and power in urban industrial centers).
- 8.) Further expansion of the conventional dense township pattern of settlement must be vigorously resisted by the municipal leaders and the residents of the Stutterheim Enclave. It should be replaced with a **wide range of different land use settlement patterns. The following different kinds of residential land use patterns should be considered and made available to the citizens of the Enclave: (i.) small retirement garden flats with common walls; (ii.) 1 000 meter square family plots which will permit serious gardening; (iii.) up to 2 500 meter square production homesteads; (iv.) 1 to 5 hectare small holdings.** Land is not a scarce commodity in rural, peri-rural, and small town South Africa, nor is it very costly once a new settlement is situated a few kilometers outside of already established small communities or townships.
- 9.) The population of the small town/peri-rural Enclave should be **organized into nucleated 'complete' small communities of about 1 000 households each with close by gardens, open spaces, schools, small industry complexes, commercial areas, bus ranks, libraries, crèches, community centers, woodlots, sports grounds, agricultural and grazing lands, etc.** Thus, the Stutterheim Enclave would gradually grow into about 8 to 12 of these small Agro-Enterprise Settlements. Each of these semi-autonomous settlements would function as a self-governing political body. They would elect their own community council which in turn would elect representatives to serve on the Stutterheim Enclave Council.
- 10.) **An independent Enclave Economic Development Corporation needs to be formed that will take responsibility for ensuring that scarce internal savings from within the Enclave together with externally raised development capital will be invested within the Enclave so as to maximize the internal creation of new real personal and community wealth.** Real

wealth generates significantly higher benefits at a far lower cost on a continuous basis than pseudo wealth which is very temporary. Pseudo-wealth has to be earned over and over again because it does not last, or because the society is not in the correct relationship to its accumulated store of capital goods and assets. For example, there are plenty of machines and power hand tools in the Enclave, but they are privately controlled in a way that does not allow them to be responsibly used by other members of the Enclave who do not personally own such tools and machines. The technology exists but there are no functioning institutions where by this technology can be optimally used by the other members of the Enclave (the 'more for less' criteria of societal efficiency)

### **13. CONCLUSIONS; COMPLEMENTARITY BETWEEN THE URBAN INDUSTRIAL EXCLAVE AND THE SMALL TOWN/PERI-RURAL ENCLAVE**

The manifest revolution embodied in Fritz Schumacher's "**Small Is Beautiful**" insight has to do with the shift from fossil fuel powered urban industrialism, where raw power equaled wealth, to the postmodern quest for ecologically harmonious relations between mankind, the environment and the economy. The postmodern quest is informed by an awareness that an ecologically sustainable economy and society will have to be powered by renewable sources of energy.

An economy modeled after a factory on a mono-cropped field of maize is very different from an economy modeled after a rain forest or a managed **Permaculture** system. There is space in all ecologically stable and productive systems for much vertical and horizontal diversity. There must be what Robert Oppenheimer, the father of the A bomb and the Manhattan Project, liked to refer to as the **logic of 'complementarity' whereby differences in conflict are converted into higher orders of diversity within a more inclusive framework of coherence and unity.**

It is a well-known fact that the less densely occupied rural areas of the globe are favorably placed to harvest a variety of renewable resources to energize postmodern civilization (see C E Cook, **Solar Energy for Development: the unrecognized resource**, Transkei AT Unit 1983). The true environmental cost of the last 75 years of fossil fuel powered development and the blast off into mature urban industrialism is now becoming due for payment (see Paul Hawken, **The Next Economy; also, Natural Capitalism** by Hawken and the Lovins). As the true environmental and human costs of the high technology urban based development which has made Europe, the USA and Japan the dominant centers of civilization during the last 100 years are increasingly paid by all of us, we will no doubt quickly rediscover the manifold benefits of the small rural Enclave Economies of the planet such as Stutterheim.

The Stutterheim Enclave has the potential to become a postmodern economy that is designed from the beginning to be ecologically correct and therefore sustainable for millennia. The people of Stutterheim may even rediscover the cultural and economic verities that the Bushmen long ago understood and practiced in order to live in harmony with the African continent.

The small town/peri-rural Enclave must be so organized that every resident is more of a producer and a consumer. Every adult member of the Enclave must be enabled to make a positive contribution to the wellbeing of their family, community and the wider Enclave Economy. There can be no forced idleness and voluntary idleness should be highly

frowned upon as anti-social behavior which – if not corrected – leads inevitably to relationships of parasitical dependency between the workers and the loafing residents. Every human being has the obligation and the right to convert their knowledge, skills and labour into products and services of value and contributing as much as they can to the creation of a prosperous community.

It is necessary to discover the right internal linkages between producers, the environment, and consumers if we are going to invent and sustain a highly efficient, equitable, and prosperous Enclave Economy that achieves maximum output functions for a minimum of material and energy inputs. A successful Enclave Economy will become internally diversified and complexly integrated. Like a climax ecosystem, a well-developed Enclave Economy becomes rich in niche enterprises so that the outputs and wastes of one enterprise or activity become the valued inputs into secondary and tertiary enterprises. Eventually, in a mature and balanced Enclave Economy very little human effort, energy or material is externalized outside the boundaries of the Enclave Economy as waste.

Here is a small example of how a well-designed Enclave Economy cascades energy and resources through a series of strategically positioned enterprises. If a broiler house is constructed over a fish pond, then the dropping fall into the water and fertilize algae blooms which becomes a feedstock for raising fish. These fish can be harvested periodically, the wastes fed to the chickens as a protein supplement, and sold as another income generating output. The enriched effluent of the pond can be used to irrigate cabbages and other vegetables below the dam hence making use of the nitrogen content in the water from the chicken and fish wastes. The cabbages and vegetables can be harvested, as another income generating outcome, and waste leaves and stalks fed to rabbits and chickens as a supplement. The rabbit cages can be suspended over the chicken run so that their droppings become food for the broilers. The organic cycle is then complete. It begins with maize and other ingredients in the broiler feed, and these feedstock's are gradually processed through the digestive systems of chickens, fish, ducks, and rabbits on their way back to the broilers as biomass and rabbit droppings. The requirement for external carbohydrate energy from maize and other grains and proteins. The sun's energy powers the algae blooms in the pond and the photosynthesis in the gardens. (In passing it is worth noting that research in Israel with using manure for a feeder cattle operation as feed in fish ponds indicates that the manure of cattle when it is used to fertilize algae blooms – energized by solar energy - recovers the original nutritional value of the maize and other crops originally feed to the cattle.) (See Amory Lovins, **The Soft Energy Path**, for a more formal analysis of the energy economics of sustainability and organic systems powered by renewable energies)

**What the designers, architects and builders of Enclave Economies are searching for are the synergistic analogues of complex ecological communities which can be used to help in reconceptualizing a correct pattern of linkages and de-linkages between the Enclave and Exclave Economies. The aim of the search is to discover which pattern of linkages and delinkages lead to the revitalization of small town and peri-rural Enclave Economies, and which patterns lead to toward 'destructive integrative' into the Exclave Economy.** Once an Enclave Economy has become strong enough to stand on its own feet again will it be possible to institutionalize healthy and mutually advantageous relations of complementarity between itself and the regional, national and global Exclave Economy.

It is becoming increasingly apparent to many different observers that the New World Order of global institutions and interchanges cannot achieve its promise of work, prosperity and peace for all human beings until the tens of thousands of constituent Enclave Economies have themselves become independent and productive centers of wealth creation in their own right and therefore contribute (rather than dependently consume) value to a complex and diversified world economic system. The destructive collapse of the Enclave Economies of the planet inevitably leads, in this observers judgment, toward overly standardized, typically tyrannically, and unsustainably centralized, and therefore unstable 'mega-politan' systems of politics and economics. The hyper-politicized and corrupt 'mega-politan' states and economies emerging during this awkward transitional moment in the transition to healthy and diversified global institutions, are not able to pass the tests of long term human and environmental viability.

If the present Megapolitan Strategy is doomed to failure, then the alternative, bottom up strategy leading to a planetary economy composed of largely independent Enclave Economies increasingly looks like an opportunity we cannot refuse to explore. What is clear to all explorers of new societal and economy systems is that the future must be created by pioneering possible futures and assessing the positive and negative aspects experiment. We gain the power to create a better future for ourselves by carefully assessing our bold efforts to experimentally create prototypes of a society in which everyone has meaningful work, there is a sufficient degree of economic justice, and every member of the community has an equal opportunity to realize their human potential.

The politicians, government officials, businessmen and women, farmers, the professionals, the civic organizations, the youth, special interest groups, etc. are challenged to commit themselves to the struggle to invent a dynamic Enclave Economy in which there is work for all. If the different constituencies of the Enclave are willing and able to trust each other and search together for the pattern of internal linkages and external delinkages that lead to the revitalization of the Stutterheim Enclave, there is every reason to be optimistic about the future. If the different constituencies making up the town are unable to give more force to their integration within the Enclave than they give to their linkages with the Exclave Economy, then the future of Stutterheim looks very troubled, even dark.