

Naturenomics™ - A Differentiated Approach to Nature Driven Economic Development **DIPAK KRIPALANI, gms**

Over the past 50 years, we have witnessed unprecedented growth of the global economy, international trade and investment. The global economy has expanded seven-fold since 1950, from US\$ 7 trillion of products and services, to an estimated US\$ 69 trillion in 2007 (based on purchasing power parity). This has truly been definition of victory for economists by any measure.

However, this economic gain has often come at the cost of ecological losses by pushing the demand on local eco-systems beyond sustainable yield. The outcomes have been devastating:

- Shrinking Forests
- Collapsing Fisheries
- Soil Degeneration
- Falling Ground Water Levels
- Rising Sea Levels
- Climatic Changes
- Disappearing Species
- Dry Rivers and Rivers Changing their Courses
- Water Scarcity, etc

Naturenomics™ - A Differentiated Approach

The current model of economic development forces us to make a choice between development and sustaining natural resources. However, we believe that this needn't be a choice, and in fact we can have economic development through sustaining our natural resources. This is the spirit within which we conceptualized Naturenomics™.

Naturenomics™ relates to capital formation for a region or organisation through the creation of ecologically 'compliant' assets in a sustainable manner.

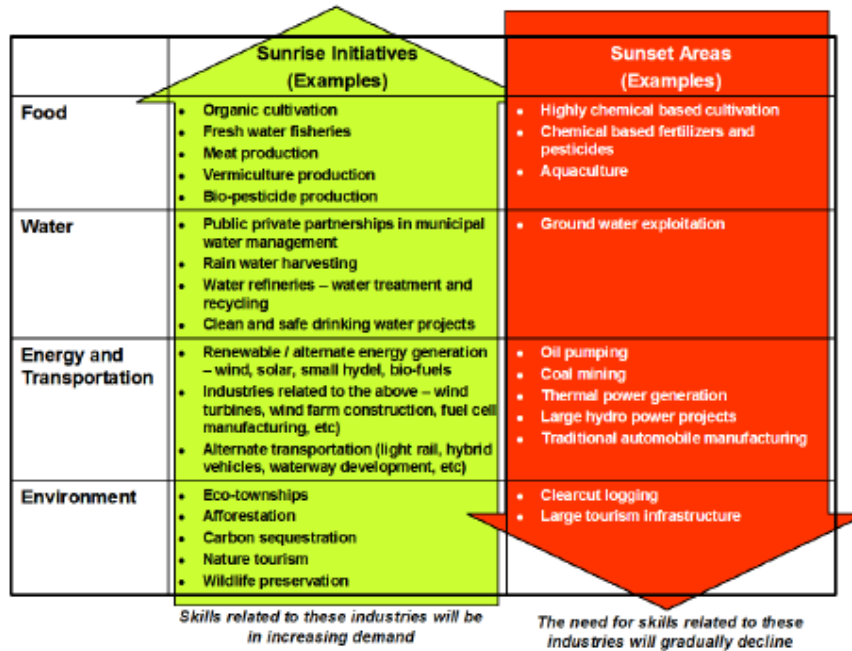
Naturenomics™ aims at adjusting the balance of power by displacing economics at the heart of all activity, and replacing it with nature assets as the soul of all activity.

A Naturenomics™ based economy attempts to secure 4 key natural assets - food, water, energy and environment. Hence practically, this means deriving our food and water needs through effective land and water resource management and not by exploiting these resources, by satisfying our energy needs through hydrogen and solar based fuels rather than carbon based fuels, and satisfying our ever increasing appetite for materials by increasing reuse and recycling and not by increasing extraction.

Migrating to a Naturenomics™ Based Economy

A Naturenomics™ based economy will drive the growth of certain industries, and skills related to these industries will be in increasing demand. Industries like fish farming, biopesticides and bio-fertilizers, organic cultivation, etc will ensure our food security, and industries like hydrogen generation, fuel cells, wind turbines, etc will ensure our energy security. Industries not consistent with the principles of Naturenomics™ will face declining importance.

For it to be successful, a Naturenomics™ based economy needs to be designed and implemented keeping in mind consumer tastes, preferences, economics and requirements.



The performance of an economy or organisation is currently judged by its ability to achieve growth through optimal and profitable utilisation of its assets - land, labour, capital and natural resources - this value is then reflected in its GDP or market capitalisation. We believe that the true performance of an economy or organisation should be based on its economic value and the value of the ecological decline it has impacted. Unfortunately, in many cases, if we do such a valuation, many countries and organisations will show significant value depletion rather than value creation. Naturenomics™ also aims at developing a framework for valuing nature assets of an economy or organisation, and to develop a scorecard of performance based on nature based indicators. This can then be mapped with the economic indicators to get a true picture of value creation or depletion.

Unlocking Naturenomics™

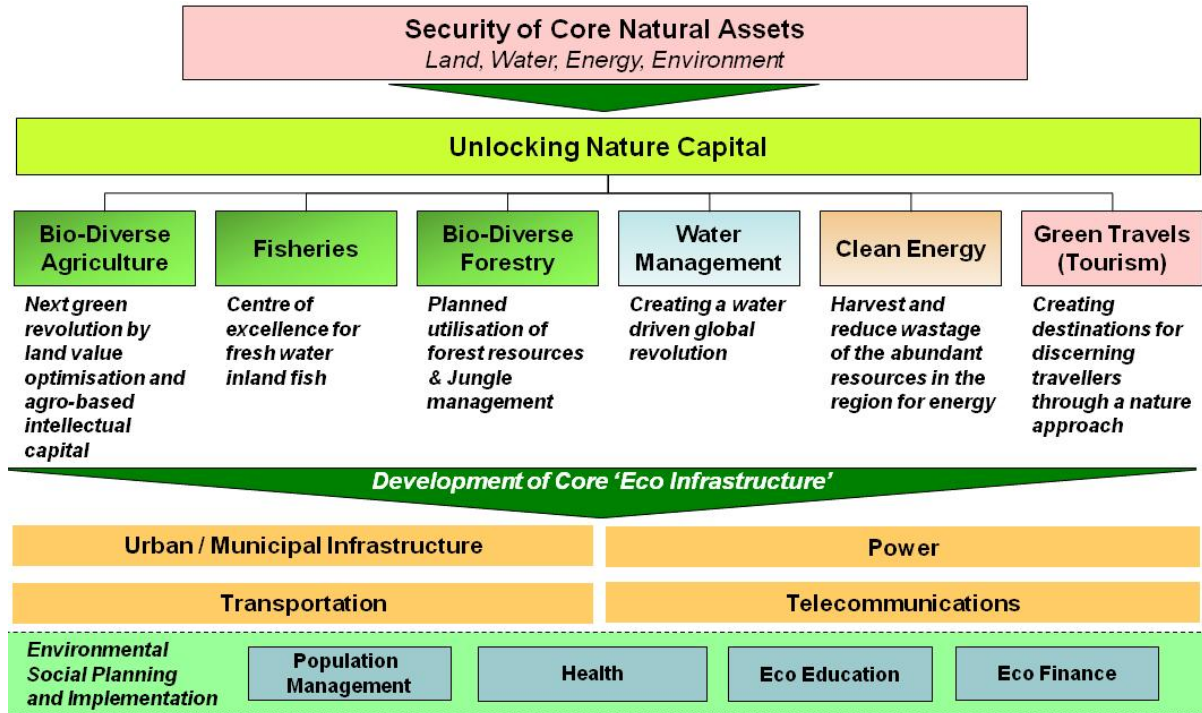
Successful securitization of core natural assets (food, water, energy and environment) would result in the creation of nature capital, which will fuel the growth of the economy. Nature capital can be created through:

- Agriculture - creating the next green revolution by optimising the economic value add of land, and developing agro-based intellectual capital
- Fishery - centre of excellence for fresh water inland fish
- Forestry - planned utilisation of resources
- Water management - creating a water driven revolution
- Clean energy - harvest and reduce wastage of the abundant resources in the region for energy
- Tourism - creating destination for discerning travellers through a 3-pronged nature driven approach

Each of these industries will support symbiotic industries which will create the multiplier effect in the regional economy. Investment in nature capital is critical to restore, sustain and expand the ecosystem.

In addition, to support these verticals, investments would need to be made in infrastructure, both hard infrastructure (urban / municipal infrastructure, power, transportation, telecommunications), and social infrastructure (population planning, health, education).

A differentiated approach to economic development by unlocking nature capital



A Monumental Task - but not Impossible

Having defined what would comprise a Naturenomics™ based economy, and how nature capital can be unlocked, we need to be cognizant that there is no precedent for transforming an economy shaped largely by market forces into one shaped by the principles of ecology. What we know is that there are some imperatives that are required to migrate towards this approach:

- Requires rapid systemic change - isolated projects will have limited impact
- Stabilising population is a key imperative to migrate to an ecology based economy - global population has increased from 1.6 billion in 1900 to about 6.67 billion (estimated) in 2007. Increasing population results in increasing demand for, pressure on, and imbalance in our scarce natural assets
- Multiple constituencies need to get involved - there is no single government or organization that can carry this through on its own
- Tools need to be developed and used for restructuring the economy - fiscal policies will play a key role in this

However, glimpses of Naturenomics™ based approaches are now emerging in some regions and countries:

- Over 30 countries in Europe have stabilised their population size - population stabilised within their food producing capacity
- China, the world's most populous nation, has dramatically lowered its fertility rate - lower fertility rate than the US
- Denmark is the emerging leader - population stabilised, banned construction of coalfired power plants, banned use of non-refillable beverage containers, over 15% of its energy comes from wind power, restructured its urban transport network, etc

The time to act is now, before we run short of food, water, energy and the environment for our planet's estimated 9-10 billion citizens in 2050.

The first step of awareness and realisation is well underway. Countries and organisations that move rapidly from realisation to action will emerge as the winners in this new ecologically driven world order.

Ecological Losses: Economic gain has often come at the cost of ecological losses by pushing the demand on local eco-systems beyond sustainable yield resulting into Shrinking forests, Soil degeneration,

Falling ground water levels, Rising sea levels, Climatic changes, Disappearing species, Water scarcity, and Food scarcity.

Growing Population: Stabilising population is a key imperative to migrate to an ecology based economy.

Capital Formation: Naturenomics™ relates to capital formation for a region or organisation through the creation of ecologically 'compliant' assets in a sustainable manner.

Re-Centre Natural Assets: Naturenomics™ aims at adjusting the balance of power by displacing economics at the heart of all activity, and replacing it with nature assets as the soul of all activity.

Unlocking Naturenomics™: By transforming an economy shaped largely by market forces into one shaped by the principles of ecology.

Future: Industries not consistent with the principles of Naturenomics™ will face declining importance. Framework for valuing nature assets and a scorecard of performance based on nature indicators.

Securing Natural Assets: Successful securitization of core natural assets (food, water, energy and environment) would result in the creation of nature capital, which will fuel the growth of the economy.