

Restoring Balance between Nature and Economics – Developing “Eco-Balance” strategies Samir Menon

Natural Balance has been upset

The Earth's natural ecological balance has been disturbed by human activity. Its sophisticated recycling mechanism for core assets (e.g. the Carbon Cycle and Water Cycle) is unable to cope with the disruption. They are no match for the rapid rate at which humans are moving carbon into the atmosphere by burning fossil fuels and industrialization and economic development are causing deforestation.

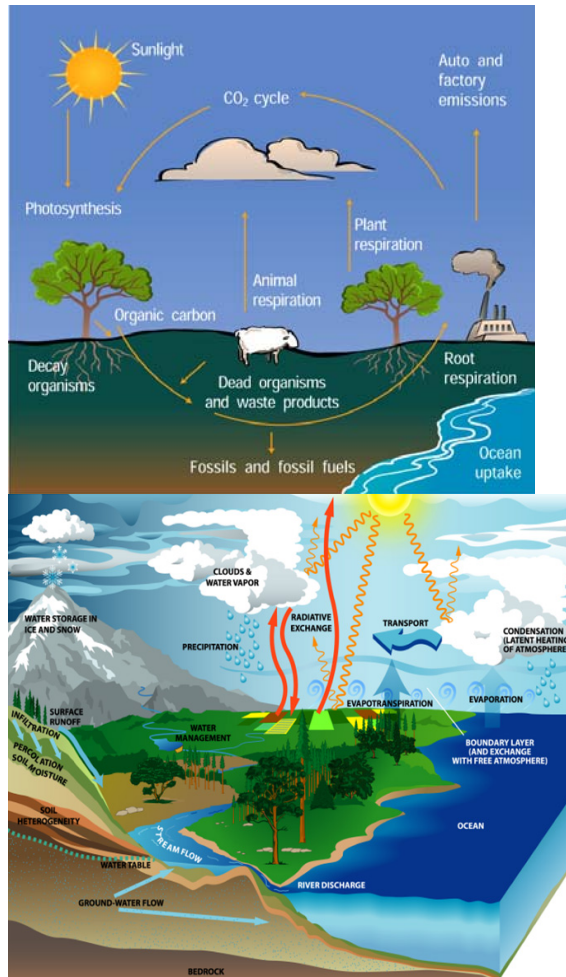


Figure 1: Maintaining Earth's Natural Balance - Carbon Cycle and Water Cycle

Nature had created a balancing mechanism for the carbon exchanges between the atmosphere and oceans (ocean uptake and release systems) and between the biosphere, landmass and the atmosphere (sedimentation, respiration and photosynthesis). However it has no mechanism to balance the carbon exchange due to fossil fuel burning – in fact there is no exchange, currently it is a one-way street. Furthermore the clearing and burning of forests upsets the current mechanism by converting organic carbon to carbon dioxide gas. This also impacts the water cycle by affecting a key means of water management and creating economic or physical water scarcity in certain regions.

The loss of balance has taken a heavy toll on Earth. It is creating a vicious cycle that threatens food and water resources, fragile ecosystems and bio-diversity and interestingly the socio-economic development plans that created the initial imbalance.

Restoring balance by addressing the conflict areas between economy and ecology

The path to economic development has typically been incongruent to the path of ecological preservation because of what Lester Brown calls the 'stressed relationship' between economy and ecology¹. It has been difficult to create a common path that embraced economic development and nature conservancy.

However a combination of technological advances and an increase in public awareness and responsibility of the ecological challenges have helped us develop an alternate approach to capital formation. The approach helps us address these conflict areas effectively and provides a means of economic development while sustaining natural assets and is called *Naturenomics*TM.

The current model of development forces us to make a choice between development and sustaining natural resources as the 'true value' of nature's capital is often not captured. *Naturenomics*TM allows us to create economic development and sustainable competitive strategies while retaining nature's resources.

Succeeding in the 'balanced' Brave New World

Using the principles of *Naturenomics*TM we believe we can help companies adapt and thrive in the new economic model by developing "*Eco Balance*" strategies. As the name suggests the focus is on restoring the natural balance. The industries that will thrive in this new model will be the ones that emphasize:

- Recycling and reuse rather than extraction
- Land and water management rather than exploitation
- Renewable energy source rather than fossil-based fuels

We also believe that current corporations will have to reposition themselves to be ready for this new economic model. And as companies like GE, BP and ITC are already showing, the earlier companies make this transition the more they (and nature) are likely to benefit.

The goal of "*Eco Balance*" strategies is to be able to engage in economic activities that create value and capital while sustaining natural resources. One approach to do this successfully is to focus on economic activities that help restore the natural carbon cycle and water cycle. As a result the components of developing an "*Eco Balance*" strategy typically involve the development of plans to restore the '*carbon-balance*' and '*water balance*'.

There are three key stages to the process of developing the strategy:

- **Audit impact of corporate activities on natural assets**
 - During most of the past century economic gains have been achieved at the expense of ecological losses. To help reverse this trend it is important to take an audit to estimate the impact current activities are having on natural assets
 - The output of this exercise is an emissions footprint for the organization as well as a water utilization profile. This allows us to identify areas where the corporation has a positive impact as well as where they may disrupt the natural cycles.
- **Formulate approach to create optimal "Eco Balance" strategy**
 - Develop mitigation actions to address disruptions to the cycle – e.g. reduction plan for emissions or identification of carbon offset opportunities to address potential emission imbalance.
 - Focus on high-impact areas for intervention to reduce emissions²:
 - *Energy utilization* – Minimize usage of coal by promoting alternatives or utilizing Carbon Capture and Storage (CCS)
 - *Industrial operations* – Improving efficiency on equipment and reducing emissions from largest emitters

- *Buildings* – Avoid “lock-in” of energy-intensive new building and appliances – focus on utilizing Design for Environment approaches
 - *Transportation* – Improve vehicle efficiency, decarbonizes fuels and encourage mass transit systems
 - *Forestry* – Promote incentives and mechanisms to compensate for avoided deforestation
 - Improve utilization of water and other natural resources and implement Design for Environment approach to minimize waste.
 - Invest in upgrading technology to make it more environmentally sustainable.
 - Take advantage of the positive impacts to natural cycle with clear monetization plan either under the Kyoto Protocol or EU ETS scheme.
 - Evaluate new ventures / offerings that leverage existing strengths to take advantage of the new economic model.
- **Create and execute roadmap to implement strategy in a sustainable manner**
 - Begin with pilot projects that are representative of the overall strategy – senior-level corporate support and strong change management skills are key requirements.
 - Develop systems and processes that provide regular reports highlighting deviations and suggesting corrective actions.
 - Communications strategy will be critical – both internally and externally – to highlight successes and capture feedback from the key constituents.
 - Do a capability assessment program and ensure that the team is adequately staffed and trained to deliver the strategy.

The figure below outlines activities of developing a “carbon balance” strategy.

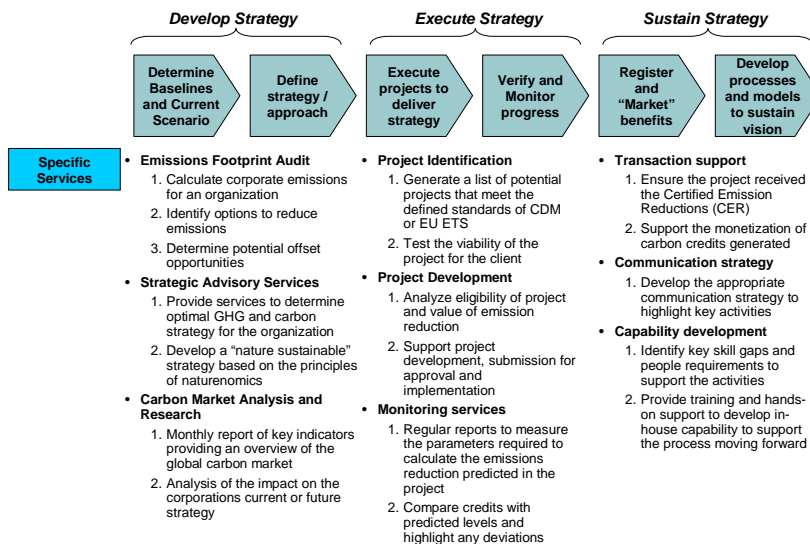
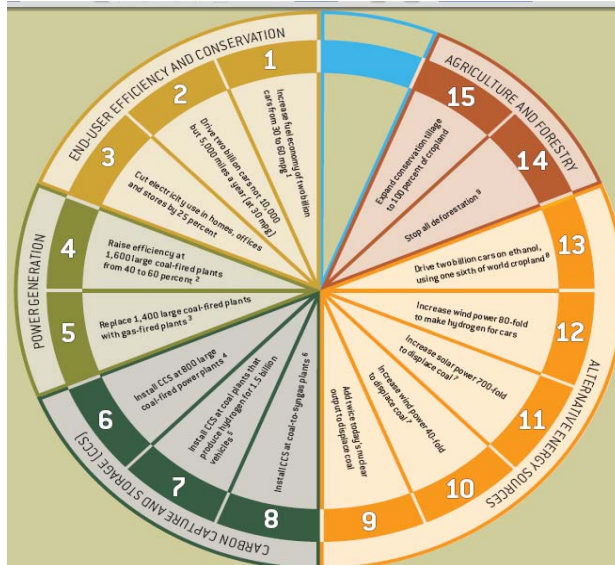


Figure 2: NatureFirst™ "Carbon Balance" Approach



Source : Robert Socolow and Stephen Pacala, *Scientific American*, September 2006

- Each wedge in the picture represents a reduction of 25 billion tons of carbon emissions phased over 50 years
- We need seven wedges like these to achieve stability and here are 15 technologies that can be applied currently
- Oil accounted for 43% of global carbon emissions from fossil fuels in 2002 – more than half was used for transport
- Some of methods identified need further analysis to ensure that the overall impact to the environment is beneficial e.g. nuclear power

Figure 3: Potential options for reduction of carbon emissions

The time to act is now

While the debate still rages about the precise cause and impact of these changes, the cost of inaction seems to get higher every year. As the recent *Design to Win Report* by California Environmental Associates shows a delay in action creates a "carbon lock-in" which may make future action ineffective or even futile. The task become tougher as the amount of emission reduction required increases and the share of mitigation that can be identified also falls.³

IPCC Fourth Assessment Report 2007

- "Warming of the climate system is unequivocal"
- "Most of the observed increase in temperatures since the mid-20th century is very likely due to the increase in anthropogenic greenhouse gas concentrations."
- **Predicts an increase in temperatures of between 1.8 to 6.4 degrees Celsius by 2100.**
- Climate Change is real, happening now and its impact will increase throughout this century.
- Developing countries will be worst hit.

Stern Review on the economics of climate change 2007

- **Climate change is expected to reduce GDP by at least 5% of each year**
 - if more dramatic predictions come to pass, the cost could be more than 20% of GDP.
- To stabilize at manageable levels, emissions would need to stabilize in the next 20 years and fall between 1% and 3% after that.
 - This would cost 1% of GDP
- The benefits of strong, early action considerably outweigh the costs.
 - Each tonne of CO2 we emit causes damages worth at least \$85, but emissions can be cut at a cost of less than \$25 a tonne.
- Shifting the world onto a low-carbon path could eventually benefit the economy by \$2.5 trillion a year.
- By 2050, markets for low-carbon technologies could be worth at least \$500bn.

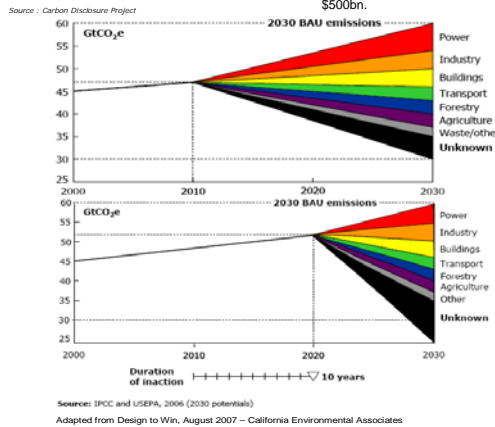


Figure 4: Key reports support need for immediate action **Figure 5: 2030 Emission reduction potential by sector**

And in all fairness, as we have helped create the problem, we owe it to our children to help develop the solution. It is true that ***“Economic deficits are what we borrow from each other; ecological deficits are what we take from future generations”***

With a view towards discovering solutions to address the imbalance between Nature and Economics, we have given birth to NatureFirst™

NatureFirstSM is an organization created to take a leading position in developing ventures that engage in economic activities and capital formation by utilizing natural assets in a sustainable manner. We follow the concepts of naturenomicsTM to help achieve these objectives. Our delivery mechanism is based on an eco-system of partnerships that help provide the specialists required to deliver these integrated ventures. We are well advanced in the process of developing this ecosystem.

There are two business models that we follow to deliver our products and services.

The first is our consulting services and expertise that is linked with our intention to be at the forefront of thought, action and implementation in the following areas:

- *The Clean Revolution or “carbon balance” strategies* – Focus on Clean and alternate energy options, reducing carbon emissions, Carbon capture and sequestration, forestry management, solid waste management and building environmental awareness and education
- *The Blue Revolution or “water balance” strategies* – Focus on Water positive strategies, Rain Water Harvesting, affluent recycling

We offer customized services that help corporations test their current strategies and develop new ventures that are consistent with the new evolving economy. These include:

- NatureFirstSM Natural Assets Impact (NAI) Audit – this allows us to create an emission footprint and a water utilization profile for the corporation to estimate their impact.
- NatureFirstSM Natural Assets Management (NAM) Plan – we develop a customized plan for the corporation to manage natural assets in a sustainable and beneficial manner and also create a Natural Assets Management System (NAMS) that allows the corporation to continue to monitor and intervene when required.
- We also help develop business cases and participate in new ventures with corporations by identifying opportunities in the naturenomicsTM space that leverage assets of the corporation.

Our second area of focus is our portfolio on Clean Energy and Clean Water technologies that we help commercialize in Asia with a current emphasis on India particularly in the North East. Some of the technologies in our portfolio include:

- Industrial and agricultural waste to bio-fuel
- Energy generation from “flowing water systems”
- Water purification technology using automated and industrial Copper Silver Ion Generators

NaturalGist

- *Natural Balance has been upset: The earth's natural balance has been disturbed by the frenetic pace of economic development. Unfortunately, unlike nature we have not developed effective recycling mechanisms that will balance our emissions and water utilization profiles.*
- *The loss of balance has taken a heavy toll on Earth. It is creating a vicious cycle that threatens food and water resources, fragile ecosystems and bio-diversity and interestingly the socio-economic development plans that created the initial imbalance.*
- *Under the NaturenomicsTM framework, the goal of "Eco Balance" strategies is to be able to engage in economic activities that create value and capital while sustaining natural resources. One approach to do this successfully is to focus on economic activities that help restore the natural carbon cycle and water cycle.*
- *There are three key stages to the process of developing the strategy: First - audit impact of corporate activities on natural assets, second - formulate approach to create optimal "Eco Balance" strategy and third - create and execute roadmap to implement strategy in a sustainable manner*
- *"Eco Balance" strategies allow us to develop actionable roadmaps to achieve these objectives. And as certain companies have shown already, the quicker you make the transition to this new model the more they (and nature) will benefit. Furthermore it is critical that we take action now before we are 'locked in' to technologies and designs that will become too expensive to change and retrofit.*