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About The International Journal On Green Growth And Development

The International Journal on Green Growth and Development is an effort to stir a debate around emerging 'green' concepts and development. The publication aims at building knowledge through stakeholder engagement on policy-relevant issues to understand the many facets of green growth and development. It is a step towards a forward-looking knowledge process for new opportunities linked with growth and sustainable development. The journal showcases new research through peer-reviewed articles, opinions, and innovative practices. The new journal builds on the previously published *Green Growth and Development Quarterly*.

The publication aims to cover the following topics:

- Mainstreaming environmental sustainability in development policy
- Financing green growth
- Fiscal policies
- Business and green growth
- Post-growth thinking
- Policies on global and local environment
- Sustainable development policy
- Sustainable consumption and production
- Natural resource management
- Integrated assessments
- Energy policy
- Engaging stakeholders

Editorial

Environment and sustainable development have been accorded paramount importance like never before. The seventeen Sustainable Development Goals and the Paris Climate Agreement bear testimony to the consensus on actions to address global and local environmental issues, following the principles of equity and climate justice. Major groups including government, civil society, and business have all contributed to the vision on sustainable development and addressing climate change. The *International Journal on Green Growth and Development* aims at building a body of knowledge relevant for policy and action to address issues around environmental sustainability and development.

The current issue of the journal features an interview with the Environment Minister of India, who shares his perspectives on the environment, forest, and climate change policy in India. An article on green grading attempts to develop a green index for grading sustainability actions of a company. The index captures thirty performance parameters, categorized into six vertical heads, namely green leadership, resource intensity, externalities, green measures, business value chain, and compliance and reporting. The Knowledge Showcase section highlights the activities of the International Research Network for Low Carbon Societies (LCS-RNet) and gives an overview of the position statement of the knowledge network, which was prepared for the Twenty First Conference of Parties (COP21) held in Paris in 2015. This issue's Book Review is on *Degrowth: A Vocabulary for a New Era*, a contribution to post-growth thinking. The de-growth movement emphasizes on actions and does not merely seek to deal with theory and counter tradition in the social sciences.

Green growth needs to evolve so as to consider a plurality of viewpoints as expressed in conceptions, such as creative economy, blue economy, sharing economy, repairing economy, de-growth, and post-growth thinking. It is only through the plurality and diversity of considerations that development communities move beyond short-term thinking and think radically.

We do hope you enjoy reading the contents of the current issue, and we would welcome comments and ideas that would help us improve on this modest effort in subsequent issues of the journal.

Editorial Team
The International Journal on Green Growth and Development

INTERVIEW

Prakash Javadekar on Vision for Environmental Sustainability in India

SHAILLY KEDIA[1]

Shailly Kedia speaks to Shri Prakash Javadekar, Hon'ble Minister of Environment, Forest and Climate Change, Government of India

TERI: Recently the Ministry of Environment, Forest and Climate Change recognized green growth and poverty eradication in the Ministry's vision. What is the thinking behind this?

Minister Javadekar: Our vision is to eradicate poverty in India, because poverty is a real problem which can be addressed through growth and development which has to be sustainable. Green growth implies environmental sustainability, more energy efficiency, reducing energy intensity, and decreasing emissions intensity. The growth process involves reducing emission, reducing energy consumption, and also creating more greens and creating new carbon stocks and therefore carbon sinks while growing in a balanced manner. Every growth will require some

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destruction, but the Ministry aims for growth without destruction or development without destruction, because this is possible in a sustainable way. We are not saying that we will not cut a single tree, but if we cut a tree we will grow five trees.

TERI: Environment sustainability cannot just remain in the purview of environment ministries. How do you think environmental sustainability can be mainstreamed into development processes and other ministries can play a more proactive role?

Minister Javadekar: There are initiatives for mainstreaming sustainability across the sectors. One can see adoption of sustainability in industries, by individuals, and other ministries. This is due to the new realization for finding ways to save energy, water, and how to utilize resources more efficiently and at the same time not pollute the environment. We have directed distilleries to go on zero liquid discharge and now the distilleries sectors is convinced, otherwise they were major polluters but they have come out of it. So that is the change India is bringing about. So with the new environmental regime, we are consulting stakeholders, ministries, and industries in different sectors as partners in progress, partners in sustainable development and it is not just the mandate of the environment ministry.

TERI: Knowledge co-production and sharing is an important means to facilitate adoption of good practices. What does the Ministry intend to do to facilitate knowledge sharing involving variety of stakeholders?

Minister Javadekar: As far as sharing of ideas is concerned, I am always with it because one has to share best practices and we are not hesitating anytime to learn best things from any part of the world, and from any agency, and from any individual or even from any organization. Knowledge adds up to experience which in turn adds up to your values and action for real global sustainable development and growth.

TERI: How is the Ministry engaging with civil society with regard to issues on environment sustainability?

Minister Javadekar: We are always taking citizens along and therefore, we have interacted with many thinktanks and non-governmental organizations who are working in the field of environment. We have also commissioned studies. We would like to take the civil society and citizens along as they are part of this evolving process. I value institutes like The Energy and Resources Institute (TERI) which are engaged in real research, development, and studies across the board. Ultimately solutions emerge out of passion, knowledge, science, and technology.

TERI: On global environmental issues such as climate change, how does India see itself playing a leadership role?

Minister Javadekar: India would like to play a proactive role in global discourse and encourage large networks such as the global solar alliance. Earlier the Ministry was known as the Ministry of Environment and Forests. The Prime Minister added 'climate change' to the name of the Ministry and the Ministry's name is now Ministry of Environment, Forest and Climate Change (since 2014). India has one of the world's largest renewable energy programmes where the government has set a target of 100 GW of solar power. In the climate change arena, we are also emphasizing on climate justice as well as lifestyles. In order to contribute to climate actions, we also need good technology and hence there is a need to overcome barriers such as intellectual property rights. In addition, a developing country like India also needs carbon space for sustainable development.

ARTICLE

Green Index: Grading Companies on Sustainability Initiatives

SAPAN THAPAR[1]

Abstract: *This article develops a comprehensive 'Green Index' to grade sustainability initiatives of a company. The index captures 30 performance parameters, categorized into six vertical heads, namely green leadership, resource intensity, externalities, green measures, business value chain, and compliance and reporting. As per the scoring methodology developed, a company can be rated into four grades: 'A': Environmentally Compliant; 'B': Environmentally Conscious; 'C': Environmentally Sensitive; and 'D': Environmentally Inert. The index can inform stakeholders about a company in terms of its green quotient and encourage sharing of good practices across the industries.*

Keywords: Green Business, Green Index, Green Rating, Business Sustainability Reporting

Introduction

The Report of the World Commission on Environment and Development—'Our Common Future'—defined 'sustainable development' as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987). The concept of sustainable development highlighted the idea of limitations imposed by current systems and processes. The growth of world population and production combined with unsustainable consumption patterns are increasingly impacting natural resources including the global commons such as the atmosphere and the oceans. The Living Plane Report 2014 shows that humanity currently needs the regenerative capacity of 1.5 Earths to provide the ecological goods and services each year (WWF 2014). Thus, humanity's demand on ecological resources is more than what can be replenished naturally.

The outcome document of the United Nations Conference on Sustainable Development—'The Future We Want'—highlighted the role of businesses in realizing green economy (UNCSD 2012). UNCSD also highlighted the importance of corporate social responsibility, responsible business practices, and corporate sustainability reporting.

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Governments and people across the globe have taken cognizance of the negative environmental externalities due to the resource intensive development which has led to environmental degradation. The international development discourse bears a testimony to the increasing importance of environmental sustainability and the role businesses and industry have been receiving. Agenda 21 of the United Nations with regard to sustainable development explicitly recognizes the role of business and industry as a major group.

It has been found that commercial establishments have been the major consumers of natural resources for pursuing their business operations, which when accompanied by waste generation, causes significant impact upon the environment. The concept of 'Business Sustainability' commonly referred to as the 'Triple Bottom Line' or the '3P' concept of 'People-Planet-Profit' has evolved in recent years (Elkington, J. 2004). Under the '3P' concept, a company can make its business sustainable by undertaking a holistic analysis of its business strategy and operations to ensure equitable returns to all stakeholders, i.e., society, environment, and the stockholders. Many large companies have established sustainability goals and targets, and it is becoming increasingly common for these goals to address significant environmental challenges like climate change.

In the book, *The Sustainability Advantage*, Bob Willard has highlighted seven business case benefits for adopting 'Triple Bottom Line', including increase in employee productivity, reduction in risks and expenses, and increased revenue and market share (Tschopp 2003).

A survey carried out by MIT Sloan highlights similar benefits for a company to undertake sustainability measures such as improved company image, cost savings, competitive advantage, employee satisfaction, risk management, and innovation (Berns *et al.* 2009). In response to consumer preferences, some companies are also taking steps to reduce the environmental impact of their products and services as well as their supply chains (Perera *et al.* 2013).

One of the important objectives of following the 'Sustainability Mantra' is reaching out to the stakeholders (including consumers, social organizations, and regulators) by showcasing the sustainability measures undertaken by an organization in the form of 'business sustainability reporting'. The United Nations Environment Programme defines 'Sustainability Reporting' as "the practice of measuring and disclosing sustainability information alongside, or integrated with, companies' existing reporting practices" (UNEP undated). These reports generally cover measurement, reporting, and evaluation of corporate sustainability practices and performance of a company. These are either submitted on a voluntary basis (on public forums), or on account of legal/ statutory requirements (reporting to the regulators).

The Carbon Disclosure Project and Global Reporting Initiative (GRI) Guidelines are the two main institutions involved in collecting and analysing sustainability reports submitted voluntarily by the companies. These initiatives collect data on

a large number of parameters from companies across the world and share them across public platforms.

In India, there are national voluntary guidelines on social, environmental, and economic responsibilities of business towards mainstreaming the concept of sustainability in business operations (Ministry of Corporate Affairs 2011). In line with the above, the Securities and Exchange Board of India (SEBI) has come out with the business responsibility reporting, which has been made mandatory for the top 100 publicly listed companies. The Bombay Stock Exchange has initiated BSE GREENEX, wherein the top 25 performer companies are tracked and highlighted in terms of carbon emissions reductions for the investor community. The reports submitted on these platforms pertain to several non-financial parameters including work ethics, business transparency, employees' well-being, stakeholder engagement, environmental impact, greenhouse gas emissions, and inclusive growth.

Issues and Challenges with Sustainability Reporting

Business sustainability reports provide information about sustainable measures adopted by an organization. However, they do not provide complete information on sustainability initiatives of a company so as to make an informed opinion about its operations. Though the assessment exercise under the available programmes takes into account the credibility and authenticity of the data and the completeness of reports, the overall socio-environmental impact of the business operations of a company is not captured. For example, the 'India 200 Climate Change Report 2014' highlighted the disclosure score for 22 large companies (CDP 2014). However, the impact of these companies on the environment cannot be ascertained from this report.

There have been several challenges with regard to coverage of parameters and ease of understanding of these reports. As observed by Hohnen (2012), sustainability reporting faces a number of challenges, including questions about the accuracy and completeness of data reported, and its relevance to financial performance. The study by Soyka (2014) has bemoaned that people are still grappling to understand what makes a company 'sustainable'. There are also differences in sustainability reporting with significant variance on the variables reported (Jose and Saraf 2013). While efforts have been made for an objective accounting of environmental costs to account for environmental externalities, there remains inadequate clarity on the variables (Minimol and Makesh 2014).

There have also been issues related to accounting of external environmental costs of a company and the same has been cited as a challenge which companies need to address in order to create business value while reducing environmental impact (Perera *et al.* 2013). Further, most of the reporting requirements are voluntary in nature and the onus of preparing the report lies with the company. According to a research report, less than 20 per cent of the companies in India

surveyed disclosed information on sustainability issues related to their supply chain (Jose and Saraf 2013).

Designing Green Index

With the above background, a 'green index' has been developed to grade a company using 30 sustainability indicators with different weightages assigned and categorized under six verticals/ heads. The index intends to facilitate collection of relevant data, its analysis and presentation to enable the stakeholders make an informed opinion about a company in terms of its business sustainability and encourage sharing of best 'green' practices. The index is inspired from the Global Reporting Initiative (GRI) Sustainability Reporting Framework.

There is a need to conceptualize, design, simplify, standardize, and regulate the sustainability reporting formats covering the sector variables holistically. Due to the difference in the type of industry, for example manufacturing or services and scale of operations, for example production levels, the index may require improvisation both in terms of identification of parameters and assigning weightage.

In this regard, a comprehensive 'Green Index' has been developed to grade the sustainability activities undertaken by a company in a holistic manner. Under the proposed index, companies would be required to submit verifiable data on 30 sustainable parameters, categorized under six vertical heads: green leadership and management support, resource intensity, externalities, mitigation measures, green business value chain, and compliance and reporting; each parameter being assigned a certain weightage based on its significance, arbitrarily.

The results can be put up on a public platform to enable the key stakeholders, including investors, regulators, consumers, citizens, and shareholders to make an informed opinion about the 'green quotient' of a company. A company shall be required to submit data annually, based on which its grade can be compared. This 'green branding' of a company could encourage the industry to incorporate sustainability ethos in its business operations. This can potentially inculcate a spirit of healthy competition among the companies to improve upon their rankings in their peer group.

Scoring Methodology

To accommodate a heterogeneous mix of variables and data-types, three types of scoring options have been provided.

- Under the first option, binary values (Yes or No) will be accorded to variables to accommodate qualitative parameters which are difficult to quantify like sustainable policy, reporting, compliance and accreditation, etc.
- In the second option, there will be a provision of interval scores for the parameters which need to be progressively measured (like share of clean energy and percentage land area used for rain water harvesting).

- In the third option, actual values will be used to facilitate percentile scoring, based upon sectoral industrial benchmarks (as in the case of energy and water consumption).

Different types of companies, such as manufacturing, finance, retail, information technology, hospitality, and utilities, would invariably have different levels of impact upon the environment and society. To ensure consistency in grading, rationalization can be carried out by benchmarking a particular type of industry against the average sectoral values. This shall enable ease of comparison and marking. For the above, country-specific industrial standards are proposed to be used.

For some of the parameters, it is proposed to consider values calculated on both revenue and per capita basis to normalize the overall marking across a particular industrial segment, to account for large disparities in resource usage and employee strength across organizations numbers.

Grading and Categories

Under the proposed 'Green Index', the participating industry would be categorized into one of the four grades on the basis of its aggregate score, these include:

- Grade A: Environmentally Compliant
- Grade B: Environmentally Conscious
- Grade C: Environmentally Sensitive
- Grade D: Environmentally Inert

To enable easy recognition, a set of colour coding shall be assigned to these four grades, which can enable quick discerning about the 'green quotient' of a company (products or services) among its customers and stakeholders.

Score	Category	Grade
> 80	Environmentally Sustainable	A
65–80	Environmentally Conscious	B
50–64	Environmentally Sensitive	C
< 50	Environmentally Inert	D

Data Sources

The source(s) of information can include audited annual reports submitted to statutory bodies (like SEBI in India) and business sustainability reports submitted on public platforms (like GRI & CDP). These reports provide information on sustainability activities undertaken by a company, making the rating exercise

more transparent, authentic, and dependable. For energy intensive industries, benchmarks set by statutory bodies (like the Bureau of Energy Efficiency in India) can also be utilized.

Index Parameters

The six parameters for the index are now discussed.

(I) Green Leadership: *The management is the most important element in a company to initiate its journey towards sustainability as their buy-in is a pre-requisite for initiating green measures (reflected in policy, personnel, and expenditure). As such, this vertical, with 7 parameters, has been assigned an overall weightage of 20 per cent.*

The first set of information pertains to measures taken at the top management of a company reflecting its 'Green Vision & Mission' and 'Green Business Strategy'. This primarily includes framing of 'Sustainable Business Policy', highlighting its commitment to operate in an environmentally sustainable manner. The policy should explicitly specify upon the 'Green' goals, plans, and activities of a company in detail.

The importance accorded to environmental sustainability can also be gauged from the leadership provided within a company to chaperon its sustainable activities; many companies have appointed chief sustainability officers to steer their green strategy and operations. Both these measures (policy & leadership) have been assigned a weightage of 2.5 per cent each.

The next most important aspect in terms of management support is the amount of financial commitment towards sustainable development as part of the overall budget of a company. For a commercial entity, capital is an important asset and accordingly, has been allocated a higher weightage of 5 per cent.

The need for involving employees in green initiatives (including their awareness and training) is of paramount importance as they shall be spearheading its activities. As such, this parameter has been covered under the 'green leadership' vertical, with a weightage of 2.5 per cent.

Under the recently amended Companies' Act of India, the companies are required to earmark a certain percentage of their profits for activities classified as 'Corporate Social Responsibility (CSR)'. The areas of work under CSR includes, eradicating hunger, poverty, malnutrition and promoting preventive healthcare, promoting sanitation and availability of safe drinking water, promoting education, promoting gender equality, ensuring environmental sustainability, and protection of national heritage. Further, the company cannot make any profits out of the expenditure made in CSR activities. As the same is required as per the law, it shall be easy to capture the work undertaken by a company vis-à-vis framing of a CSR Policy and the expenditure on CSR notified activities in a particular financial year.

It may be noted that the expenditure on sustainable development (enunciated above) captures the overall expenditure on sustainable activities (like a rooftop solar plant which generates revenue for a company), and as such, cannot be taken as a part of the CSR budget. Therefore, it has been considered as a separate activity. Both 'CSR Policy' & 'CSR Expenditure' have been accorded a weightage of 2.5 per cent each.

The undercurrent towards environmentalism is still naive and many companies have recently initiated plans to undertake green measures. As such, the last sub-head, with a weightage of 2.5 per cent, captures the proposed measures on planned sustainable activities to increase the green quotient of an organization.

(II) Resource Intensity: *The sourcing and utilization of scarce resources, such as fuel, water, energy, electricity, minerals and land have a significant bearing both upon the environment and on the cost competitiveness of a company. This vertical, with four parameters, has been assigned an overall weightage of 20 per cent.*

This category comprises natural resource intensity of an organization, covering use of energy, electricity, and water. This has been covered as a separate head due to the fact that prudent use of exhaustible natural resources is the first step towards sustainable development. Further, the irresponsible use of energy resources (based upon fossil fuels) has been identified as a major source of greenhouse gas emissions globally, which needs to be controlled.

The first sub-head deals with the level of energy consumption (non-electricity formats) within an organization. Due to different type of fossil fuels being used across industries, the performance indicator has been kept as kilograms of oil equivalent (KgOE), which can be determined by normalizing the specific caloric values of different fuels.

The next important item under this head covers electricity consumption and the same is measured in terms of kilowatt hours (kWh). Both these parameters are accorded a higher weightage of 5 per cent each.

It may be noted that in accordance with the Indian Energy Conservation Act, 2001, around 478 energy-intensive industries across eight industrial categories are required to file energy returns with the Bureau of Energy Efficiency (BEE) on an annual basis.

Similarly, due to the water stress felt across major cities and towns in the world, there has been a persistent demand from the ecologists for reducing the wasteful consumption of water and the same is captured in this item in terms of kilo litres (accorded a weightage of 5 per cent).

Metals and Minerals are the major input sources in any industry and their prudent use is an important sustainability measure. As such, the last sub-item under this vertical covers the use of minerals and the scoring is done on percentile basis (per unit material consumption). This has also been assigned a similar weightage of 5 per cent. In case of service industry (like banking & IT), without any major use of metals and minerals, the marks against this item would be evenly distributed

in the above mentioned three sub-heads. The Index is designed to capture values in the form of both resource consumption per revenue and per capita basis. This shall ensure parity among natural resource intensive industries (like iron & steel industries, power generation utilities) and human resource intensive service industries (like ITES, banks, hospitality, etc.).

(III) Externalities/Impact: *The disposal of utilized natural resources by a company has significant bearing on the local and global environment (land, water, and air pollution and greenhouse gas emissions). This vertical, with four parameters, has been assigned an overall weightage of 12.5 per cent.*

This head features the externalities and impact of the operation of any organization on the environment. It covers air, water, and land pollution as well as waste generation on account of operations of a company. These are very critical areas and impact both the local as well as the global environment in multiple ways.

Each type of a company has a unique operational process and generates varied quantities of pollution (many times difficult to quantify). As such, the input values for these two items, assigned with a weightage of 2.5 per cent each, are required to be marked on interval type of scoring mechanism (significant, or, moderate, or, minimal).

Land pollution relates to the waste generation on account of operation of an organization, covering both dry and wet formats of waste and the same is measured in terms of either tonnes per revenue or, tonnes per capita. This has also been accorded a weightage of 2.5 per cent and scoring is to be done on a percentile basis (based on sectoral industrial benchmark).

The last sub-head checks for the carbon footprint of the organization and has been accorded a weightage of 5 per cent. The carbon footprint is calculated in terms of tonnes of greenhouse gas emissions (carbon dioxide equivalent) on a per capita basis.

In recent times, carbon footprint for an organization is being estimated by certain standardized methodologies and they prominently showcase reduction in the carbon intensity as part of outreach exercise.

(IV) Green Measures: *There are several measures which can be adopted by a company to make its operations socio-environmentally sustainable. This can include minimizing and optimizing use of resources (3Rs—reduce, recycle, and reuse) and using cleaner forms of energy. This being an extremely important vertical, with 9 parameters, has been assigned a higher weightage of 27.5 per cent.*

This head covers the seminal topic of sustainability measures to curb the emissions and undertake resource efficiency activities within an organization. The first sub-head covers the recycling of water (to be measured in terms of percentage water recycled of the total water consumption) with an assigned weightage of 2.5 per cent, marked on interval scoring technique.

The next activity is also related to water and takes into account the efforts made towards rainwater harvesting within the precincts of a company. It is scored based on the percentage of land area (technically available) used for this purpose and is assigned a similar weightage of 2.5 per cent.

Use of cleaner formats of energy (including renewable energy technologies like solar, wind, biomass, and hydel-based power) forms the next parameter. A substantial component of production cost for a company comprises of energy and as such, it has been given a higher weightage of 5 per cent. The interval based marking takes into account the share of clean energy in the overall power consumption of a company. It may be noted that in recent times, a number of companies have been sourcing power from cleaner forms of energy (like solar and wind power plants) and some of them have made ambitious targets to source a substantial portion of their power needs from RE-based sources.

Akin to renewable energy, energy management and conservation is equally important as it leads to reduction in the energy intensity of a company. As such, this activity, under the sub-head 'Energy Conservation', has also been accorded a weightage of 5 per cent. The scoring will be based upon reduction in energy intensity in terms of actual savings accrued over a year. In case of an industry, the scoring can take into consideration the improvement in the Specific Energy Consumption (SEC) levels over the previous year.

It is estimated that buildings consume over a third of total energy. As such, many companies are making their office buildings environmentally responsible by incorporating 'Green Building' features like passive solar architecture and use of energy efficient systems. Based on the level of 'greenness', a building is rated under different green building rating systems. This sub-item has been accorded a weightage of 2.5 per cent and is marked on interval scoring with a 4 or 5 star-rated building getting the maximum marks.

One of the recent advances has been in terms of utilization of spare office space (land area) within an establishment for putting up rooftop solar photovoltaic and solar thermal based systems to partially meet the energy requirements of a company (referred to as captive energy plants). As the availability of space may vary across companies, the scoring for this activity, with a weightage of 2.5 per cent, is proposed to be done depending upon the utilization of technically available space (like rooftop).

The subsequent item focuses on setting up of biomass compost plants by utilizing the compostable waste generated within a company. This shall serve the twin purpose of reduction in waste flows from a company and possible generation of bio-energy. The scoring for this activity, with a weightage of 2.5 per cent, is proposed to be carried out based upon the percentage utilization of compostable waste generated within a facility.

The last item in this head covers the aspect of effective waste management in terms of recycling and reusing. The weightage assigned to this activity of 2.5 per cent is based on the technically possible limits for a particular institution.

(V) Business Value Chain: *A company can exert a positive influence upon the stakeholders across its business value chain to adopt sustainable green measures/ lifestyle. This vertical, with three parameters, has been assigned an overall weightage of 10 per cent.*

This category emphasizes on green quotient of the supply chain as well as business outreach of a company. Many of the responsible companies are working tirelessly towards greening their value chain, both upstream (suppliers/ service providers) and downstream (customers). For example, the electronic retailers and fast food delivery chains have been conscious in promoting electric vehicles for the last mile delivery to cut down on the fossil fuel usage and reduce the GHG emissions. Similarly, many banks encourage their customers to use electronic (net) banking, thus, cutting down the use of paper.

On the upstream side, the Green Index captures the efforts towards assessing the sustainability measures on the part of its suppliers, vendors as well as contractors. On the downstream side, the index takes note of the efforts to reduce the negative impact of its operations (lifecycle assessment). Both the parameters have been assigned a weightage of 2.5 per cent each.

The role of information technology cannot be understated in this era of Internet and electronic commerce as its adoption leads to improvement in overall efficiency. This includes use of interactive web portals for B2B (Business to Business) and B2C (Business to Customer) transactions, installing ERP (Enterprise Resource Planning) and CRM (Customer Relationship Management) systems, etc. As such, this item is covered under this vertical with a weightage of 5 per cent.

As it is difficult to quantify the efforts made towards greening the business value chain, the scoring has been made on the basis of overall efforts made by a company, proposed to be marked with the internal scoring mechanism (as significant, moderate, and minimal effort basis).

(VI) Compliance & Reporting: *Many companies are required to meet environment compliance as part of their business operations. Some others are voluntarily undertaking green measures, including ISO certifications and filing of business sustainability & carbon footprint reports. This vertical, with three parameters, has been assigned an overall weightage of 10 per cent.*

The last vertical encompasses compliance and reporting with respect to overall impact and sustainability measures. Land acquisition for setting up projects has emerged as a contentious issue and needs to be prominently figured in any Green Index. This item would include compliance with the local environmental laws (regulations) for the operations of a company and following industrial best practices (even on a voluntary basis, if required). The marking is proposed to be undertaken on the perusal of Environmental and Social Impact Assessment (ESIA) reports and Environmental Management Plan (EMP) for projects undertaken by a company. This shall include availability of these reports in the public domain. This item is given a weightage of 5 per cent with interval scoring system.

The second item under this section is obtaining ISO certification with regard to environmental management systems (ISO 14000 series) and energy management systems (ISO 50000 series). These certifications highlight the commitment of a company towards standardizing its operations and systems on these two critical aspects. The weightage is 2.5 per cent with a binary scoring methodology.

The last item covers the sustainability reporting by companies either on a voluntary basis to credible institutions like GRI, CDP, or as part of regulatory compliance to relevant government agencies (like Business Responsibility Reporting to SEBI). This has been assigned a higher rating of 5 per cent as the companies who are already submitting these reports would have undertaken certain sustainability measures to improve their 'Green Quotient'. Further, agencies like GRI solicit performance data on more than 100 parameters and provide assurance in terms of the credibility of the report.

Index Impact

The Green Index shall facilitate easy computation of 'Green Quotient' for a company, covering a broad range of sustainable indicators. It shall support setting up of 'green benchmarks' for a particular set of industry for others to practice and follow.

The colour codes shall help the stakeholders make an informed opinion about a company in terms of its sustainability initiatives, which in turn shall encourage a company to incorporate sustainable ethos as part of its business strategy.

For a multiplier effect, high impact measures as undertaken by a company can be highlighted as best practices (for each industrial vertical), for adoption by its peers and competitors to enhance their green quotient.

The Ways Forward

The Green Index can be rolled out in phases for compliance by companies, initially on a voluntary basis, which can be subsequently mandated upon attaining a certain critical mass. The index as well the parameters (along with their weightage) can be standardized, streamlined, and improvised (for a particular industrial genre) after consultation with a wide spectrum of stakeholders, including investors, chief executives, shareholders, sustainability officers, project managers, civil society, regulators, and policy-makers. Web-enabled system can be utilized to capture data and undertake assessment thereupon. This shall enable updates in grading of a company due to corrective actions taken in subsequent years.

To ensure wider dissemination and transparency, it is proposed that the results (grading) are put up in the public domain. For effective outreach and branding, it is proposed to highlight the colour codes on the products/services of a company, thereby, highlighting its green quotient.

GREEN INDEX

Parameters	Units	Value	Data options	Weightage	Score
		C	I	W	C / I * W
(I) Green Leadership				20	
Sustainability Policy	Level (Board/ Branch)		Binary ▸ Yes-100% ▸ No-0%	2.5	
Designated CSO & Sustainability Group	Level (Director & Above)		Binary ▸ Director-100% ▸ Mid-Management-50% ▸ Others/ No-0%	2.5	
Expenditure on Sustainable Development	% of turnover		Interval Score ▸ >5%–100% ▸ 2-5%–50% ▸ Upto 2%–25% ▸ Nil-0%	5	
Employee Sensitization and Training	% of employees		Interval Score ▸ >50%–100% ▸ 20-50%–50% ▸ Upto 20%–25% ▸ Nil-0%	2.5	
CSR Policy	Comprehensiveness & Effectiveness		Binary ▸ Yes-100% ▸ No-0%	2.5	
CSR Expenditure	% utilization of CSR funds/ budget		Interval Score ▸ >70%–100% ▸ 30-70%–50% ▸ Upto 30%–25% ▸ Nil-0%	2.5	
New and Proposed Measures	Significant/ moderate/ minimal		Interval Score ▸ Significant -100% ▸ Moderate -50% ▸ Minimal -0%	2.5	
(II) Resource Intensity				20	

Energy Consumption (Non-electricity)	KgOE/ revenue KgOE/ capita		Percentile on sectoral industrial benchmark	5	
Electricity Consumption	kWh/ revenue kWh/ capita		Percentile on sectoral industrial benchmark	5	
Water Consumption	KL/ revenue KL/ capita		Percentile on sectoral industrial benchmark	5	
Mineral Consumption	SEC		Percentile on sectoral industrial benchmark	5	
(III) Externalities / Impact				12.5	
Pollution – Air	Significant/ moderate/ minimal		Interval Score ▸ Minimal-100% ▸ Moderate-50% ▸ Significant-0%	2.5	
Pollution – Water	Significant/ moderate/ minimal		Interval Score ▸ Minimal-100% ▸ Moderate-50% ▸ Significant-0%	2.5	
Pollution – Land (Waste Generation)	Tons/ revenue Tons/ capita		Percentile on sectoral industrial benchmark	2.5	
Carbon Footprint	TCo_2eq/revenue TCo_2eq/ capita		Percentile on sectoral industrial benchmark	5	
(IV) Green Measures				27.5	
Water Recycling	% of total water consumption		Interval Score ▸ >50%–100% ▸ 20-50%–50% ▸ Upto 20%–25% ▸ Nil-0%	2.5	
Rainwater Harvesting	% of technically available land area		Interval Score ▸ >30%–100% ▸ 10-30%–50% ▸ Upto 10%–25% ▸ Nil-0%	2.5	

Clean energy use (including Renewables)	% of total power consumption		Interval Score ▸ >50%–100% ▸ 20-50%–50% ▸ Upto 20%–25% ▸ Nil-0%	5	
Energy Conservation	% of energy savings		Interval Score (on SEC basis over previous year) ▸ >10%–100% ▸ 5-10%–50% ▸ Upto 5%–25% ▸ Nil-0%	5	
Green Building Features	Green Rating (GRIHA, LEED)		Interval Score ▸ Rating 4&5–100% ▸ Rating 2&3–50% ▸ Rating 1–25% ▸ No Rating-0%	2.5	
Rooftop Solar Systems (both PV & Thermal)	% of technically available rooftop space covered		Interval Score ▸ >10%–100% ▸ 5-10%–50% ▸ Upto 5%–25% ▸ Nil-0%	2.5	
Biomass Compost Plants	% of compostable waste utilized		Interval Score ▸ >30%–100% ▸ 10-30%–50% ▸ Upto 10%–25% ▸ Nil-0%	2.5	
Waste Management	% waste recycled/ reused		Interval Score ▸ >30%–100% ▸ 10-30%–50% ▸ Upto 10%–25% ▸ Nil-0%	2.5	
Reuse & Recycle	% of consumables (technically possible)		Interval Score ▸ >10%–100% ▸ 5-10%–50% ▸ Upto 5%–25% ▸ Nil-0%	2.5	

(V) Business Value Chain				10	
Supply Chain-Sustainability Measures	Significant/ moderate/ minimal		Interval Score ▸ Significant -100% ▸ Moderate -50% ▸ Minimal -0%	2.5	
Deliverables/ Outreach-Sustainability Measures	Significant/ moderate/ minimal		Interval Score ▸ Significant -100% ▸ Moderate -50% ▸ Minimal -0%	2.5	
Use of Information Technology	Significant/ moderate/ minimal		Interval Score ▸ Significant -100% ▸ Moderate -50% ▸ Minimal -0%	5	
(VI) Compliance & Reporting				10	
Environmental Compliance (ESIA/ EMP)	% of projects undertaken		Interval Score ▸ >10%–100% ▸ 5-10%–50% ▸ Upto 5%–25% ▸ Nil-0%	2.5	
ISO 14001/ ISO 50001/ Related Standards	Yes/ No		Binary ▸ Yes-100% ▸ No-0%	2.5	
Sustainability Reporting- (GRI/ CDP/ BSE Greenex/ Others)	Yes/ No		Binary ▸ Yes-100% ▸ No-0%	5	
TOTAL				100	

Notes:

- Data should be preferably sourced from public domain
- Secondary data sourced from credible agencies (environmental regulatory institutions) shall be factored in
- Self-reported data from companies needs to be corroborated with secondary data for establishing accuracy
- Country specific benchmark data for a particular industrial category shall be deemed appropriate for marking purposes
- If data for a particular industrial category is not available, data from a related business segment can be used
- If data for a corresponding field is not available, lowest possible marks would be assigned
- For an establishment spread across different locations/ geographies, aggregate values would be used

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LCS-RNet releases its statement for COP21

INSTITUTE FOR GLOBAL ENVIRONMENTAL STRATEGIES[1]

About LCS-RNet

For long-term climate stabilization, it is vital for societies to break away from their current, highly energy-dependent state. All countries are now working on developing long-term strategies towards the creation of a new framework after 2020. Japan proposed the formation of a researchers' community, composed of researchers who are deeply and directly engaged in the policymaking process. This is the International Research Network for Low Carbon Societies (LCS-RNet). Researchers in this network extend their support to scientific policymaking by being deeply engaged in low-carbon, green growth policymaking in their respective countries. The network also includes policymakers, practitioners, and other like-minded stakeholders who all work together, conducting in-depth discussions on crucial issues for creating low-carbon societies. In this way, knowledge is shared and reflected into policy.

As the chair of the G8 in 2008, Japan advocated the need for activities linking research and policies, and G8 countries agreed to this proposal to form LCS-RNet. Activities began in 2009, with the Secretariat located in Japan (Institute for Global Environmental Strategies: IGES)

A platform for dialogue between research and policy

This has been established between nations so that the scientific knowledge needed to create low-carbon societies can be shared and new ideas for this purpose can be created. At the same time, it provides an opportunity for researchers and policymakers to converse with each other, by supporting timely policy implementation directly linking research and policy.

[1] Secretariat, International Research Network for Low Carbon Societies (LCS-RNet), Tomoko Ishikawa, Senior Policy Researcher, Institute for Global Environmental Strategies (IGES), E-mail: t-ishikawa@iges.or.jp

Directly connected to the policy decision-making process in G8 and other countries

The G8 Environmental Ministers Meeting held in Syracuse, Italy, in April 2009 "requested the LCS-RNet to report back its outcomes periodically", so knowledge from the network will be reflected at the very top level in environmental policies worldwide. The results have been delivered to the United Nations Framework Convention on Climate Change (UNFCCC), and other related international institutions. Researchers use results from the network to contribute proactively to drafting low-carbon and green-growth strategies in their respective countries.

Participation of leading research institutes in the area of low-carbon research

This advances disciplinary cooperation between domestic research institutions. At the same time, it strengthens cooperation in research and policy worldwide, by having leading research institutions in each country serving as hubs of their respective countries. Among G8 members, the United Kingdom, Germany, Italy, France, and Japan have already designated their central institutions. In addition, hubs have been formed in the Republic of Korea and India. So the network is composed of 16 institutions from seven countries as of February 2014. Other countries such as China and Indonesia are also making progress towards participation.

LCS-RNet statement to COP21—A moment of truth for climate and sustainable development

In the light of Paris Climate Summit in December 2015, LCS-RNet was decided at the last annual meeting (Paris, June 2015) to publish a position statement emerging from this seven years' dialogue.

This statement is about:

- The need to align, in various domains (transport, buildings, industries, and agriculture), climate policies, and inclusive development

Time is running out to act on climate change, poverty eradication and sustainable development. These challenges cannot be met independently of each other. The task of COP21 is to send strong policy signals that sound climate action will not harm the economy but in fact will trigger multiple economic, health, and development benefits by aligning strengthened short-term economic growth with long-term sustainable development.

- The reframing of the principle of Common but Differentiated Responsibility towards cooperation for securing equitable access to development

Implementing the CBDR principle has proven challenging in adversarial negotiations on dividing the remaining global carbon emissions budget. Instead,

the CBDR principle is needed to guide a cooperative process between countries with different historical responsibility for climate change and in terms of responsibility to facilitate technology transfer, capacity development, and finance to enable developing countries to transition to a low-carbon development pathway.

- The role of the Paris agreement in providing levers for developing financial tools to redirect world savings towards low carbon investments

COP 21 can provide critical policy hooks for the step changes necessary in financial intermediation such as public guarantees on credit lines including: an agreed social value of carbon mitigation activities to be incorporated in the diverse low carbon financial initiatives; strong Measuring, Reporting and Verification (MRV) guaranteeing the efficiency of support for implementing Nationally Determined Contributions (NDCs) and the environmental integrity of the investment; and a framework securing the transparency of voluntary commitments of countries, clubs of countries and non-state actors. By doing so, the Paris Agreement can help unleash a wave of investments in low-carbon development, responding to short-term economic and social challenges and building a new common future.

The LCS-RNet statement including key issues listed above has been shared by experts and researchers all over the world to collect their signatures (supports), so that it could have a real influence on the outcomes of the Paris negotiations. The full text of the statement is available from the following website:<http://lcs-rnet.org/wp-content/uploads/2015/08/LCS-RNet-7th-Annual-Meeting-Statement_as-of-7th-July.pdf.>

Book Review

Degrowth: A Vocabulary for a New Era

VINOD VYASULU[1]

Edited by Giacomo D'Alisa, Federico Demaria and Giorgos Kallis, Routledge, Taylor and Francis Group, New York and London, 2015.

This is an interesting compilation of 51 short pieces, arranged into four parts, by 53 authors whose work has been edited by three scholars at the Autonomous University of Barcelona. The collection is the result of a recognition, widely shared, I believe, that much of mainstream theorizing, especially in economics, is unsuited to explain reality as experienced in both advanced and developing countries, if a long term, intergenerational view is taken. Such theory has two strands. One is based on assumptions of perfect markets and rational behaviour, and it derives theorems of interest about conditions that lead to Pareto Optimality. The second is empirical, collecting data, largely from a business point of view, which tries to identify and explain trends in economies, but divorced from the theoretical models because the assumptions do not hold, or the right kind of data is not available. Within the theoretical school, in recent years, the dominant approach has been a supply side one, recommending neoliberal policies of market opening, privatization, fiscal control by states, and the like.

To this tradition of thinking, there has been widespread opposition—disagreement would be too mild a word. It has been pointed out that the assumptions have led theory building; if reality does not match theory, change reality. The theorems are beautiful and true! An example of this is the way economists conceptualize production as a function of capital [K] and labour [L]. The penetrating critique of this formulation by Georgescu-Roegen[i][2] has simply been ignored.

This is because Georgescu-Roegen not only destroys the basic structure of standard theory, he also proposes a difficult alternative. It is an alternative in which one must accept that qualitative change exists; that quantitative change may lead, through the emergence of novelty, to qualitative change

1 Dr Vinod Vyasulu is Consulting Economist, El Salvador. Email: vyasulu@gmail.com

2 Richard T Ely Lecture, American Economic Review 1970.

in societies. It is an alternative in which one recognizes that production is always—always—jointly produced with 'waste' or pollution, and this must be accounted for in theory building. It is an alternative that builds in a historical context; the economic process is irreversible, because of the flight of Time's Arrow. In short, it is a completely new, rigorous framework of thinking.

This book does not delve into this school of thought, but it is concerned with similar issues. Concerns for ecological conservation, climate change, poverty elimination, increasing inequality, and so on have led scholars in many humanities disciplines to grope for a more satisfactory theoretical understanding of perceived reality. And this has led to a plethora of publications, across disciplines, by scholars who share social concerns but come from very different academic traditions. This effort to communicate across disciplines is a very welcome trend. This book is part of that effort. It hopes to contribute by clarifying the terms used in various debates. It does so in simple language, with short readable pieces by many authors. It should be accessible to many students and to others who work in civil society organizations. The aim is modest, but it is nevertheless important.

The four sections in which the book is organized are:

- Lines of Thought
- The Core
- The Action, and
- Alliances

It is clear that the editor's concern is not just with theory, but with concrete (and meaningful) action. This requires agreement on a core and it requires alliances to succeed. Hence this structure and it deserves to be commended, as it opens up the book not just to scholars in various disciplines, but to those in the worlds of policy, action, protest . . . in short, to thinking people everywhere.

There is very little one can say about the individual contributions. I would be in broad agreement with much of what has been written, as I guess many readers will be. There can be differences of emphasis and priorities, there can even be differences in some underlying values. But this is a book from which one can take what one needs and move on. It does not ask for one to believe everything. I do not think it claims consistency at all. It simply has an underlying concern for the future and for a more equal vision of society. There can be different ways of developing this, and different ways in which one can approach it.

It is interesting that the bulk of the work has come from one university—the Autonomous University of Barcelona. There are many contributions from Europe and the West, but the rest of the world is not ignored either. This

reveals what is possible. When scholars—and activists—from the rest of the world engage with these issues, they may contribute to the theory and practice in substantial ways. They may use this vocabulary—or they may modify it.

The book is about an ongoing process of profound change. I welcome it to counter the tradition in the social sciences.

Guide to Authors

The *International Journal on Green Growth and Development* aims to facilitate knowledge and learning processes, which will help in enhancing the capacity on emerging 'green' policy concepts. We invite contributions for subsequent issues.

Type of contribution	Description	Length (approx.)	Illustration
Articles (will be blind peer reviewed)	Covers analysis through original research, reviews, and commentaries on topics of policy relevance. This section will be subject to peer review.	4,000–8,000 words	As required
Green Showcase	Features research, good practices, and initiatives	600–800 words	Preferably 1
Green from the Grassroots	Features insights from initiatives that involve interaction with communities and people	600–800 words	Preferably 2 photos

Contact and Submission

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Language and Style

The language should be factual, experiential, crisp, and clear. Authors are prompted to avoid academic, bureaucratic, or politicized terminology. Your text will be style edited by a professional editor. However, you are kindly asked to consider the following style guide:

- Use British English spellings
- Use Oxford style (http://www.askoxford.com/dictionaries/compact_oed/?view=uk)
- Use only metric units
- In the text, put numbers in numerals
- When using acronyms for the first time, spell them out and put the abbreviation in parentheses

Illustrations

Include any credits and permissions to print that may apply to illustrations. Illustrations should have the following format:

- Photographs should be high resolution (jpeg format)
- Graphs and figures should be submitted separately in an excel sheet

References

Please provide complete references and citation in American Psychological Association (APA) style. See www.apastyle.org for more details on referencing. It should be listed in alphabetical order at the end of the article.

Notes

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The International Journal on Green Growth and Development

Rethinking Growth Strategies

The International Journal on Green Growth and Development is an effort to stir a debate around emerging 'green growth' concepts. The publication aims at building knowledge through stakeholder engagement on policy-relevant issues to understand the many facets of green growth and development. It is a step towards a forward-looking knowledge process for new opportunities linked with growth and sustainable development. The journal showcases new research through peer reviewed articles, opinions, and innovative practices.

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