Towards a Resource Resilient India

Security of Natural Resources for All:
The Critical Need for Coherence in Policies and Actions

Context

Natural resources are enormous blessings of our planet earth that organisms use for their survival. They can be either biotic (forests and wildlife) or abiotic (water, soil, air and minerals). However, these resources are spread unevenly, which creates pressure on nations. Previous patterns of the world's growth have brought increased prosperity, but through intensive and often inefficient use of resources. It is needed to create more with less, delivering greater value with less input, using resources in a sustainable way to minimizing their impact on the environment.

India is blessed with many natural resources, it is the seventh largest country with 3.29 million sq. km of landmass and the second most populous country in the world. Eventually, we don't have equitable access to renewable resources, on the other hand, we have less stock of finite non-renewable resources that keep decreasing with their over and rapid consumptions. Therefore, a roadmap is required to make a resource resilient 'Make in India'. The present conference will focus debates on resource scarcity, resource inclusivity (access), resource use impact and a way forward for resource efficiency.

Indian National Association for the Club of Rome has a deep concern for biotic and abiotic resources of India. Therefore, 2014 onwards, the Club has begun a five-year series of Annual Conferences; 2014 - "Securing Food for All", 2015 - "Securing Water for All" and 2016 - "Securing the Forests, Land and Soils for All". This year, a cohort of think tanks will focus on a balance of the developmental needs and minimizing the negative impacts. The conference will embark on various debates under four themes- Resource Efficiency, Resource Inclusivity, Resource Security and Resource Use Impact through different plenary sessions.

Resource Efficiency

Resource efficiency means using the Earth's limited resources in a sustainable manner while minimizing impacts on the environment. It allows us to create more with less and to deliver greater value with less input.

Resource Inclusivity

Perversely, the worst development outcomes--measured in poverty, inequality, and deprivation--are often found in those countries with the greatest natural resource endowments. Often, development based on resource consumptions induced displacement and related deprival of livelihood, in poor families' - women, children, and elderly have less access of resources indeed enhance further marginalization of them. Access to key resources can reduce the vulnerability of the local population to both large-scale disasters and to the sort of small-scale crises that affect their everyday lives.

Resource Security

India's manufacturing sector is primarily natural resource-driven. Metals, chemicals, textiles and food contribute about 60 per cent of manufacturing. The average share of material costs in production cost

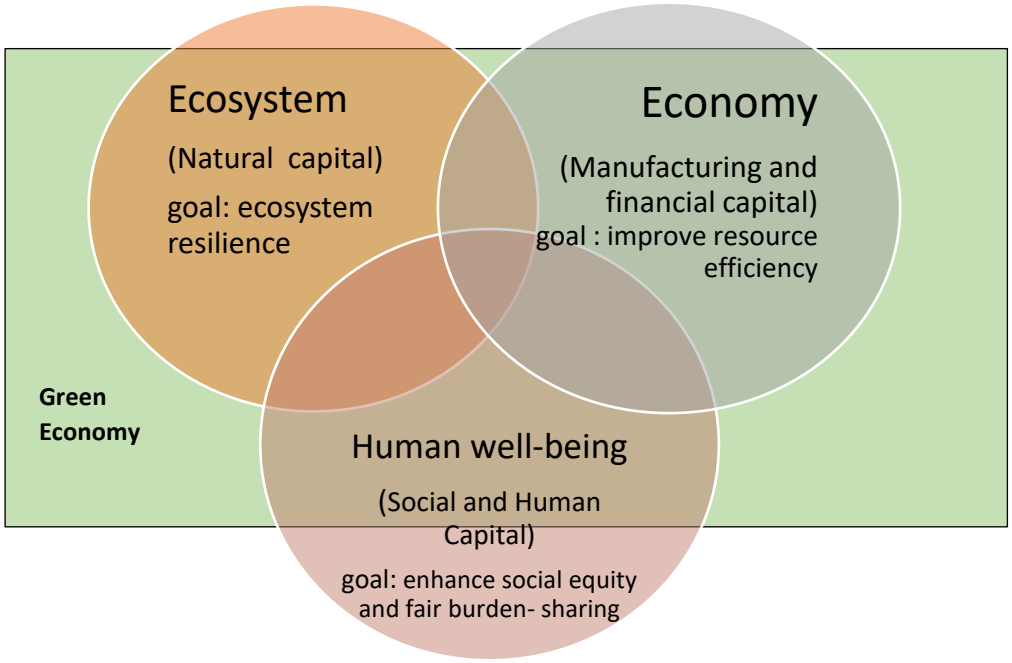
is high at 78 per cent. This is far ahead from many countries of advanced economy like Germany (40 per cent). Strategic understanding of critical mineral resources in India needs to be enhanced and India's overall resource productivity (GDP per tonne of material consumption) to be in control to avoid situations of resource scarcity. India wishes security of minerals along with food, water, forest and biodiversity, land and soils.

Resource Use Impact

Since India is dependent on imports of many resources, often market controls the prices of these resources; eventually India faces combating challenges of price volatility while resources are under threats or in a situation of scarcity. Diversification remains the best for countries to reduce their vulnerability to the adverse effects of resource price volatility. Resource pricing policies always have impacts on a country's overall macroeconomic and development tactics.

The Debate Needed Today

The three different dimensions - ecological, economical and ethnological (i.e. social or cultural) are associated with natural resources. If a natural resource is required to be used, its use must be physically possible, economically viable and culturally acceptable.



Targets

1. *Materials and Minerals: Optimize use of minerals, preservation and recycling, resource efficient infrastructures, security of critical minerals, tackling challenges of commodity markets and innovations in extraction, etc.*
2. *Water and Marine resources: one drop more crop, prevent flooding and drought by fighting climate change, ensure clean water, blueprint on water and groundwater directives, etc.*
3. *Fertile land for agriculture, reduce land take, remediate contaminated sites, suitable infrastructure and effective land use, etc.*

4. *Soils: prevent soil damage, mitigate infrastructure impact, restore organic matter contents, avoid chemical pollution, etc.*
5. *Ecosystems and Biodiversity: reduce acidification, avoid ecosystem damage and maintaining biodiversity.*
6. *Waste: Reduce consumption, development of new materials, use of newer cleaner technologies, use of more abundant resources in preference to less abundant ones and recycling, reusing and judicious use of resources with minimum waste. Promote circular economy, a thinking beyond take, make, dispose, and an economy of restorative and regenerative attributes.*
7. *Energy : Regular and adequate supply of energy, less waste of excess electricity, less energy Losses, effective distribution network and SMART grids, minimize demand and supply gap of energy, effective asset management, etc.*

The prime concern of CoR-India is the future of nation and how it will be for our large population.

- What kind of nation they are going to live in?
- What kind of resources they will have access to?
- How are they going to feed and drink themselves?
- How will they access energy at affordable cost – economic, social and environmental?
- Will they have sufficient raw materials for various productions in future?
- How will they cope with price volatility and restricted availability of resources?

Key speakers:

I. *Academicians and Researchers*
II. *Politicians- All Parties*
III. *Media Professionals*
IV. *Ambassadors - Key persons from Embassies and diplomates*
V. *International Agencies have expertise over domain*
VI. *Lawyers and Judges*
VII. *Experts from Not for profit sector*

Plenary Session1: Materials Security for Efficient Make in India

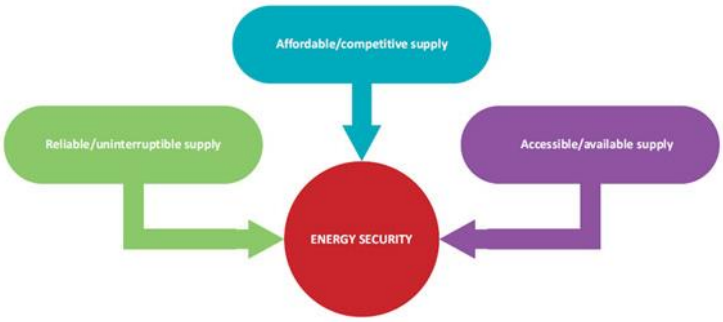
India is on a path of 'Make in India' with a focus on 25 sectors, the majority of whom have a direct dependency on natural resources, particularly on raw materials for its processing units.

Raw material is a substance or a mixture of substances which have not been subject to any treatment besides its detachment from its source. It is gathered because of its utility value and is either directly consumed or used in production processes.

India being a second largest populous country in the world with a fast growing economy is compelled to consume materials for expanding industrial and service growth. India holds 18 percent of the world's population; it is projected that India's population would be highest in the world by 2025. The per capita household income of India has increased significantly in the last two decades. Eventually India's Gross National Income (GDP) has reached up to 6.7 trillion, ranking it the 7th largest in the world. India's consumption pattern has also increased dramatically. In 2009, India was the third largest consumer of materials after China (with 21.5 billion tonnes) and the USA (with 6.1 billion tonnes). Therefore, it is important to make a resource resilient 'Make in India' so that India can become a role model for other countries.

Plenary Session 2: Energy Security for All

Often energy security is considered as the uninterrupted availability of energy sources at an affordable price[1]. This covers all major aspects of affordability, accessibility and reliability at a National and Global context.



Energy security is correlated to Economic Security. Equitable accessibility of energy at lower or affordable costs helps the economy to function properly. The world's economic growth is derived by the ***primary energy*** and **final source of energy**.

India faces a challenge to meet the desired quantity of energy for sustainable manner. India needs to uphold 8-10% economic growth up to the third and fourth decades of the millennium to uproot poverty and to meet human development goals. Therefore, the demand of energy supply and its consumption are significantly high in India. However, for this India has to keep a significant growth in energy generation, its transmission and distribution.

India, is home to 18% of the world's population, uses 6% of the world's primary energy. Overpopulation creates the pressure on energy resources. India produced 593 Million tons of oil equivalent primary energy in 2015 and consumed 882 Million tons of oil equivalent energy, eventually around 290 million tons of oil equivalent energy had imported from other counties. Therefore, India's energy security is not only dependent on resources available inside, but the energy pricing policies of other nations too. Needless to mention that major portion of the imported energy is from fossil fuels - almost three quarters of India's energy demand meets by fossil fuels.

Interestingly, the power generation capacity or installed capacity (utility power generation) of India is around 315 GW as on 31 January 2017. China and USA are above India. India generates around 69% power from thermal (non-renewable) and 29% power from renewable resources. India supplies an

[1] https://www.iea.org/topics/energysecurity/subtopics/whatisenergysecurity/

acceptable amount of power to its dwellers and consumers. However, the latent demand and supply is around 20 times to what the actual power generated in India. Whenever the term demand and supply gap uses, it is based on data of contracted demand and supply of electricity through the authorities.

India has the lowest per capita electricity use in the world which will eventually increase in the coming days. The plenary session will focus on various policy discussions on energy and power generation, its transmission and equitable distribution, renewable source, Nuclear Energy, Efficient Grids, Smart Grids, Decentralized power and many more.

Plenary Session 3: Equitable access to India's Natural Resources- Water and Terrestrial Ecosystem for All

India receives annual rainfall of 1170 mm but poor storage infrastructure allows it to store only 6 per cent of rainwater, compared to 250 per cent stored by developed nations. Majority of rural masses continue to live without proper access to safe drinking water. The issues of lack of equitable access are widely associated with other natural resources too, such as land, soils, forests, food, water etc. A number of policy recommendations came in earlier conferences, however, few of them need to be revisited in the present context so that they may be shared again with the government - Central and State. Therefore, this session will review the earlier recommendations and see what government did on the same and how think tanks can support policymakers to evolve them into more pragmatic and easy to apply recommendations.

Plenary Session 4: Price volatility of Resources- a challenge: Towards minimizing and mitigating the price volatility of essential commodities

International commodity markets have expanded, with the increasing mobility of production factors and closer linkages among countries and regions. This has been accompanied by highly volatile commodity prices and growing competition for some raw materials.

Material and Resource consumptions of India have increased a lot, it is far ahead from other nations; the economy is on the boom and fiscal issues are highly prominent. India's resources demand is highly import driven therefore price volatility is a challenge for us, increase price of necessary commodities, impact on inflation and eventually causing social and economic instability.

India has seen a dramatic increase in price volatility since the economic reforms of nineteen ninety, and the incidence of supply disruptions of a mass of essential raw materials. Despite reduced demand many a times the prices of commodities have been persistently high and volatile. Resource pricing policies always have impacts on a country's overall macroeconomic and development tactics.

It is needed to have an in-depth discussion on resource price volatility and India's cope up strategies in the light of many more adaptations.

Plenary Session 5: Importance of Natural Resource Efficiency in Corporate Education and Curriculum

Natural Resource in education system provides important opportunities for students to become engaged in real world issues that transcend classroom walls. They can see the relevance of their

classroom studies to the complex environmental issues confronting our planet and they can acquire the skills they need to be creative problem solvers and powerful advocates in near future.

It is important to engage students with the issues like conservation management and maintenance of natural resources, resource efficiency and good stewardship of air, soil, water, land, fish, and wildlife resources for economic, recreation, and health purpose. Though present curriculum of corporate education covers at some levels, but it seems detached when they came in professional world. This plenary session will discuss and debate on the issues related to natural resources in education of corporate professionals, so that they will be more sensitive to the issues of planet earth and its protection.

Plenary Session 6: Circular Economy and Material Recycle – Business scope for the use of secondary raw materials in India

Enormous quantities of waste is generated during industrial activities right from collection of raw materials till the end product stage. Once the waste is produced, money, manpower and additional materials must be spent to manage the waste. The best means of waste management is to reduce the amount generated at the source itself. However, low awareness among communities on the depletion of resources due to waste and lack of appropriate infrastructure for the end of complex products are the main causes of high waste of resources in India. To deal with this issue India needs to focus on recycling and reusing of waste material, use them as secondary raw material and converting it into productive or usable material. Recycling and reuse, is the process of removing a substance from a waste and returning it to productive use. However, identification, prevention of waste, its reuse and safe disposal, etc. are required to maintain natural resource efficiency.

India produces over 1000 MT of solid wastes through agriculture, mining, industrial and domestic activities. Some of these wastes are too hazardous and have the potential to cause harm to human beings or to other organisms because of their toxic, corrosive, flammable, explosive, reactive, or pathological nature and by and large creating a harmful effect on environment and ecology. It could be seen as a resource for a secondary industry for recycling and reusing such solid waste again in the industry. The aspects of recycling, waste management and use of secondary resources will be discussed in depth in the light of resource efficiency.

Outcome of the Conference

1. **Promote a roadmap for a resource resilient "Make in India".**
2. **Support India Resource Panel (In RP) and MoEFCC in Indian Resource Efficiency programme.**
3. **Support NITI Aayog and champions of "Make in India" to reflect upon the issues related to Natural Resources more coherently.**
4. **Recommendations to the concerning Ministries and Authorities.**
5. **Find out the possibilities to table the suggestions for Secondary raw materials policy of India.**