

Right to ‘Green Cost’ can Ensure Common’s Participation in Sustainable Development.

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Introduction

There has been a perceptible transformation in regard to global environmental discourse and in how developing countries have been responding to the discourse. Apparently, the dynamics of both are correlated. The reciprocal interaction between the two signifies a remarkable transformation of issues related to environmental conservation into global agenda of sustainable development. The need for the adaptation to the Climate Change to build the climate resilient societies can be the opportunity for the creation of sustainable enterprises that can eliminate the poverty, conserve natural resources. In a way this represents win-win strategy by turning the crisis into opportunity. The cooperation and participation of the members of the local community, many of who are marginal, becomes essential to seize such opportunities. It is important to ensure that the livelihood of the local and marginal communities shouldn't be adversely impacted while seizing such opportunities. The marginal people of developing countries, who are struggling with socioeconomic challenges in the agro-environmental sector or production as well as service sector, need to be recompensed for costs incurred by them in going green.

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On the contrary, neoliberal policy has arguably aggravated this challenge as public investments in rural infrastructure have generally declined while the focus shifted to the metropolitan urban “economic growth machines”. Latest reports (2011) from National Bank for Agricultural and Rural Development shows that in last seven years investment in rural sector has declined by 17%. Although, this-day concept of sustainable development has allowed a valuable global dialogue between north and south, it has not yet been able to resolve the gulch between the two to carve out meaningful partnership and meet development objectives of Millennium Development Goals. Hence the cost benefit dilemma amongst small-holder farmers and entrepreneurs in rural and peri-urban areas for choosing climate-smart avenues have prevented sustainable partnership.

Context:

Emerging developing countries have now become more focused on implementation of prototypes in ground-zero, demanding that effectiveness be measured not simply in terms of resilience to economic and environmental variables but also in terms of the inclusive societal development and equity variables imbedded within the concept of sustainable development.

The best example can be drawn from the promotion of low emission, less chemical intensive organic farming. Farmers are getting better yields, better market rates and assured returns, but they prefer to be in direct link with market dynamics by producing and direct selling. They want value added services like micro-insurance coverage, subsidized health care, better education and social recognition of their endeavors. Such value addition incurs a cost, which cannot be assured as a direct payment from either government or non-government sector. This can be compared to the opportunity cost of the farmers in availing the risk of trying organic farming in the fields and trying the organic products in the

market as well, because uncertainty factors in both cases are much higher than the stereotype agricultural production and marketing. The situation needs to be addressed either with a 'value return on investment' scheme or with "commons-property-rights" to device a payment system, other mechanisms like carbon financing or risk-assessment based payments are not feasible to implement.

Conundrum

As a part to this end, a new economic paradigm is to be sought that can pay-off this 'green opportunity cost' to the local community or "commons". One of the important approaches is to ensure property rights to commons by actualizing community governance of natural resources. Core competency of communities towards environmental governance in rural for equitable agriculture and natural resource management is constrained by on the economic imperatives, environmental conditions, and social equity issues. Economic development that commons see around and the resultant urge for improving well being downscales their traditional urge towards unsustainable use of resources. At this juncture the incremental payments will be essential in recompensing the 'green cost', Socially, economically or ecologically challenged communities will then be able to create adequate pecuniary pool in compensating the 'green cost'. This can now happen by transforming nature services to a fiscal pay-off system without compromising the conservation prerogatives.

The monetary value of nature and eco-services has so far not been recognized by the world community with our current economic system and hence its value is only marginally reflected in the market. Mostly the costs of nature conservation like species rehabilitation or habitat restoration are not visible in the market and only the most obvious benefits, such as tourism revenues,

are accounted for in the market. That is why it is not possible at present to make an unbiased cost-benefit analysis of existing nature reserves. Hence pointing out the most cost-effective areas worldwide is one thing, making nature conservation a sustainable solution for the local people is another.

Proposed Way Forward

One of the suggested solutions for the poverty problem is to instill 'Biorights' for the community in managing their natural resources. **Biorights** is a neo-fiscal paradigm that tries to protect areas of global biological importance by compensating the green cost incurred by the poor people directly to them for not degrading the natural environment. These beneficiaries live near forest and natural surroundings on which they are dependent for cash generating activities. Even if the community living near the nature reserve will not directly benefit by way of compensation, will have ostracized notion for its conservation priorities and may act adversely. Compensating these communities for the efforts they put-in will serve the dual purpose, first, to make them aware of its importance of the nature-capital and second, deploy part of the community endeavors to wishful conservation.

Perusal of case study reports from Wetlands International's conservation sites, suggests that the global average compensation cost that is needed to cover the opportunity costs for the local people lies in the range of US\$13.65 ha⁻¹ yr⁻¹ and doesn't seem difficult to mobilize, if north-south technology cooperation is effectively extended in building the rural infrastructure. Although proposed Bio-rights per se is not absolutely a new concept, it does incorporate new elements that have potentials to meet the compensating figure of global average. For example, such payments would lead to (1) recompensing poverty related costs by creating alternative economic opportunities for long term guarantee to sustainable

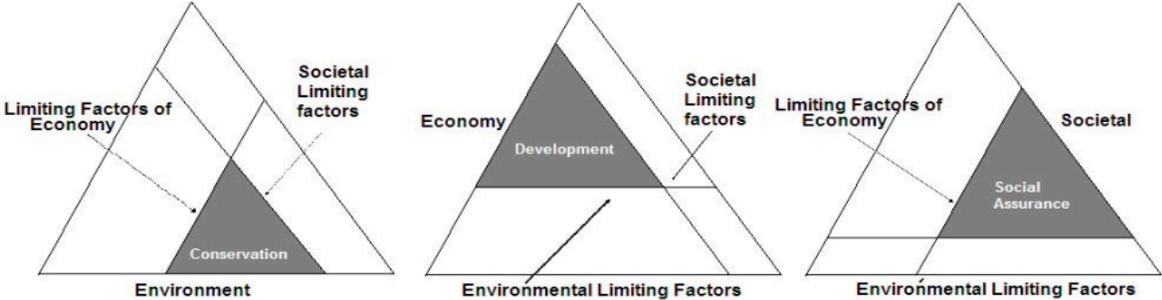
community development and (2) distribution of payments to communities (and not to individuals) micro-financial models on the basis of their contributory efforts and delegation to nature conservation through joint liability group. The proposal It also has that potential to eliminate the negative link between poverty and nature degradation. Successful projects on Biorights have already been in operation in Central Kalimantan of Indonesia, Chinkogurana village of Uganda, and in Philippines. More recently, Biorights project in East Kolkata Wetlands Ramsar site in India has proved the efficacy of Payment of Environment Services (PES) by transforming nature services of the wetlands through ecotourism and biodiversity conservation towards poverty alleviation using micro-financial models based on joint liability groups.

Triangles of Sustainability and Commons Participation:

Appraisal of any sustainable environment development model can be based on the identification of the development-limiting factors imposed by each of the three known components of sustainability, namely, economic, ecological and societal. These factors share non-cognizant, linear and co-parallel functionality with respect to sustenance of development in rural socio-economy. According to accepted definitions, development is sustainable when it takes into consideration the needs and demands of present and future generation for all of three components in a non-conflicting way.

For a paradigm search, a graphic model is proposed in Fig 1, in which triangles represent the universe of actions limited at the perimeter by the three elements of sustainability: the economic domain, the societal dimension, and the environmental externalities. Sustainable development is assumed to occur when development activities fall within the limits of action defined for the sectors discussed, whereas areas of conflict are defined as outside the boundaries identified for each pair of sectors. The

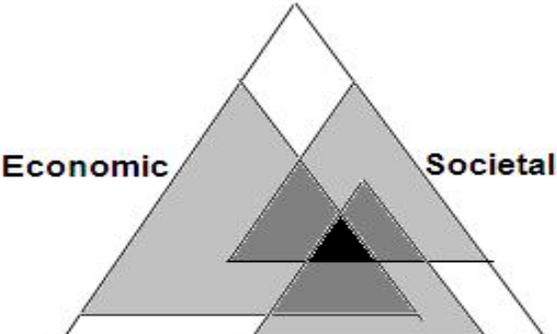
mutual limiting ability of a great number of aggregated sustainable development indicators and indices as well as the cross influence among them is yet not explicitly stated and studied. Sustainability



frontiers in commons-participation are thus interdisciplinary endeavors, which call for approaches and strategies beyond a single disciplinary view. Sustainable development activities occur within the limits (or restrictions) imposed by the three elements that act on each other as indicated below (Fig 2). The areas where only a pair of domains intersects describe different kinds of relationships. Issues of equity and justice are related to combinations of social and economic matters. Issues of health and nature services are described in the relationship between the environment and society.

Figure 1: *Triangles formed by limitations established among social, environmental and economic domains.*

Figure 2: *Area of possibilities of sustainable development, located at the intersection of the triangles.*



The relationship between environment and economy is described in terms of efficacy of natural resource management. We can say that in order to have a sustainable activity, the three conditions of equity, services and efficacy need to be accomplished.

The areas outside the boundaries represent the conflict between pairs of domains as described in following diagram. Further, It has been assumed that in an ideal case, the economic, societal and environmental elements are equipotent and hence an equilateral triangle has been conceived. The example in such case may be of the fisheries where environmental, social and economic impacts are near equal. If the three elements are of varied potency then the triangle will have proportionate variability in length of the sides. This can be well understood in the case of developing a marine park where the societal factor in initial phase is of negligible dimension to that of economic and environmental elements rendering the triangle to be isosceles. As evident from the discussion, the confluence of the three in ground-zero cannot be just arithmetically drawn since societal and environmental components are mostly intangible in nature and aspects of added-value impact the 'limiting' or 'promoting' constituent of the components.

Pros and Cons of the Bio Right model:

The model not only offer a diagnostic of existing possibilities of sustainable actions for development, but it

- displays relative importance of the three elements to the existing development problems
- identifies the issues that create comparatively stronger limitations to action,
- it allows to discuss impacts of other alternative planning actions towards sustainable development.

The model also creates the need to construct relationships between other domains in order to understand relative implications. This also identifies the need for a more interdisciplinary approach. From this interdisciplinary understanding of the model presented, here several other interventions need to be separately simulated for the epistemological basis of sustainability. Development through commons-partnership and their participation needs to be understood as interlinked with the multiple temporal and spatial scale of influence. Progress also needs to be associated to a wider range of options, not always associated to the idea of fiscal growth. Hereunder, we graphically discuss the implications of 'opportunity cost' and 'production possibility frontier' (PPF) in attaining sustainability through cooperation that would help in converging sustainability factors.

Opportunity cost and production possibility frontiers

A 'green opportunity cost' will usually arise whenever commons are to choose between alternative ways of allocating scarce resources. The opportunity cost of such a decision is the value of the next best alternative use of scarce resources. This green-cost can be illustrated by using production possibility frontiers (PPFs) which show all the possible combinations of two options available at one point in time. Interpreting opportunity cost based on economic theory suggests that successive increases in the production or consumption of any one good or services will lead to an increasing sacrifice (or loss of opportunity) in terms of a reduction in the other good or service, unless those resources could again be regenerated with more of inputs. This explains why the PPF is concave to the origin (Fig 3). The gradient of the PPF gets steeper as more of Production Option 2 is preferred over Option 1, indicating a greater sacrifice in terms of opportunities foregone. Opportunity cost can thus be thought of in terms of how decisions to increase the production of an extra,

marginal, unit of one good or consumption of any marginal services may lead to a decrease in the production of another economic commodity.

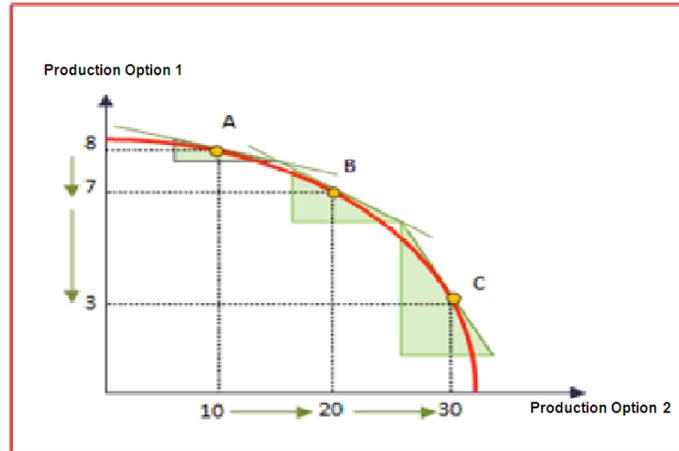


Fig 3: Increasing gradient of PPF curve with the increasing opportunity cost.

Any point on a PPF, such as points 'A' and 'B', is said to be efficient and indicates that an economy's scarce resources are being fully employed. This is also called *Pareto efficiency* at point

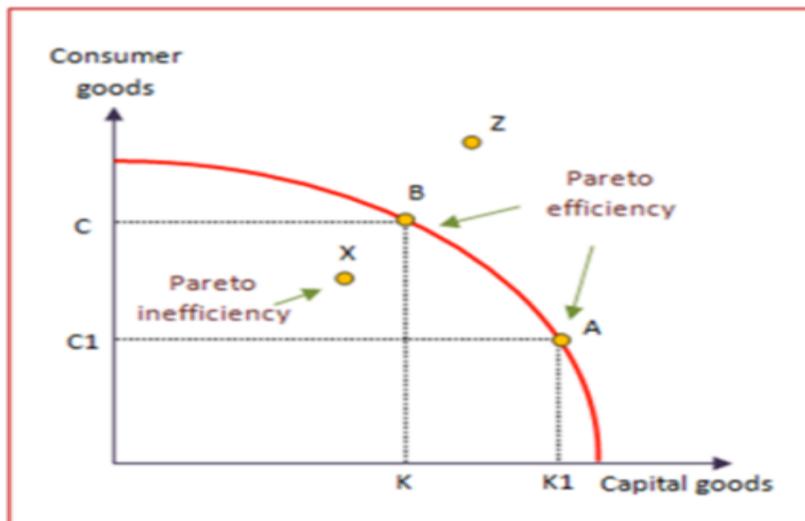


Fig 4 : Pareto Efficiency Points in PPF Curve

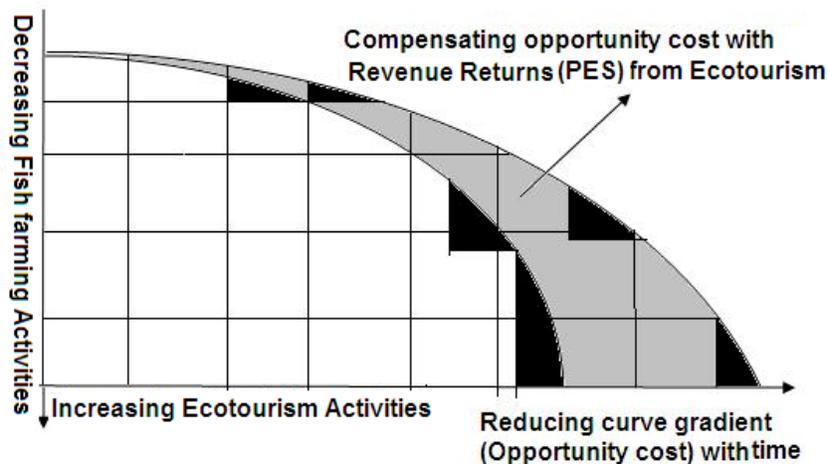
'A' or 'B' (Fig 4). Any point inside the PPF, such as point 'X' is said to be inefficient because output could be greater from the

economy's existing resources. Any point outside the PPF, such as point 'Z', is impossible with the economy's current scarce resources, but it may be an objective for the future. Thus, Pareto efficiency means an economy is operating at its full potential, and no more output can be produced from its existing resources. It can help highlight the imperfections and rigidities that exist in an economy and prevent Pareto efficiency being achieved. Herein, pumping more resources by creation of alternative economic opportunities or by transforming nature services to PES can reduce the opportunity cost to achieve the Pareto efficiency at point 'Z'. In achieving the same, the nature of curve changes, thereby reducing the gradient of the PPF. Herein, economic decisions are taken in a *marginal* way, because conditions are constantly changing, which is very pertinent to the impacts of climate change in rural socioeconomic frame and consumers and producers would be highly irrational if they don't consider this. In this discussion, well-being of beneficiaries necessarily needs to be a condition for sustainability. Sustainability also needs to move towards creating overarching frameworks to facilitate linking disciplines and reaching wider audiences through meaningful results that can be translated to plans and actions.

Bio-rights: Sustaining Development for Fishers of East Kolkata Wetlands

East Kolkata Wetlands, the only Ramsar site of West Bengal is recognized for world's largest natural resource recycling ecosystem that supports the livelihood of hundred thousand poor fishers through wastewater (sewerage fed) fish culture. This unique wetland, rich in biodiversity and aesthetic beauty, has been facing the threats of urban encroachment and anthropogenic pressure leading to habitat loss and species migration. In the innovative Biorights project at East Kolkata Wetland Ramsar site, revenue from ecotourism is returned in fisheries activities which are spread across 3500 hectares of

shallow waterbodies. Such allocation of revenue acts like a financial tool for risk spreading and risk coverage for the fishers as well. The fisheries are fed with liquid sewer that encourage nutrient loading and plankton growth, whereas fish grows on this natural feed and recycle the organic resources to biomass. During winter months the production in the fisheries are low when the wetlands are better place for tourism, boating and fish angling. Fishers earn through this nature services in this lean period. It compensates the opportunity cost of wetland conservation during lean period with PES by developing alternative economic opportunity for sustenance through capacity building and technology cooperation. 20% of the excess revenue earned goes towards premium deposit for group micro-insurance coverage of the wetlanders towards occupational risks related to environmental externalities and health hazards. Rest of the



earnings from ecotourism compensates the deficits in returns during the lean period.

Fig 5: Augmenting BIORIGHTS components with Alternative Economic Opportunity

The innovation is that here environmental awareness would explicitly act as a marketing tool for the revenue linked

conservation paradigm to endorse the BIORIGHTS component (Fig 5). Further, the private sector investments and FDI for infrastructural developing could be attracted towards community based ecotourism on wetlands and its rich biodiversity to have augmented the place-based trade with newer technology cooperation and thus could enhance the conservation priorities amongst the stakeholders. The success has benefited more than 5000 wastewater fishers and save the 12000 hectare wetlands from habitat loss. The case study has been accredited as a best practice conservation approach through community based interventions in the 4th TEEB Report of UNEP published in 2009.

Policy Recommendations:

Glances from in-situ implementation projects confirms that in the backdrop of climate change, an efficient 'Green Cost for Development' program that is inclusive and which deals with commons needs, promotes capacity building, encourages partnership based on participatory approach as well as equity will enable environment for the sustainable development. It will also work in congruence and reduce the risks and gaps. Such a program, with the support of Official Development Assistance (ODA) as either soft loan or in grant-loan mix model for compensating opportunity costs towards climate adaptability and in fostering alternative livelihood, will accelerate Foreign Direct Investment (FDI) into, and development within, the developing economies. More recently in a similar subsistence model, organic farming of exotic vegetables supported by the Umbrella programme of Natural resource management of NABARD has seen foreign investments in the farms of Jharkhand. Developing countries can then leapfrog to the newest, most productive and environmentally sound technologies available without any dilemma of cost effectiveness. In the context of sustainable development, technology cooperation between the provider and end-user requires longer-term partnerships in which both parties

have a vested interest in successful continuing operation. It requires incorporating both the “hardware” and the equally essential range of “software” components to ensure a continuing stream of economic benefits that accrue fairly to all partners. This can also include, more broadly, managerial, organizational, and marketing knowledge that contribute to the development of new skills. The notion of technology cooperation encapsulates both physical transfer of operating system coupled with efforts to transfer knowledge and build capacity that is considered necessary for the adoption of new technologies in global south. Nevertheless, cost of technology cooperation should not compromise with the economic sustainability based on its appropriateness and feasibility rather it should reduce the opportunity cost for adoption. As, in case of Biogas Plants installed in high altitude terrains of Nepal, low cost technology failed to cope with the temperature and pressure variance at higher altitude and rendered unsustainable. It can lead to extended term investments affecting economic and social interests, whereas high-end prices for technology testing, validation and adoption may lead to dejection and premature termination of cooperation. Putting development inputs across sustainable growth (Fig 6) in a graphical correlative model can lead to a decision support paradigm for assessment of strategies deployed for sustainable growth. In a similar note, cost benefit dilemma amongst smallholder farmers and entrepreneurs in rural and peri-urban areas for choosing ‘low cost technology’ and compromising with technology at a lower cost for the sake of climate adaptability has brought a stalemate while resource squander for testing and validation or spending on ‘no-efficacy transfers’ have prevented sustainable partnerships. Capacity building in order to acquire, assimilate, use, maintain, adapt, change and re-create technology, is an essential dimension of the sustainable development process. This can very well be an added-value compensation for the community against the green

cost for climate-smart technology adoption. It has to be inclusive and entire in all respect.

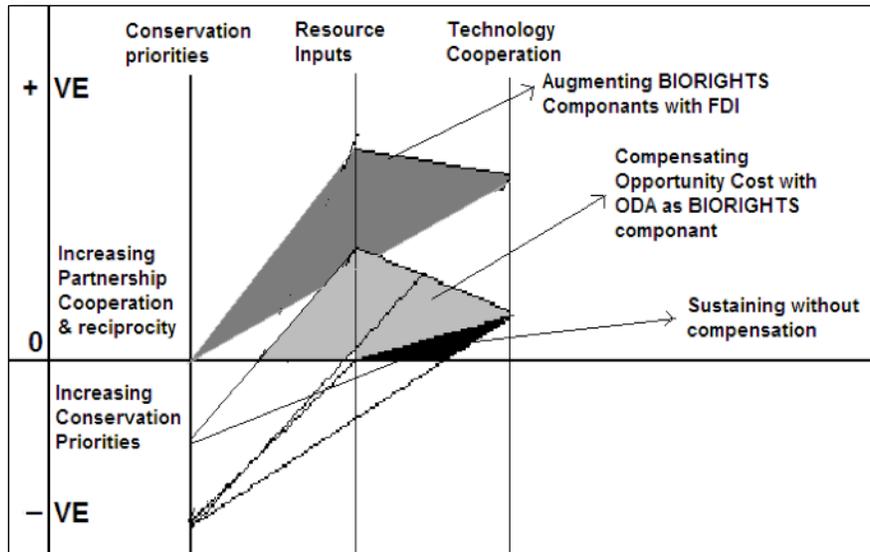


Fig 6: Plotting Development Inputs across Sustainable Growth.

The responsibility for capacity building lies with both the agencies transferring technologies as well as government or NGOs at local and national levels. In an ideal world, networks for cooperation and knowledge diffusion would exist to support all technology cooperation projects, and adequate governance structures would be effectively in place at all levels. In the Least Developed Countries (LDCs) this is often a major deficiency that individual projects will need to address. R & D networks may be poorly linked or even non-existent, and cooperation between local government, NGO's, the private sector, and the community may in fact be very poor. All this can present impediments to technological progress and sustainable development.

Of all foreign capital flows to developing countries, over the past decade, only FDI steadily increased by 23.7% in all sectors of development (UNDP Report 2008). Other forms of private capital flows, mostly in the form of portfolio investments and bank lending, experienced fluctuations and high volatility over the same period. Limited ODA, (and subsequently governments' suspicion

on the policy interference by ODA donors), unsustainable levels of budget deficits and external debts, along with the need to maintain fiscal discipline to control inflation and spur economic growth, make it imperative to mobilize domestic and international capital sources to finance the green cost in developing countries. Recompensing the Green Cost thus can have a global appeal to invest and secure common's properties and as well common natural resources for the globe. A special challenge remaining is the mobilization of financing for sustainable development to those countries that mostly depends on natural capital and desperately need it to curb their emission footprints. At this point expectedly the banking and microfinance institutions have a definite role to play since they are the custodians of public assets and also share the liabilities of conserving the natural resources. On various bankable models of investment they can recompense the opportunity costs by allowing additional risk spreading through microinsurance, facilitating with reduced rates of interests or extended moratorium periods.

The prerequisites of technology transfer here also include a political will. Yet, it will be more difficult to channel foreign private capital flows into LDCs, even if local investment framework conditions be conducive over time. This is particularly true for countries in South Asia, Central Asia and Sub-Saharan Africa with scarce natural resources, small markets, poorly qualified labor and little infrastructure. In this regard, ODA provides an effective tool for financing development by recompensing green costs that may in turn leverage private investment in those LDCs with few opportunities to otherwise attract foreign financing. However a definite role exists for governments to provide enabling environments for financing the Green Cost. Particular emphasis should be put on business development that involves building up environment friendly infrastructure, sustained wealth generating capacity by wise use of natural resources by ensuring that next generation continues to leverage the natural resources even, in

more effective way and raising competitiveness of a country through people's participation.

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