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Challenges at the Nexus of Climate Shifts, Biodiversity Erosion, and Socioeconomic Progress in the Sphere of Food Security

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ABSTRACT: A society that has a biologically, socially and economically sustainable climate, where economic growth has been achieved within the context of achieving social goals for eradicating poverty and social justice, and within the limits of natural life support capacities. This is a realistic vision, but the system is broken and not understood by our current path. Unfortunately, humanity's behaviour, combining ever-rapid technological development with very slow ethical-social evolution, remains entirely unable to deal with the potential lethal consequences. The desires for man to learn has greatly outweighed this capacity. As a consequence, humanity experiences a perfect storm of overpopulation and overcrowding issues. The triple interdependence of cultural, social and environmental considerations must be recognized and incorporated within the decision-making system of governments and private sector to achieve our vision of a more prosperous future. Interplay is improved and its alignment strengthened across cultural, social and environmental concerns by turning their priorities into measurable terms in a defined time frame. Economic growth needs to be achieved within the social and environmental constraints.

Keywords: Social goals, economic growth, climate change.

INTRODUCTION

The potential of the human person to do stuff has far surpassed comprehension. Civilization therefore confronts a complete chaos induced by overcrowding, excessive consumption by the wealthy, the use of biologically malignant technology and massive disparities. They include loss of human life-support systems' biodiversity, climate disruption, global toxicity, alteration of critical bio-geochemical cycles, increasing likelihood of large-scale epidemics and a nuclear civilization destructive spectre (Adams *et al.*, 2009).

Such biophysical issues connect directly with the structures of human government, organizations and civil societies which are not yet adequate to resolve them. The three-fold interdependence of cultural, social, and environmental factors must be recognized and included in decision-making at government and in the private sector to achieve this vision in a more prosperous planet. Many countries are faced with a task of exploiting natural resources to help alleviate poverty while preserving the ecological system of sustainability for life. In economics the key question is what, where and how much natural resources have to be exhausted, and where and how many resources are produced for and how many social issues tackle the conservation of natural resources with minimal negative effects on habitats. Interaction is strengthened and organized between cultural, social and environmental variables more efficiently if their respective goals are converted into quantitative terms in a defined time scale. Economic growth has to be understood within the social and environmental mitigation constraints (Antonopoulos and Hirway 2010; Braunstein *et al.,* 2011). The achievement of food safety for all three dimensions is a central element of sustainable development. Currently, people's capacity to understand their right to food, to drink, is important but the willingness of future generations to exercise their right to food is also vital. To guarantee the end of poverty and starvation,

agriculture and food production systems need to be integrated, both with respect to natural resources and the regional and national economic mechanisms and policies (Cabraal *et al.*, 2005). Food production systems must be centered. To accomplish this goal, the history of social relations must also be studied, including standardized gender-power relations that restrict people and households ' access to food. Since the food crisis of 2007 world leaders have been focusing again on the issues of poverty and deprivation, but concerns remain embedded in both long-and short-term policy shortcomings. In this context, we have focused on food security as a vital aspect for sustainable development and gender equality at their core, since being free of hunger is a fundamental human right and properly nurturing is a fundamental capacity that cannot take advantage of many other possibilities of fulfilment in life. It is important, especially, to support the right of women and girls to food and nutrition (Buckingham-Hatfield, 2002; Budlender, 2010).

Climate change affects and habitat degradation and natural management resources. The earth's climate, primarily because of human activities, is evolving in every dimension from local to regional. The stratospheric ozone layer was damaged, the climate was warmer at a faster rate than ever in the last 100 000 years. The biodiversity had fallen at an unparalleled rate. Fisheries in the majority of the world's oceans were down, air pollution in and around many of big cities was a growing problem. Many of this deterioration in the ecosystem is attributed to the unsustainable growth and use of electricity, water and food and other ecological capital. It is already disrupting attempts to alleviate poverty and to promote sustainable development (Ackerman *et al.*, 2009).

Climate Change. Without question, since the industrial revolution primarily because of human activities, the makeup of the Earth's atmosphere and environment has shifted and if these acts do not alter significantly, these shifts will occur on a regional and global level. Since the pre-industrial era, the atmospheric carbon dioxide content rose by more than 30%, primarily because of combustion and deforestation of fossil fuels. The world's medium-term surface temperature has already risen by about 0.75ºC, which has been relatively stable for over 1000 years, so further 0.5ºC to 1°C due to previous pollution are expected. Around 2000 and 2100, it is expected to grow by an estimated 1.2-6.4ºC with land colder than seas and Arctic cooler than tropics. The current global emission reduction pledges are associated with an increase in temperature of at least 3 degrees C (50-50 odds). Over about 3 million years a similar increase was not seen on the planet, much more than Homo sapiens lived. There is a serious risk of an escalation of five degrees C to an average of 30 million years not seen on the earth. This is a large-scale issue of risk management and public action. Unpriced – externality–the effect of pollution is the underlying market failure. There are other key market failures in R&D and learning, networks / grids, knowledge, and further market failures around co-benefits such as ecosystem services and issues related to biodiversity. If policy considers only the collapse of the carbon market, the size and emergency of the reaction required will not be produced. Tackling climate change has been hopelessly unsatisfactory in the global community. Climate change expense, now estimated at or above 5% of global GDP, will one day production worldwide if no action is taken. Globally, the response to the climate change crisis that has science proven and promoted public awareness needs to be adopted by the audacity of global leadership in policy, politics, industry and civil society (Lovins and Lovins 1977).

Biodiversity, Ecosystems and their Services Biodiversity. Ecosystem services are underpinned, humankind is supported, resilient to Earth's life is based upon a diverse range of genes, people, communities, ecosystems and ecological processes, integral to the fabric of all cultures of the world. The range of services provided by human ecosystems includes: provision (e.g., food, freshwater, wood and fibre, and fuel); regulating (e.g. climate, inundation, diseases); providing cultural support (e.g., esthetic, spiritual, educational, recreational), nutrient cycling, soil formation and primary production). Biodiversity provides ecosystem services to the human population. Such ecosystem services relate to human well-being, including our protection, our wellbeing, and our social relations, as well as freedom of choice and practice. They risk losing a great deal of nature and the benefits it brings to mankind. As human traffic has swell, inefficient use of land and sea infrastructure and groundwater supplies has created unprecedented global changes, ranging from intensified loss of habitat and invasive species to anthropogenic pollution and climate change. There are distinct, ongoing and, in some instances, growing risks to terrestrial and aquatic life. The Millennium Ecosystems Evaluation found that 15 of the 24 ecosystem services surveyed have declined, 4 have increased and 5 have strengthened in some parts of the world and other regions. Intervention is critical: without it there are predictions for current high levels of disappearance of biodiversity, which is now the 6th occurrence of mass extinction in earth history. It is predicted that 10 per cent of the organisms are at risk of extinction for every 1°C rise in the global average surface temperature by up to 5°C. Each species counts, but some at any particular time and place are growing than others. Losing one of the most critical organisms will cascade the

provision of ecosystem services (Hansen *et al*., 2012).

Water Security. The expected population is projected to surpass the need by 2025, with more than half of the global population living in places prone to severe water stress. This will potentially exacerbate the situation, irrespective of climate change. In many parts of the world water quality is deteriorating, with 50% to 60% of wetlands destroyed. Human-induced climate change is expected in many arid and semi-arid areas to decrease water quality and availability and raise floods and droughts risks in most parts of the world. It would have substantial consequences, particularly for agriculture: 70% of the groundwater obtained from rivers and aquifers is already irrigated. The consumption of all surface water is now 15 to 35% over its availability and is thus unsustainable (IPCC, 2007).

Human Security. In many parts of the world, climate change and depletion of ecosystem services along with other pressures jeopardize human stability and significantly increase the risk of violence, domestic and out-of-country migration. The effects of climate change are to expand wars, by weakening the basic elements of life for many poor people: (I) food shortages can increase where malnutrition is present and drought is on the move; (ii) water shortages can increase significantly in places where waters are already in shortage; (iii) the lack of agricultural products or services may deplete natural resources; (iv) the relocation of decades of millions of people in low-lying deltaic areas and small island states; (v) the risk of an epidemic onset; and (vi) the occurrence or severity of severe weather events (Anand and Sen 2000).

Approaches to Conserve and Sustainably Use Biodiversity. Loss in biodiversity and destruction can be stopped and reversed by concerted preparation focused on relevant results, a well-managed network for protected areas, the ecological benefit of agricultural areas funded by the latest biogeographic science of rural areas, using the InVEST and other modern monitoring and assessment methods, and transformational improvements in service areas. The Convention on Biological Diversity (CBD) is the global environment for biodiversity and is critically important for its regional and global 2020 biodiversity conservation goals, in specific security zones and the avoidance of extinction. Conservation will slow down climate change, increase human and eco-system adaptability, save life and preserve lives in a myriad ways because Earth's climate changes are the secret to addressing the climate crisis, while conservation can slow down climate change. Tropical forests, coastal marine habitats and other species are important for conservation of global biogeochemical cycles. These are also widely available, and can be used directly to mitigate greenhouse gas atmospheric concentrations without waiting for new technology by safety and restoration. The Active Deforestation and Forest Degradation Emission Reduction (REDD+) Mechanism must be introduced and funded to help countries either mitigate or maintain low levels of deforestation for certain nations. The forests as an environment remedy have a great advantage of performing a number of roles concurrently. In order to address the consequences, including improvements in the river supply, increased sea levels and increases in diseased-carrying animals and other pollutants, climate resilience services provided by stable, varied community networks would become ever more important in the face of the climate change. For e.g., mangroves store biomass, help farming, shelter different species and reduce the impact of hurricane. Ecosystems often support human livelihoods by supplying significant income and substitute resources as climate change disturbs existing sources. This diversification is good for all, and in particular for those with the least climate change potential, the most vulnerable communities and nations (Anonymous, 2015).

Food Security. Theoretically, today we should feed the world with affordable food while supplying the farmer with a sustainable livelihood and proper distribution of produced goods. But this will not happen in the foreseeable future of business-as usual. Alongside a decline in post-harvest loss and wide-ranging rural development, many of the existing hunger issues can be addressed by using current technologies effectively, and especially through the introduction of effective agroecological approaches (e.g No / Low till, integrated pesticide control and integrated natural resource management).This includes the identification and empowerment of women through means of schooling, ownership rights, access to finance and market access through improved roads. There is also a need for global trade policy changes that will boost local development in the developing world to be agreed and enforced (Budig and Misra 2010).

Data on food security: a key obstacle. Information discrepancies represent a significant barrier to the study of ethnicity and to the evaluation of the application of the right to food. For example for the percentage of undernourished or underweight children under the age of 5, the most widely utilized and obtained foreign information series practically has no sex-disaggregated statistics. Only a small number of globally equivalent metrics, such as body mass and certain micronutrient deficiencies, are obtained at the national level for sex-disaggregated results. A detailed indicator system has been developed by the Food and Agriculture Organization of the United Nations (FAO) that covers many determinants of food safety (availability, financial access, physical access,

misuse, vulnerability) and outcomes (use, use) (FAO, 2013). But only 1 out of 40 gender indicators: anaemia among pregnant women could be regarded as a genital predictor. For the measurement of women's recognition of their right to food, it is important to take into account factors that affect their food security, which are broken down by class, such as women's access to land and other services, time use and the capacity for decision-making (Anenberg *et al*., 2013).

Moreover, economic data on food and commodity prices on world aggregates are well developed: monthly prices are tracked and reported on world corn, rice, sugar and other commodities markets. This is important for understanding the market environment as a whole. For places which are much more systematically regulated but are important to monitor people's availability of food, including prices at a national and local level, and the relationship between wages and prices, more disaggregated information is required.

STRUCTURAL CONSTRAINTS ANDDETERMINANTS OF FOOD SECURITY

The Mystery that Much For the majority of the 20th century, hunger was viewed as a national and global issue with supply shortages. As an example, the 1974 World Food Congress defined food security as:' the continued expansion of food consumption in order to compensate for the volatility in demand and prices, at all times adequate world food supplies' (UN, 1975). But with malnutrition persisting and food prices declining over the past seventies to the nineties, other specialists in food security and strategy questioned this perception of food safety (Hoddinott, 1999; Sen, 1982). So, the question of distribution and entry, and not only of production and supply, became more and more known as hunger. Intellectual and ethical foundation for human rights based approach in food safety was the entitlement response to hunger and famine founded by Amartya Sen (Sen, 1982; Drèze and Sen 1991), and that introduced by international human rights principles. Sen claim that even when resources are plentiful, famines exist since the means to procure food are inaccessible to individuals and households (entitlements). Three strategies were established of access or entitlements; pay shares, own development and social transfers often relevant to circumstances of poverty and undernutrition which may be chronic or deep-rooted or recurrent (Drèze and Sen 1991). Gender equality, freedoms and capabilities. The concepts of autonomy and dignity are rooted in the right to food and the commitment of entitlement. The right to eat "is not an opportunity to a certain amount of calories... or the right to fed just as the entitlement solution emphasizes on poverty induced by people's lack of their means of buying food. The freedom to sustain themselves is assured" (De Schutter, 2011; Cela *et al.,* 2013). The preference of the person to satisfy certain nutritional needs and the organization to do so is a central part of the concept of human rights. Therefore, a person has a close relation to other facets of their capacity and rights to obtain nutritious food. The human rights viewpoint takes account of gender analysis of food security rather than aggregates (e.g., country, population, household). It can explore the intrahousehold dynamics of food distribution by sex and age and analyze the role of women in food production, management and decision making in households and societies. (b) Rural livelihoods and sexually limiting systems (Braunstein and Heintz 2008). The own production in many parts of the world by smallholder farmers is a significant source of food health and livelihoods. In most Sub-Saharan African countries with specific workers' data available, agriculture already account for 47 percent of total jobs in South Asia (2012) and exceeds 50% in most of them, although it contributes slightly less to GDP (18 percent in South Asian and 14 percent in sub-Saharan Africa) (World Bank, 2014).In comparison to the mainstream transformations in high-income industrialized countries, manufacturing in developing countries is actually inadequately absorptive of the labor force being forced out of agriculture, which is the typical shift from agriculture to development (and from there to services) (Anonymous, 2010). At the same period, the burden on small-scale agriculture as a sustainable livelihood leads to high rural poverty and emigration. It is often the people fleeing in times of difficulty and the women left to work on less productive land, though liable for household and family health, that are impacted by environmental degradation (Skinner, 2011). In the meantime, as stated below, the shifts in the political environment where the liberalizing police have taken place have been another consideration alongside environmental drivers

Water Security. The challenge of addressing water shortages will require: (i) riparian (often transnational) river basin management; multi-sector (for example, farming, industry and households) management; and combined land-and-water management; (ii) comprehensible participation (e.g., State, private sector and civic society – women in particular) in low-level management activities; and (iii) imprinting management actions. Water cost recovery, at just 20%, poses an important problem in water management, and water pricing, as well as the IMF and World Bank strategies to guarantee the exposure of poor people, are crucial yet contentious. It is also necessary.

Competence in Leadership. Sustainable development requires a big paradigm shift and global implications that are unparalleled. It is simplistic to claim that broad and efficient global strategic choices are not to be made from the sea.

If substantial changes are needed, new governmental and institutional models with the requisite capacity for reform on a suitable level will be pioneering. Those role models are now in service and several references can be found in Karl-Henrik Robert's article. The innovative role models that are already in position and are in service are now essential to strengthen and mentor them to scale up enough to sustain required legislation (Braunstein, 2013). In this sense, research can do more than simply show that improvements in themselves are required and/or that the problems we face are complicated. Moreover, science can show ways to think and plan, to take advantage of the opportunities arising from the required change of paradigm, not least from the pioneer's own self-beneficial perspective, to illustrate the perspective and point to robust ways to manage complexity.

CONCLUSION

Sustainable development is threatened by climate change and loss of biodiversity. There is, therefore, no dichotomy regarding economic progress and environmental protection by reducing climate change and loss of biodiversity. Indeed, if the ethical dilemma is not offset for future generations, costs of mitigating climate change will be less than the cost of inaction and deferred intervention increasing significantly increase expenses. The optimal use of capital for businesses and families (e.g. electricity or water) saves money. Assessment and development of ecosystem services markets will offer new economic opportunities. Future opportunities and creativity should come from the green economy. Governments, the private sector, cooperative and public society in general all play important roles in moving into a low carbon environment, responding to climate change and rendering nature more resilient.

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