



## Editorial

# Sustainable Agriculture for a Healthy Eco-Systems: Why do we need it?



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James Lovelock's Gaia Hypothesis claimed the humans are responsible for exacerbating the conditions on planet Earth and they are killing it. Referring to the production of food, he states that "people everywhere have been amazingly careless about land use and fooled by globalization's cornucopia of food that they seem to think will go on forever" (Lovelock 2009, p. 133). Though the notions presented by the scientists in the camp of "human virus" were highly debated, implicitly we need to accept the truth, that is, the negative human impact on Earth and its future consequences. Since the dawn of civilization and the urban revolution, we have been extremely concerned with urban planning, health, infrastructure facilities, rural development, and so on, however, the accumulation of plastic patches in far Oceans and the decaying green-blue colour of the Earth has become unseen for many. Many of the urban dwellers are no longer able to experience the wonders of the night sky. While we are concerned about counting the human population, every day a statistical record marks a zero in front of another species. So, we invented the terms "pollution" and "extinction" to be worked on and used for creating models. Furthermore, a number of movies are being released, annually, based on the fight or flight to survival in 'dying earth'.

While the issues persist, the human race keeps growing. Changing the face of the earth, or technically the "development", is vital to meet the demands of the growing population. Simple agriculture turned into agribusiness. Then came the 'Green Revolution', followed by the general notion of sustainable development, which are diametrically opposite concepts. Though the Green Revolution showed promising results, yet as soon as it was laid into work, practice showed that it could become the Pandora's Box of which the future generation should deal with. Therefore, the term 'sustainable green revolution' was coined and placed on the table. Though I am not pessimistic about these ventures or the benefits of environmental summits, there will be some lessons we can learn from our ancestors and their knowledge base before going into more technical jargons. However, modern economic development demands more massive visions than those in traditions. Countries should opt either to stay on the traditional paths as Bhutan does or move with the flow without looking at the consequences.

Globally, the current economic structure is going through turbulence. At one point, we started seeing the world as a global market and a universal village. Then it shattered into several regions who grouped into economic landscapes. Europe declared the European Union



(EU), while many other regions have their own bilateral/multilateral agreements under names, such as USA-Canada, Indo-China, The G8 or BIMSTEC. Agreement changes or withdrawals, such as Brexit or the withdrawal of the United Kingdom from the EU, caused change to the image, and the most recent UK expression of interest in investing in the African economy makes it's a more vivid discussion. In this arena, where leading industrialised economies are promoting country first policies, what will be the act of developing nations? Is the producer-market-buyer relationship globally applicable where one country produces, while another country consumes, and a third nation holds the market? Above all what will be the destiny of the economies of the developing countries amidst this scenario? Most simply put, how does a traditional local farmer compete with a multinational agro-company? Notably, the Afro-Asian countries keep alarming a signal. This is of great importance while discussing eco-friendly food production as groups of developing countries report a low carbon footprint. Increasing food production and using chemicals have a direct impact on their eco-systems. Amidst all of these concerns, the wellbeing of the planet earth, it's ecosystems and spheres, and the longevity of human race are becoming more generalised discussions.

This is the point where agriculture and development can help to meet these objectives. Developing countries are at a much higher risk for social and ecological effects than that of developed countries. Evidently, the high-productive and environmental friendly agricultural practices of developing countries were displaced by the green revolution and put the economies into situations that are further complicated. For instance, Sri Lanka had a very self-sufficient agriculture production system, along with its heritage of irrigation (including 30,000+ of man-made tanks), which can be traced back to over two thousand years. However, when the independence of paddy farming first shifted towards large-scale agricultural settlement schemes, the system faced some unexpected failures in terms of land and water demands. The widely used concepts from the green revolution and most of the traditional rice varieties have been declared extinct or nearly extinct, including over 170 of main varieties and accessions of 4,541 rice and related species collected from Sri Lanka as reported by the Plant Genetic Resources Centre (Dassanyake et al., 2013, p. 245). During the late 1970's, the policy priorities shifted from the irredentist movement to an open economy mindset, which expects more socio-economic modernisation. Direct intervention of government on the agricultural market discontinued while the agriculture itself underwent apparent transformations to match with the global market. Structural changes in agriculture marked a new

era of labour, finance, land use and technology. Results of these changes are not merely socio-economic but led to more massive crises, ranging from the collapse of old traditions to the stamina of the society. For instance, the chronic kidney disease in North Central province is spreading like an epidemic. As a country with large international debt, the current policy has issues of being autonomous. It is not a surprise that the ban on certain chemicals, including glyphosate, had to lift in front of the internal and external influences. This is familiar in many of the agrarian countries, like Sri Lanka, where making domestic policy decisions has become more arduous, though the severe changes in the agricultural system are required (Vander and Konradsen, 2005, p. 589; Kesavachandran et al., 2009, 33; Wesseling et al., 1997).

During the reign of King Parakramabahu the Great (1153-86), Sri Lanka was considered as the granary of the east. Even at the independence from the British colonial rule, Sri Lanka was once a balanced agricultural and plantation economy, which was capable of feeding the population and exporting some industrial, agricultural products. However, efforts made to increase the plantation exports, rather than fulfilling the domestic requirements, caused issues to emerge that still persist today. With the growing concern for sustainable agriculture and healthy eco-systems, I would like to make a brief note on how the traditional food production was practiced in Sri Lanka regarding the primary basis of paddy cultivation.

Practiced since the early historical period ca. 800BC, the farming system of Sri Lanka, mainly rice and some other home gardening, spread over a wide range of ecological landscapes based on extensive techno-cultural adaptations. The most vital system founded by these early settlers was the irrigation system, which the lifeline of ecosystems and human society was dependent on. This hydraulic civilization were experts in rainwater management, topsoil conservation, pest control, protecting crops from wild animals, among other topics. The system was both autonomous and sustainable. Though some of the methods seemed to be irrational and linked with religious and supernatural beliefs, there are observable results of such methods. As previously mentioned, there were a large number of rice varieties that possess different qualities and attributes. For instance, the Suwandel is rice with fragrant aroma and helps control diabetes. Kalu Heenati is high fibre rice usually used for diabetic patients, pregnant mothers, and as a treatment for snake bite. Kuruluthuda is good for bladder functioning. Madathawalu is for the healthy immune system (IUCN, 2016). Kem, or charm, is a group of traditional methods used for treating humans to cure pests or other effects in



farming. HCP Bell reports (Bell, 1998), about such a Kem,

"...When the paddy is about 6 weeks old grubs in turn attack it. At this period too, if the rainfall is heavy, the plants are liable to another disease called in Sinhalese *ala-kola-rogaya* (lit "root and leaf disease"), caused by the rotting of the plants in the water. To avert these mishaps a *kema* or charm called *nava nilla* (?nine herbs) is prepared. Getting together nine *nili* (? green) branches, nine bamboo-canes, each wrapped in nine tender coconut leaves, and an unel plantain leaf, or, failing that, a navari plantain leaf the *Kattadiya* (charmer) goes at midday to the hena. In the centre of it he fixes the bamboo-canes; then taking two of them, one in each hand, without uttering a sound he plants them in the earth at the exit-stile of the hena. The cultivators have hung beforehand a packet containing untasted *kiri-bat* at that stile, and watch unobserved...."

This is just a single example from thousands of such practices which are healthy and eco-friendly. All over the world, many agrarian societies do have or had such environmental friendly approaches in farming while affirming the longevity of nature. Currently, Sri Lanka farms more than 95% of the paddy farming on newly modified rice varieties, which should be maintained by regular use of chemicals, non-organic fertiliser and pesticides (IUCN, 2016, p. 9). However, in the present market, increasing demands for organic - traditional rice is observed. This makes for a positive signal.

If we return to the quote we made at the beginning of this article, it is true that the increasing population and changing climatic conditions keep pressuring the earth. Food production is becoming a more vulnerable industry. Furthermore, the solution will be the key abilities of humans to preserve, such as the adaptation and innovation that humans possess which helped them to survive during its evolutionary bottlenecks. Many methods can be learned from traditional farming methods while innovating novel solutions to land scarcity and demand for food, including ways to reduce production costs, enhance soil fertility with sustainable methods, increase profits at the farm household level, and better water management. Developing nations will need to prioritize domestic production to meet the requirements of the country before heading to industrialized economic production techniques. Amalgamation of traditional and industrial concepts will be more fruitful for those who have already reached sufficient levels of agricultural production. The model of Japan provides some good examples, but it will need to allow time for such models to emerge naturally from the people.

The current Volume 6 Issue 1 of the "Future of Food: Journal on Food, Agriculture and Society", on the theme of

"Sustainable Agriculture for a Healthy Eco - System" contains papers providing insight to these issues from various regional and global perspectives. Furthermore, this edition is enriched with book reviews that bring a critical outlook of the thematic issues.

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