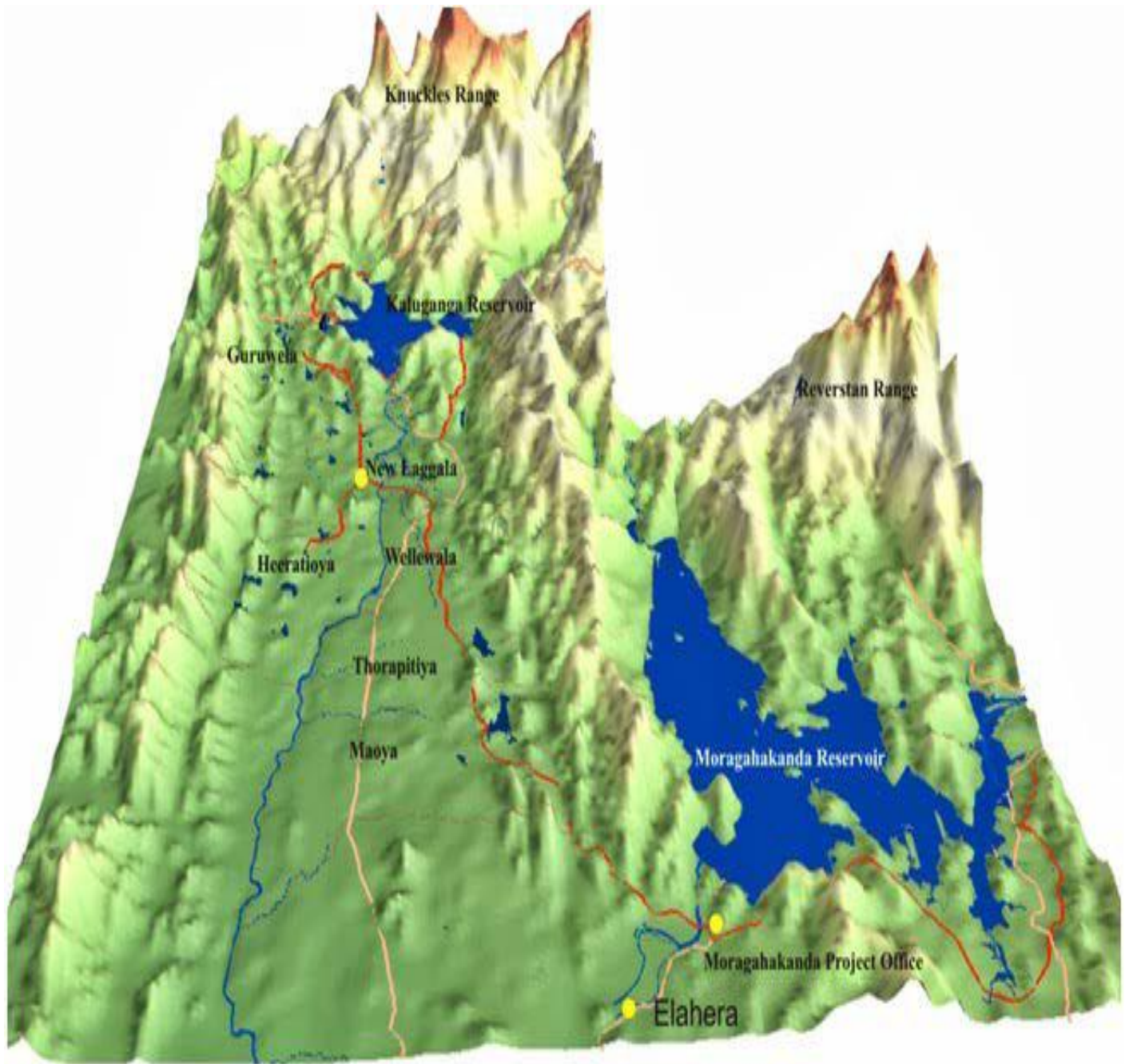


CONCEPT NOTE FOR THE ESTABLISHMENT OF THE MAHAWELI ZONE DEDICATED FOR ORGANIC AGRICULTURE IN THE CENTRAL HIGHLANDS, KNUCKLES EASTERN SLOPE



**3D Model of the Knuckles Organic Green Zone.**

## **BACKGROUND**

Moragahakanda-Kaluganga Multipurpose Development project is expected to provide irrigation facilities to over 82,000 ha of farm lands for both Yala and Maha cultivation seasons and domestic and industrial water to the dry zone areas of the North Central, North-western and Northern Provinces during its implementation in the coming years. Under the second stage of the project, which is already underway, the North-Central Province (NCP) canal and associated water ways and reservoirs will be constructed or rehabilitated.

It aims to irrigate 135,000 ha of new and existing cultivation areas in both seasons, in eight river basins of the North and North Central Provinces. Among the major benefits anticipated from this 'mega diversion' project are: agricultural support for 1.5 million families, a supply of clean drinking water as a relief to over 300,000 Rajarata families suffering from periodic water shortages and also the infamous kidney disease both of which are gradually engulfing the northern dry zone.

While the catchment area of Moragahakanda (Kulasinghe) and the Bowatenna reservoirs together is about 785 km<sup>2</sup>, that of Kalu Ganga is only about 200 km<sup>2</sup>. A large extent of this total catchment lies within the Matale Municipal Council area and also in Ukuwela, Laggala-Pallegama, Rattota, Amban Ganga Korale and Naula AGA divisions, all in Matale District.

Among the major streams that feed Moragahakanda and Kalu Ganga reservoirs are: Amban Ganga, Sudu Ganga, Kalu Gganga, Katamini Oya, Halmini Oya, Nikawatura Oya, and Etambegolla Ooya; most of them are on the eastern slopes of the Knuckles range. In addition, several smaller tributaries (Amunuwela, Nicolapelessa, Hewane, Hamulla, Bambaragaha, Kumbukgolla and Wattegedera) also supply water to these reservoirs. Catchments of these streams too, need to be protected. Both the Amban Ganga and Kalu Ganga watersheds receive a major share of their annual rainfall during the NE monsoons and inter-monsoonal rains. The SW monsoons, on the other hand, do not effectively extend into these watersheds, as the entire region is on the northern and eastern slopes of the Knuckles range. Consequently, the entire catchment area experiences drought during the July-September period.

At present, much of the catchment areas of Moragahakanda and Kalu Ganga reservoirs are covered with upper (> 1500 m amsl) and lower (900-1500 m amsl) montane rain/moist forests. They are interspersed with grasslands and scrublands in some areas. This region receives a seasonally distributed annual average rainfall >2000 mm. The area below 900 m consists of lowland and mid-elevational moist forests, scrublands (resulting from abandoned tea and shifting cultivation) and home gardens near the lower reaches.

Although the forest cover of the entire Knuckles wilderness landscape appears intact from above, extensive areas, particularly those in the lower montane region (between 900m -1500m amsl), have been commercially cultivated with cardamom since the 1960s until the area was declared as a part of the Mixed World Heritage Site of UNESCO in 2010. Especially the upper catchment area of the Kalu Ganga, which extends up to the peaks of Kalupahana and Lakegala, is largely under degraded forest cover due to extensive cardamom cultivation underneath the forest canopy for well over 40 -50 years.

THIS NOTE HAS BEEN PREPARED WITH INFORMATION GLEANED FROM THE PUBLIC DOMAIN, INCLUDING PUBLICATIONS, REPORTS AND ARTICLES IN THE MEDIA AND WEBSITES AND THE GOVERNMENT OF SRI LANKA. SPECIAL ACKNOWLEDGEMENTS GO OUT TO FAO, WBSD, ICRAF, GCF, PROF. NIMAL GUNATILAKA, DR RANIL SENANAYAKE, CHRIS DHARMAKIRTI, PROF FERGUS SINCLAIR AND ANURA DISSANAYAKE.

Although the Cardamom cultivation was officially banned and no further crop maintenance is permitted, small-scale cardamom collection and curing using firewood from the forest still continues. Consequently, the undergrowth in these degraded forests regenerate rather slowly; canopy disturbances in montane forests usually take a longer period to heal compared to their counterparts in the southwest lowland rain forest regions. Another disturbing trend is the spread of forest die back, evident in the upper-montane forests in the Knuckles range.

The 5th Assessment Report of the Inter-governmental Panel on Climate Change (5AR-IPCC) of 2014 predicts that the surface temperature to rise globally over the 21st century under all assessed emission scenarios. It is very likely that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions. The average ambient temperature is predicted to increase gradually by about 1.5 - 2.0 oC by the end of the century.

According to the Regional Climate Change sub-models produced by the 5th AR –IPCC (2014), the predicted change in average precipitation for the South Asian region is  $\pm 10-20\%$ . Using similar methodology, the climatic studies done in Sri Lanka have reported that the island's NE Monsoon has decreased by about 19% in the recent past, while the rainfall during SW Monsoon has increased by about 9%. Based on the above, locally developed climate models over a long-term in to the future, a deficit of water in both Amban Ganga and Kalu Ganga than what is received at present during the NE monsoons has been predicted. Added to that, more frequent extreme drought events during the SW monsoonal months are also predicted.

(THIS AFOREMENTIONED BACKGROUND NOTE ON THE PROJECT WAS EXTRACTED FROM AN ARTICLE WRITTEN BY PROF. NIMAL GUNATILAKA AND PUBLISHED IN THE ISLAND NEWSPAPER)

THE KEY FACTOR TO OBSERVE HERE IS THAT THE KALU GANGA RESERVOIR, UNLIKE THE MORAGAHAKANDA RESERVOIR, IS EXCLUSIVELY FED WITH PURE UNPOLLUTED WATER FROM THE EASTERN SLOPES OF THE KNUCKLES MOUNTAIN RANGE, UNCONTAMINATED FROM ANY INDUSTRIAL DISCHARGES OR EVEN LAND RUN OFFS FROM TEA ESTATES. THUS THE IRRIGATION WATER THAT GETS DISTRIBUTED FROM THE KALU GANGA RESERVOIR IS IDEAL FOR SUPPORTING A DEDICATED ORGANIC FARMING ZONE, ESPECIALLY AS THE SETTLEMENT AREA IS ALSO VIRGIN LAND WITH NO PRIOR AGRICULTURAL HISTORY, AND THUS THE SOIL IS UNCONTAMINATED.

**Global organic food market to reach \$262.85 billion by 2022**

**with Sri Lanka's new Mahaweli Zone for organic agriculture**

**supporting farmers to grab billion dollar health food export market**



Organic food is different from conventionally grown food because Organic food is either grown under a natural system of agriculture, without the use of synthetic fertilizers or they are processed products made from organically produced raw materials. The rise in popularity of these products has essentially been a direct result of growing health concerns among consumers and increasing awareness with regard to the health benefits of organic food.

The Food and Agriculture Organization of the United Nations (FAO), has observed that organic agriculture is a system for crops, livestock and fish farming that emphasizes environmental protection and the use of natural farming techniques. It is concerned not only with the end-product, but with the entire system used to produce and deliver the agricultural product.

To this end, the entire farm cycle, from production and processing, to handling and delivery, excludes the use of artificial products such as genetically modified organisms (GMOs) and certain external agricultural inputs such as pesticides, veterinary drugs, additives and fertilizers. Organic farmers rely instead on natural farming methods and modern scientific ecological knowledge in order to maximize the long-term health and productivity of the ecosystem, enhance the quality of the products and protect the environment.

Proponents of organic methods believe that it is a more sustainable and less damaging approach to agriculture. Thus organic food items are gaining popularity for pretty straightforward reasons i.e. GMO-free content, nutrient richness, zero growth hormones, zero antibiotics, fewer pesticides, improved freshness levels, and better environmental stability.



**Currently, 1.2 percent of the world’s agricultural land is organic.**

The highest organic shares of the total agricultural land, by region, are in Oceania (6.5 percent) and in Europe (2.7 percent; European Union 6.7 percent). However, some countries reach far higher shares: Liechtenstein (37.7 percent) and French Polynesia (31.3 percent) have the highest organic shares. In fifteen countries, 10 percent or more of the agricultural land is organic. There were at least 2.7 million organic producers when a count was done in 2016. Forty percent of the world’s organic producers are in Asia, followed by Africa (27 percent) and Latin America (17 percent). The countries with the most producers are India (835’000), Uganda (210’352), and Mexico (210’000).

In comparison, Sri Lanka has only a few organic producers in a very miniscule land area, despite being insignificant against the more established markets, with the creation of the new zone within Mahaweli system, Sri Lanka too would get noticed in the global organic producer’s footprint, as our biodiversity and agro ecological zone diversity would augur well for a wide variety of organic products, be it in packaged

foods, fresh fruit and vegetable produce, cereals, nuts, spices, tea, coffee, and even horticulture. The range that Sri Lanka can produce from both annuals and perennials is indeed wide.

Permanent crops account for eight percent of the global organic agricultural land, amounting to 4.5 million hectares. Compared with the previous survey, an increase of more than 126'000 hectares, or 9 percent, was reported. The most important permanent crop is coffee (with more than 0.9 million hectares, constituting over 20 percent of the organic permanent cropland), followed by olives (almost 0.7 million hectares), nuts (almost 0.6 million hectares), grapes (almost 0.4 million hectares), and tropical and subtropical fruits (over 0.3 million hectares).

Detailed information on organic cotton was provided by Textile Exchange, showing that during the 2015/16 growing season, 107'980 metric tons of organic cotton fibre was produced globally by 219'947 farmers on 302'562 hectares of land. There are currently 18 countries producing certified organic cotton, but 97 percent of the global supply comes from just seven countries. India remains by far the largest producer, accounting for almost two-thirds of total production, followed by China, Kyrgyzstan, Turkey, and Tajikistan.

There were over 1.8 million hectares of certified organic agricultural land in Africa in 2016. Compared to 2015, Africa reported an increase of almost 119'000 hectares, a 7 percent increase. There were more than 741'000 producers. The United Republic of Tanzania was the country with the largest organic area (with almost 270'000 hectares), and Uganda was the country with the largest number of organic producers (more than 210'000). The country with the highest share of organic agricultural land was the island state Sao Tome and Principe, with 13.8 percent of its agricultural area being organic. The majority of certified organic produce in Africa is destined for export markets. Key crops are coffee, olives, nuts, cocoa, oilseeds, and cotton. In Africa, only Morocco and Tunisia have an organic regulation; however seven countries are drafting one and eleven countries have a national standard but not a national legislation.

The total area dedicated to organic agriculture in Asia was almost 4.9 million hectares in 2016. There were 1.1 million producers; most of these were in India. The authorities in India introduced a common logo for organic foods – “Jaivik Bharat.”

The leading countries by area were China (2.3 million hectares) and India (almost 1.5 million hectares); Timor-Leste had the highest proportion of organic agricultural land

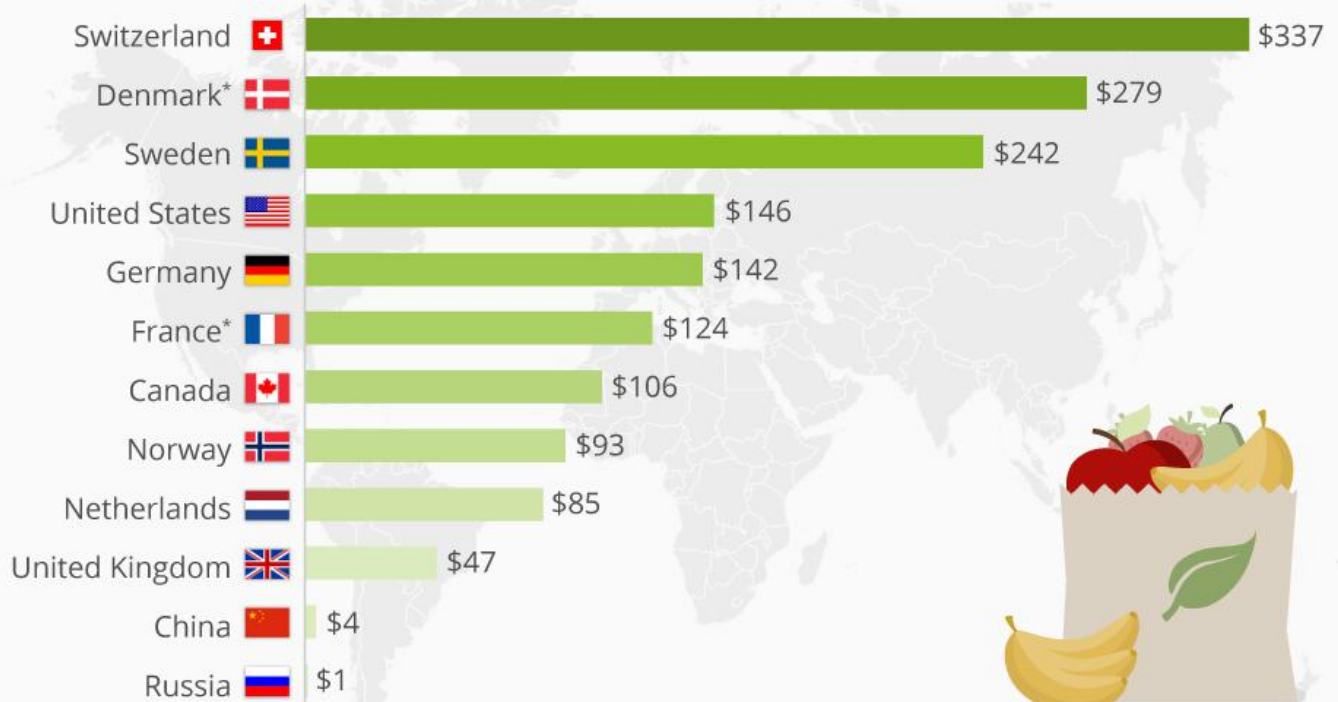
(7.4 percent). Exports of organic products are also increasing as seen in the example of Bangladesh. An interesting development was the significant increase of national and local organic groups in China, such as organic marketing clubs or organic marketing alliances as market platforms. Community Supported Agriculture (CSA) and Participatory Guarantee Systems (PGS) are also attracting much interest. A mutual recognition of certified organic products between China and New Zealand was signed at the end of 2016.

The Philippines saw an increase in active involvement of more than 120 local municipal mayors in the development of organic agriculture. Some municipalities are now recognized internationally for their exemplary development of organic agriculture

As of the end of 2016, 13.5 million hectares of agricultural land in Europe (European Union 12.1 million hectares) were managed organically by over 370'000 producers (European Union over 295'000). In Europe, 2.7 percent of the agricultural area was organic (European Union: 6.7 percent). The countries with the largest organic agricultural areas were Spain (2 million hectares), Italy (1.8 million hectares), and France (1.5 million hectares). In nine countries, at least 10 percent of the farmland is organic: Liechtenstein has the lead (37.7 percent), followed by Austria (21.9 percent) and Estonia (18.9 percent).

# Who's Buying The Most Organic Groceries?

Per capita revenue from organic groceries in selected countries (2016)



Converted from EUR to USD on 22/02/18

\* 2015



Source: Bund Ökologische Lebensmittelwirtschaft



## Export Market Opportunity for Sri Lanka's Organic Products

The market for organic products have grown dramatically, with retail sales of organic products totalled 33.5 billion euros in 2016 (European Union: 30.7 billion euros), an increase of more than 11 percent since 2015. The 2019 figures are not available to be quoted, but suffice to look at the 2016 data to get an indication of the economic value of encouraging organic production in Sri Lanka.

The largest market for organic products in 2016 was Germany, with retail sales of 9.5 billion euros, followed by France (6.7 billion euros), and Italy (2.6 billion euros) . In 2017, €40 billion of organic products were purchased in the US and €37 billion in the EU. On the European continent, Germany is leading with €10 billion ahead of France, which has an organic farming market worth €7.8 billion. The organic market is booming, especially in France, and is expected to reach €100 billion worldwide this



year, announced Michel Reynaud, vice-president of Ecocert, one of the world's largest organic certification bodies.

The reasons attributed to high growth in the use of organic products in the world are increasing health consciousness in lieu of increasing health issues such as obesity, diabetes, hypertension etc. Europe is the second most largest consumer of organic produce and accounts for over 33 per cent of the total revenue share globally. This development in Europe is foreseen because of the change in the outlook of the populace towards an inclination of a solid way of life and the rising mindfulness about the medical advantages of organic food. The expanded availability of organic products in retail outlets make it increasingly advantageous for buyers to buy these items.

According to Market Research, the Global Organic Food and Beverages Market alone will reach USD 323.56 Billion by 2024, a recently published research report, "Global Organic Food Market Forecast and Opportunities, 2020", projects to register a CAGR of over 16per cent during 2015 – 2020 of the global organic food market. Global Organic Food and Beverages Market is expected to reach US\$ 679.81 billion by 2027, growing at an estimated CAGR of 17.05% over the forecast period, owing to growing awareness about advantages offered by organic foods and beverages, says Absolute Markets Insights.

The industrialized and developed countries such as Australia, New Zealand, Japan, Singapore, Hong Kong, and Korea are major markets for organic foods and beverages in the Asia Pacific. There is also an increase in demand for the products in developing countries like India and China due to awareness about the benefits of organic food and beverage.

Organic food and beverages market analysis revealed product launch as the key growth strategy adopted by market players, followed by merger & acquisitions, business expansion, partnership, and joint ventures. Several companies have developed innovative products to enhance their product portfolio. This strategy is widely adopted by various companies to increase their market outreach and serve global customers.

The global [organic food and beverages market](#) expected to reach \$327,600 million by 2022 from \$115,984 million in 2015 at a CAGR of 16.4% from 2014 to 2022. Organic foods and beverages are manufactured from products those are grown using organic farming techniques.

The organic food and beverages market forecast estimated notable growth in the near future, due to the unique advantages of the organic food and beverages such as chemical and pesticide-free, eco-friendly, and very healthier compared to inorganic food.

Rise in awareness regarding the advantages of organic food and beverages industry intake is expected to fuel the market growth in the near future. Moreover, increase in income levels, improvement in standards of living, growth in environmental concerns, increase in health hazard diseases due to inorganic foods are some other driving factors of this market. The impact of these drivers is expected to increase significantly due to growth in health concerns among the consumers.

The global organic food and beverages market is segmented based on the product type and geography. By product type, the market is further segmented into organic foods and organic beverages. The organic beverage segment is divided into organic nondairy beverages, organic coffee & tea, organic beer & wine, and other organic beverages.

On the basis of geography, the organic food and beverages market has been segmented into North America, Europe, Asia Pacific and LAMEA. Asia-Pacific holds fastest market growth estimated at CAGR 22.9% for the forecast period, though largest market share is controlled by North America and is expected to continue the market dominance through 2022. Asia-Pacific organic dairy products market is estimated to rise with a prolific CAGR of 16.3% for the forecast period.

At present, organic coffee and tea have witnessed higher demand potential. This segment has high rate of adoption in the organic food and beverages market due to unique advantages provided by the organic coffee and tea such as helping in weight loss. Sri Lanka with its tea, coffee, and fruit beverage production capacity, is poised well to be a leader in these fast growing segments, should the tea estates in the central highlands be mandatorily converted into organic plantations by the Government.

The organic food segment is further divided into organic fruits and vegetables, organic meat, fish & poultry, organic dairy products, organic frozen & processed foods, and other organic foods. Organic fruits and vegetables is the next segment, which registered highest organic food and beverages market share, currently also expected to register the higher growth rate in the near future.

Closer home to Sri Lanka, the organic products market in India has been growing at a CAGR of 25 per cent and it is expected to touch ₹10,000-₹12,000 crore by 2020, according to a report produced jointly by Assocham and Ernst & Young.

The Assocham-EY joint study also estimated that the market size for Indian organic packaged food is expected to cross ₹ 87.1 crore by 2021 from ₹ 53.3 crore in 2016, growing at a rate of 17 per cent. As per the Agricultural and Processed Food Products Export Development Authority (APEDA), India exported organic products worth Rs. 30 billion (over \$440 million) in 2017-18, from Rs. 24.77 billion in 2016-17. More awareness and a rise in demand for organic food have helped in increasing sales. Now buyers are more aware of the harmful effects of chemical and pesticides.

Demographically, India is home to over 110 million babies contributing around 11 per cent of the world population with a high birth rate of 19.3 births per 1000 in a year. Parents always want to give the best to their babies, without compromising on the quality and safety aspects of the product. We can expect more brands with organic products to arrive in the coming years in the baby care category. According to TechSci Research Private Limited report, global organic food market stood at \$110.25 billion in 2016 and is projected to grow at a CAGR of 16.15 per cent, in value terms, during 2017 – 2022, to reach \$ 262.85 billion by 2022. Indian organic food market is projected to grow at a CAGR of over 23% by 2023, on account of favorable government policies supporting organic farming coupled with rising land area under organic cultivation.

The Middle East and Africa and Latin America are relied upon to observe a fast development as well. The fast adaption of western culture and increment in mindfulness about organic food is relied upon to help in the increase in demand for organic food.

Increase in adoption of organic groceries and also the organic baby foods made the other organic foods segment as one of the lucrative targets for investment. Other emerging segments such as organic non-dairy products, organic dairy products, and organic meat fish & poultry products with appreciable growth, also offer huge opportunities for the investments. However, organic beverages segment is expected to showcase a less growth rate but the organic food and beverages market size is huge. Moreover, the organic frozen and processed foods and other organic beverages are also transpiring segments which are expected to fetch good revenue.

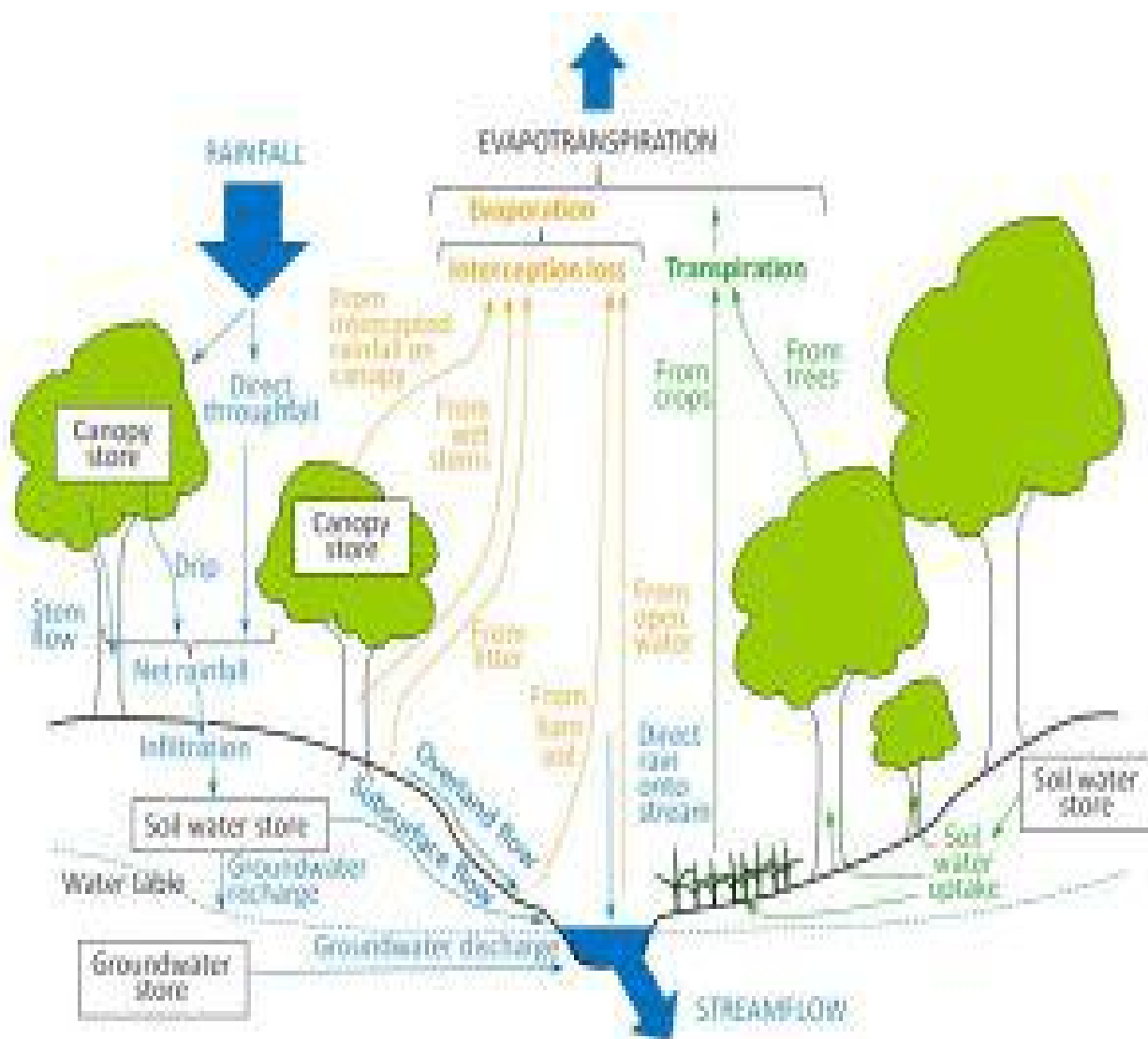
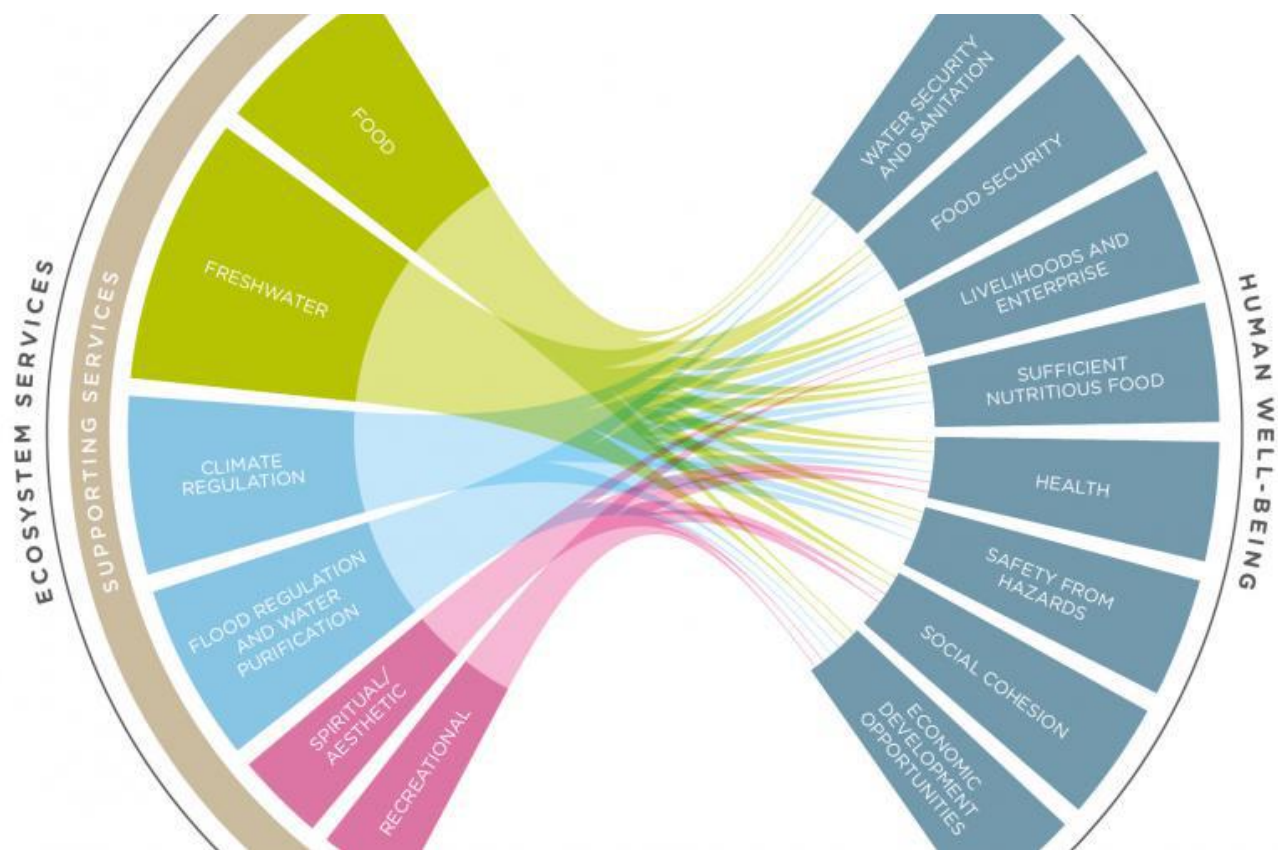


Figure: The hydrologic cycle in an upland forest ecosystem.



## Other Eco Systems Services Economic Benefits from Organic Agriculture

Furthermore, the FAO has welcomed organic agriculture, explaining the indirect economic benefit of adopting it as leads to the adoption of better land management practices as compared to conventional high external input agriculture which has a significant impact on the environment. Conventional agriculture prioritizes high yields and does little to harmoniously interact with and preserve its immediate environment. These practices can result in widespread environmental degradation, commonly resulting in soil erosion, water, soil and air pollution, biodiversity loss, and desertification. They also contribute to global warming – agriculture today accounts for more than thirteen percent of global anthropogenic greenhouse gas emissions.

Conversely, organic agriculture uses an individualized approach to land management that emphasizes preservation of a land's natural ecosystem, while consuming less energy and reducing the risks of pollution common to conventional agriculture.

## **Organic Agriculture Prevents Land Degradation**

- Organic agriculture, therefore, seeks to offer a responsible alternative to conventional practices in the face of ever-growing concerns over climate change and environmental degradation.
- Soil erosion is a main cause of loss of yield capacity and fertility. Long-term comparisons between conventional and organic farms have found that organic methods improve the fertility and overall health of the soil. Organically managed soils also demonstrate better moisture-retention capacity than those of conventional farms, which is important in arid climates and to reduce the risk of desertification.
- Soil conservation is therefore one of the key concepts in organic agriculture. Soil fertility is actually a cornerstone of organic farming by necessity because farmers cannot use synthetic products to restore degraded lands. They rely instead on maintaining and building soil fertility through multi-cropping systems, crop rotations, organic fertilizers, and minimum tillage. Organic farming has the ability to increase organic content in the soil, enhancing its capacity to retain water and circulate pollutants. Organic methods also counter soil erosion because they use natural pesticides and maintain a permanent soil cover, restoring even degraded soils quickly. Although there is little scientific evidence demonstrating that organic agriculture can reverse desertification, there are several practical examples of organic agriculture systems returning degraded lands back to fertility. This suggests that organic farming may prove to be an effective means to counter desertification.

- Water pollution in agriculture is also due to soil erosion and nitrate and synthetic products leaking into water supplies. In light of the fact that organic farms do not use synthetic products, the risk of water pollution is greatly diminished. Organically-tended soils also show reduced rates of nitrate pollution in the water supply, as organic farms use fewer nitrates than conventional farms, and organic soils have an increased capacity to retain that.
- Organic farms also aim at consuming less energy and being more energy efficient than conventional farms. Studies show that they consume about forty-five to sixty-four percent of the non-renewable energy (fossil fuels) consumed by conventional farms. Depending on the climate and crops studied, organic farms were found to be between twenty-five and eighty-one percent more energy-efficient.

### **Climate Change is Mitigated with Organic Agriculture**

- The environmental benefits of organic agriculture can also extend to climate change. The International Panel on Climate Change has strongly advocated the adoption of sustainable cropping systems such as those used on organic farms to reduce carbon emissions. Organic methods are indeed expected to result in lower emissions – carbon emissions are between forty-eight to sixty-six percent lower than on conventional farms. This is due to the high levels of organic matter found in organic soils, which allow the soil to trap and convert carbon, lowering emissions over time. Organic farms also tend to reduce nitrous dioxide emissions, simply because they use less nitrogen than conventional farms. This is particularly significant in light of the fact that agriculture today is responsible for sixty-five to eighty percent of nitrous dioxide pollution, which contributes to the depletion of the ozone layer.
- Organic agriculture is beneficial to nature protection and biodiversity conservation. The use of synthetic products and emphasis on mono-crop specialization and intensive yields that characterizes conventional agriculture

has led to a considerable reduction in the number and variety of animals and plants used in agriculture.

- The International Union for Conservation of Nature's (IUCN) Red List of threatened species noted that habitat loss is the main threat to biodiversity, and that agriculture affected seventy percent of all threatened bird species and forty-nine percent of all plant species.
- Organic farmers, on the other hand, rely on biodiversity for their success. To insure against crop-failure, for example, organic farmers plant genetically diverse crops, thus perpetuating a diverse gene pool while also learning which seeds will be the most resilient and productive in the long term. Organic farmers depend on wildlife for pollination, pest control and maintenance of soil fertility. The absence of synthetic pesticides provides an improved natural habitat for birds, insects and micro-organisms in the soil. As a result of such practices, studies show that bird densities, plant populations, earthworms and insect populations are much higher on organic farms than elsewhere.
- Organic agriculture eschews the use of artificial synthetic pesticides, supporting the use of local species and traditional techniques of pest management.
- These practices are known as organic Pest Management (OPM). OPM requires informed decision-making and careful planning. It includes: promoting populations of natural predators that contribute to controlling weeds, disease and insects; growing the most resistant varieties of crops; improving soil health to resist pathogens; growing plants in the proper seasons, which also contributes to biodiversity; using organic-approved pest-reduction and curative products, such as larvae of pest predators. These are considered effective means of controlling pests, while also promoting a healthy and diverse ecosystem.
- Furthermore, organic agriculture rejects the use of genetically modified organisms or products, including plants and animals, although the possible risks

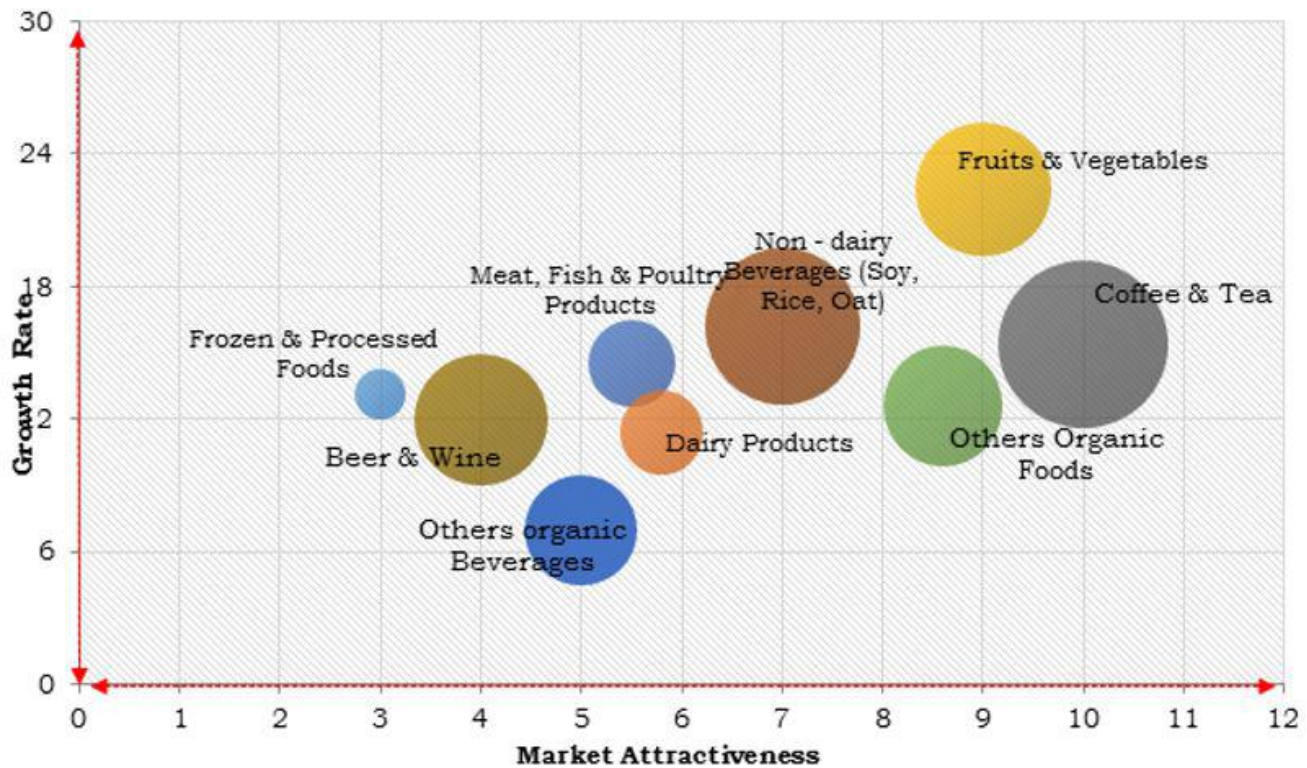


posed by such products are debated widely (and in some cases such as in the EU and Tunisia, exceptions are provided for some veterinary medical products). This is because organic principles consider that the use of GMOs de-emphasizes biodiversity and is an unnatural addition to the gene pool of cultivated crops, animals and micro-organisms living on farms. As a result, the exclusion of GMOs applies to every stage of production, processing or shipping of organic products. There is the risk that GMOs may enter organic products through cross-pollination. Organic farms can thus only ensure that there has been no intentional use of GMOs in their products.

- Finally, animal health and welfare is another key issue in organic agriculture. Generally speaking, organic agriculture relies on disease preventive measures while restricting the administration of veterinary drugs to livestock. Organic livestock standards further require that animals receive adequate space, fresh air and suitable shelter. They also require specific nutritional programs using primarily organic feeds. This is a more humane and natural approach to livestock farming, which conventional agriculture does not necessarily take into consideration. There are also possible health benefits to this approach, as these techniques reduce stress in animals which is thought to prevent diseases.
- Organic agriculture may have a significant social impact on rural communities. To begin with, organic farming may lead to improved employment opportunities in local communities. Organic farming often requires more manual labour to compensate for the loss of synthetic fertilizers and pesticides, and thus generates more jobs in rural communities.
- The amount of extra labour required varies based on the product and farm in question – figures within Europe alone have been found to vary between countries and even studies. In general, however, the labour needed to manage an organic farm is ten to twenty percent higher than on comparable conventional farms.

- Organic farmers also diversify their crops and spread their planting schedules throughout the year in order to maintain biodiversity and enhance the health of the soil. This creates opportunities for year-round employment, reduces turnover and may alleviate problems related to migrant labour. Crop diversification also mitigates the effects of crop failure by spreading the risk among a wider variety of crops and products. Greater job opportunities on organic farms contribute to strengthening rural communities as well, by halting exodus to urban areas for jobs.
- Organic farming has the effect of strengthening local communities and supporting rural development. In order to remain competitive, farmers must adapt to local conditions by managing labour, land and resources in a way that maximizes production and remains sensitive to the environment. Doing so requires constantly experimenting with new techniques and pooling local knowledge to learn best practices.
- Farmers also rely on their neighbours to maintain certain standards in order to ensure the integrity of their own air, water and soil. Collaboration on these issues strengthens ties within the community, which leads to partnerships and greater organization among organic farmers. Organized groups or cooperatives can thus pool their resources, enjoy greater access to markets, and gain leverage in trade negotiations. There is some evidence that increased co-operation results in more active participation in local government and new businesses among rural communities.
- Many organic farms also incorporate fair trade principles with respect to labour welfare. Through the implementation of labour rights related to organic agricultural practices, organic producers agree upon minimum social and labour standards. To that end, farmers contribute to providing labourers with liveable wages, safe and healthy working conditions and access to social services. The organic movement believes that these social requirements are important, but recognizes that specific standards can be controversial and difficult to implement across numerous countries.

- Consumer protection is another cornerstone of organic agriculture. Consumers prefer organic products to those made on conventional farms because they know that organic products avoid synthetic pesticides and fertilizers, are good for the environment, and are perceived to produce foods that are healthier and taste better. Strong regulatory frameworks, whereby the government verifies organic certifications, are necessary for consumers to trust the products they purchase.
- Finally, organic agriculture can contribute to food security. Although the global food supply is adequate, 850 million people still go hungry. In addition, the cost of food has risen dramatically in the past decade and there is less genetic diversity in our foods due to conventional agricultural methods. Consequently, large populations are increasingly exposed to the risk of food shortage due to disease and poverty.
- Organic agriculture may have the potential to meet these challenges. Considering the fact that organic methods do not require expensive chemical inputs, organic production is considered a more accessible means for rural farmers to become self-sufficient.
- Organic agriculture also improves access to food by reducing risks of disease, increasing biodiversity and productivity over the long term, and providing a means for local production and access to food. Advocates for conventional farming argue that organic farming decreases yields. Organic advocates, on the other hand, believe that yields are equal to those of conventional farms over the long term and that it is a more sustainable system because the health of the environment must be factored into any agriculture measurements.



In order to take advantage of the aforementioned market opportunity and to compete with the global organic producers as described above, the Mahaweli Authority of Sri Lanka must establish a regulatory mechanism in this newly declared zone to ensure it meets with internationally accepted standards for doing organic agriculture and that both the soil and water sources that support the organic farming communities in the zone are conducting their farm activities in strict accordance to internationally accepted practices.

Organic standards represent important regulatory **frameworks for guiding and controlling food processing activities for organic food**. A comparison of eight organic international standards shows that governmental standards are more general than private ones, with private ones offering more specific guidance as to what additives and processing aids as well as processing methods are allowed or not allowed.

The Government of Sri Lanka through the Ministry of Agriculture and Mahaweli Development, should tap the vast resources of the FAO and also IFAD, UNEP and UNOPS to assist them to develop the regulatory mechanism for this newly declared organic agriculture zone in Moragahakanda/Kalu Ganga settlement areas.

FAO's involvement in organic agriculture has also included providing assistance to member countries, upon their request, in establishing legislative and regulatory frameworks, provide information on accessing markets and agricultural expertise on improving quality and performance of organic farms.

The growth of organic agriculture production and trade has been accompanied by an increase in national legislation in order to set the minimum requirements for organic agriculture and create the institutional framework for certification, thus giving the organic label greater credibility. Government intervention can take the form of public inspection and certification, or the accreditation of private inspection and certification bodies. Legislation also ensures fair competition among producers and facilitates equivalence with other countries for international trade. Because of the health and environmental benefits and trade opportunities associated with organic agriculture, governments sometimes also pass regulations that encourage farmers to shift to organic methods, through tax reductions/exemptions, subsidies, or support in research and marketing. In sum, national legislation may allow organic agriculture to grow from localised products to national and international trade commodities.

Organic agriculture legislation is fairly technical, according to the FAO. It has the aim of protecting consumers and farmers against the misuse of organic labelling. The development of organic standards without adequate legal protection may result in fraudulent uses of indications referring to organic production. Farmers may find that after following the highly demanding organic standards, their products are sold with references similar to those used by other producers who are not following the organic standards. Consumers may find it difficult to differentiate between claims and indications suggesting the use of organic, biological or ecological methods of production.

The FAO has opined that organic legislation provides consumers and farmers with a tool to claim against the authorities. Organic legislation further regulates the market of organic certification, ensuring that certification bodies are suitable to certify organic production, and follow the national or the international standards referred to in the legislation. For this purpose, they can include a small amount of technical information to provide a legal basis to non-legally binding instruments such as standards.

According to the FAO report, organic standards vary across countries, depending on the targeted markets for trade and on the immediate environment where the products are grown. Although based on international standards, organic standards must always be adapted to in-country conditions.

The Development Law Service of FAO has been involved in various projects to provide advice to FAO members on the review and drafting of organic agriculture legislation and the establishment of certification systems, and the Ministry of Mahaweli Development can easily avail the services of the FAO to get this done.

Equally, the Government must integrate this effort with IFOAM, the International Federation of Organic Agriculture Movement. Currently several country regulations require IFOAM Accreditation or the IFOAM Global Organic System Accreditation as their measure of equivalence for import approval.

It is true that governments are increasingly interested in regulating the organic sector and that is a good thing as they provide a backdrop of enforcement. Unfortunately, the trend is towards individual countries developing their own standards and approval procedures which are then imposed on imported products rather than using equivalence approaches and the international accreditation system.

Over 70 countries have implemented legislation on organic agriculture and many more are in the process of drafting such rules. The subsequent requirement that other countries must demonstrate equivalence to the rules of the importing country is complex, slow and lacks accessibility and transparency. It adds unnecessary bureaucracy to the system and consequent higher costs for organic products.

As a result, most certification bodies now run multiple programs in order to demonstrate that products comply with the many regulations that have been developed. In addition, many certification bodies are being evaluated by several authorities or accreditation bodies further duplicating and increasing the cost of an already complicated system. Ultimately the expansion of organic agriculture and the spread of its benefits are diminished. There is another way.

IFOAM and the IOAS actively invite government involvement in their accreditation programs and encourage them to use their expertise and services. Over a number of years IFOAM and the IOAS have worked hard to gain the respect of governments, certification bodies and the trade.

In the rapidly growing environment of marketing and trade of products claiming to be “organic,” IFOAM supports a market guarantee of the integrity of organic claims. The Organic Guarantee System (OGS) unites the organic world of organic assurance by providing tools for the recognition of standards and verification systems and for market identity.

It fosters equivalence of participating certifiers and thereby facilitates the trade of organic products between operators certified by different participating certification bodies. It also provides a unique tool to facilitate equivalence recognitions amongst government organic regulations and the equivalence recognition of private systems by governments. Hence the IFOAM organic guarantee system not only upholds organic integrity but helps to remove technical barriers to organic trade and to facilitate market access for all, especially small producers.

The IFOAM Family of Standards is the centerpiece of the IFOAM OGS. It contains all standards and technical regulations that have been approved by IFOAM as equivalent to the Common Objectives and Requirements of Organic Standards (COROS) – IFOAM Standards Requirements. The Family of Standards is hence the tool that draws the line between organic and non-organic standards. All standards and government regulations approved in the IFOAM Family of Standards are recognized

by IFOAM as true organic standards, and hence can be used for certification connected to other OGS components.

The IFOAM Organic Guarantee System enables organic certifiers to become “IFOAM Accredited” or “IFOAM Global Organic System Accredited”. These accreditation are the only organic international accreditations existing to date, and hence represent the ultimate mark of competence for organic certifiers. Operators certified by such accredited certifiers in the scope of their accredited programs can label their products with the corresponding IFOAM Seal (“IFOAM Accredited” or “IFOAM System Accredited”, next to the logo of their accredited certifier.

The OGS Offers Conformity Assessment to Accepted International Norms  
IFOAM Accreditation and the IFOAM Global Organic System Accreditation (IGOSA) guarantee to buyers, government authorities, other control agencies, and the public, that a product has been produced within a system that conforms to internationally recognized standards for organic production, processing, and certification.

In both accreditation programs, compliance of certifiers with the IFOAM Accreditation Requirements is required. In the IFOAM Accreditation, the certifier must use a certification standard compliant with the IFOAM Standard. In the IGOSA, the certifier must use a certification standard approved in the IFOAM Family of Standards, hence equivalent to the COROS.

Aside from accreditation of certifiers, the IFOAM Organic Guarantee System also provides additional services based on the use of, or compliance with, the IFOAM norms. Certifiers, associations or Participatory Guarantee System (PGS) initiatives wishing to use the IFOAM Standard directly for certification in their programs can do so after signing a contract with IFOAM. Standard owners wishing to have their standard internationally recognized can apply for inclusion of their standard in the IFOAM Family of Standards. If approved, they will feature in the IFOAM Family Frame, can claim equivalence to the COROS and will be able to use the IFOAM Family of Standards logo.



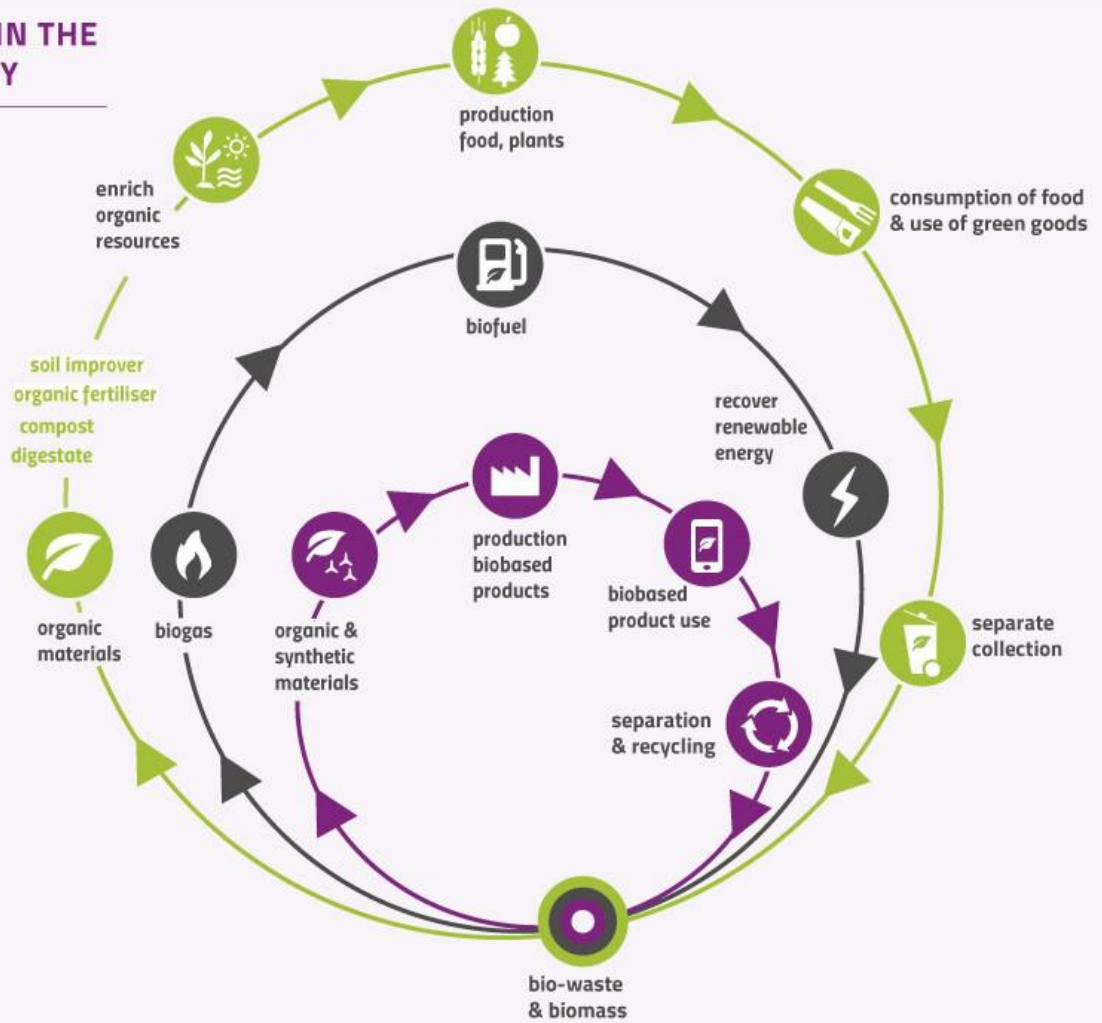
Finally, operators wishing to use the IFOAM Global Organic Mark on the packaging of their products can do so by signing a contract with IFOAM, and after demonstrating that their products are certified by an accredited certifier against a standard approved in the IFOAM Family of Standards.

The Common Objectives and Requirements of Organic Standards (COROS) and the IFOAM Standard are rooted in IFOAM's Principles of Organic Agriculture. The Principles of Organic Agriculture are the basis for all of IFOAM's work, particularly as it relates to organic standards. For this reason, the Principles are presented in this Introduction to the IFOAM Norms. The IFOAM Accreditation Requirements are based on the International ISO norms for the operation of certifying bodies, and they are additionally developed to reflect the particular circumstances of certifying organic production and processing.

The IFOAM Norms are generally respected as the international guideline from which national standards and control systems may be built; and they have been used as a reference by standard-setters and legislators in national and international arenas. IFOAM Basic Standards (a previous component of the IFOAM Norms, now replaced by the IFOAM Standard) have had a strong influence on the development of Codex Alimentarius Guidelines for the Production, Labeling, and Marketing of Organically Produced Foods.

The development of the IFOAM Standard conforms to ISO/IEC Guide 59 Code of good practice for standardization, to the ISEAL Code of Good Practice for Setting Social and Environmental Standards, and the WTO Technical Barriers to Trade (TBT) Agreement Annex 3 Code of good practice for the preparation, adoption and application of standards. The COROS has been developed through a joint effort of IFOAM, FAO (the Food and Agriculture Organization of the United Nations) and UNCTAD (the UN Conference on Trade and Development). The document has been approved by the three organizations in 2011.

## BIOLOGICAL CYCLE IN THE CIRCULAR ECONOMY



## Organic Agriculture is a key driver of SDG's and a Circular Green Economy

The traditional economic paradigm centered on rising levels of consumption and production

is no longer sustainable. On a global level, economic growth has been realized through the depletion of renewable resources (forests, water etc.) at a faster rate than they can regenerate themselves, as well as through the consumption of finite, natural resources (minerals, oil etc.), at a rate that exceeds the carrying capacity of the planet.

Rising global temperatures and sea levels, air pollution and ocean acidification, desertification, deforestation and species extinction all point to the fact that human activity is irrevocably disrupting our planet's natural order. These effects, and the associated health impacts from environmental pollution and degradation, are being disproportionately borne by the very poorest and most vulnerable members of society. Whilst this growth-centric economic model has led to higher levels of material wealth and human development in many countries, it has left many more in poverty, with future generations exposed to the risks and costs of unsustainable consumption and production. It is therefore failing to serve the human and ecological needs of the planet. This failure will be exacerbated by population growth throughout the rest of this century under the current economic regime

If we are to prevent the complete exhaustion and degradation of the planet's life-sustaining resources, then the world needs to shift away from its pursuit of economic growth at all costs. We need to transition to an economic model that places greater emphasis on human well-being, is more sustainable, more socially inclusive and equitable, and conserves, rather than exhausts, our planet's natural resources.

This is where a dedicated organic agriculture zone placed within a green economy model presents a solution to the unprecedented sustainability challenges the world and our island is facing today.

An inclusive green economy is “low carbon, efficient and clean in production, but also inclusive in consumption and outcomes, based on sharing, circularity, collaboration, solidarity, resilience, opportunity, and interdependence.”

The green economy looks beyond the traditional model of systematic economic growth to one in which economic development maximizes human well-being within a low carbon, resource efficient and socially inclusive economy.

Put most simply, the green economy aims to facilitate a *decoupling* of the economy from the environment so that production and consumption can occur within the planet's carrying capacity – defined generally as the capacity to generate its own

resources and to absorb the pollution and other environmental impacts of human activity.

The green economy seeks to drastically reduce waste and limit the resources and energy that go into consumption and production, particularly through the development of new technologies and other innovative processes (the principle of *efficiency*). At more advanced stages of development, the green economy also seeks to ensure that efficiency gains throughout the economy are not nullified by exceeding levels of consumption and production (the principle of *sufficiency*).

In practical terms, this definition of the green economy includes:

- Ways and means to reduce, reuse, and recycle the economic output as much as possible (consumer goods as well as capital goods, such as machinery and equipment);
- Capital intensive investments in renewable energy (e.g. solar, wind, geothermal) and in public goods that promote communal use (e.g. public transit) as opposed to individual ownership (e.g. private automobile);
- Policy changes that can be made at minimal cost to the public and rules to better ensure equitable use of environmental resources (e.g. fuel efficiency rules for the auto industry; tax on electricity consumption beyond a certain level);
- • Economic policies and laws that spread productivity gains more equitably, supporting employment and incomes (e.g. laws to protect workers' bargaining rights);
- • Fiscal policy reforms to internalize externalities (i.e. the real environmental cost of all things produced), while mobilizing public resources for green investment and shifting producer and consumer behaviour towards sustainability;
- • A new system of environmental accounting to factor in environmental externalities into the economy, as well as new indicators of sustainability and of human well-being as alternatives to the Gross Domestic Product (GDP).<sup>3</sup>
- The transition to a green economy can advance the global sustainable development agenda by providing a pathway to poverty eradication and supporting the implementation of the Sustainable Development Goals.

- This transition is already well underway, though many challenges remain to bring it to fruition. Many countries are taking, or have already taken, steps to reform their legal and governance structures to incorporate laws and policies which promote a green economy. Thus the creation of this Mahaweli Organic Agriculture Zone is another step Sri Lanka is taking to fulfil the national policy to adopt sustainable development principles and to be part of the global green economy community.



## Sharing Economy Principles to be rolled out within the Mahaweli Zone

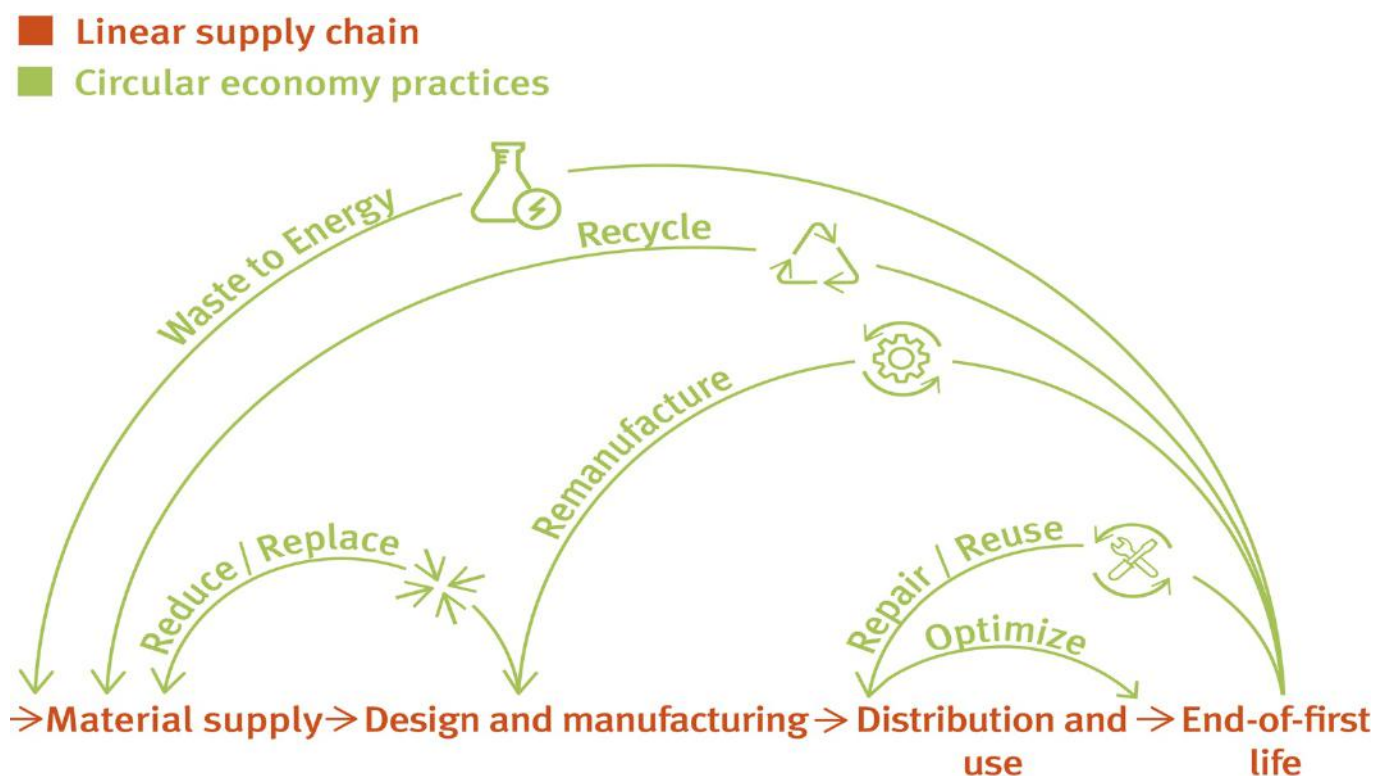
The sharing economy refers to a mode of consumption and ownership that makes individually-owned goods (e.g. farm machinery, transport vehicles, work tools) available to a large number of people. It builds on the old tradition of shared services provided by either public or private operators (e.g. public transit, local taxi services, home rental services), the principal innovation being the use of online platforms to facilitate the consumption of such goods by a larger number of people. The premise of the sharing economy is that many goods that are privately owned, often requiring large outlays to purchase, are not fully utilized and sit idle for extended periods of time, when they could instead be more fully utilized by making them available to other people.

One advantage of this approach is that it can help defray the initial purchasing cost of the shared goods. At the same time, those who make use of such goods are less in need to purchase them outright, resulting in lower overall production of such goods and in more savings for consumers.

Whilst the environmental and societal benefits of the sharing economy are well known, in practice these benefits are much more difficult to quantify. The promotion of shared use should naturally reduce demand for resource exploitation; however, research has suggested that in some instances it can fuel an increase in personal consumption as

goods become more readily available at a lower cost (per individual use). More empirical analysis is required before any concrete conclusions can be drawn in this respect.

What is certain is that the sharing economy can enable the enjoyment of consumer goods at a lower level of income while possibly contributing to lower overall production as more and more existing goods are utilized by a growing number of people. Among the many effects of this, the most important may be on employment generation: while new jobs will be created, many more may be lost as aggregate production of new products and assets is reduced.



## **The Value Added Organic Food Industry to be part of the Circular Economy**

The circular economy represents a radical departure from the dominant 'take-make-waste' linear model of production and consumption. Initially propagated in urban and industrial waste systems, circular processes have now been subsumed into sectors as diverse as mining and food production.

The circular economy is focused on the production process and consists of the green principle of recycling applied to the whole economy. The circular model encourages the restoration, regeneration and reuse of materials, promoting the efficient and sustainable management of natural resources throughout their life cycle.

This decreases the demand for new resource and energy inputs, reducing the stresses being placed on the environment in terms of extraction, carbon emissions and waste production. Much of the circular economy depends on product design which aims at extending the life of a product nearly indefinitely by replacing each part as it breaks or becomes obsolete.

Like the sharing economy, the circular economy may have a dampening effect on overall employment generation by lowering aggregate production and consumption of new, more input-intensive consumer goods.



# THE SOLIDARITY ECONOMY



Source: Designing Regenerative Culture, 2014 | www.solidarityeconomy.com | Graphics: www.futuregifs.com

## Solidarity Economy would also get empowered at the Mahaweli Zone

The solidarity economy operates through collective, non-profit and democratically controlled enterprises, which embrace a philosophy of empowerment, equality in all dimensions, and inclusivity. Projects may include cooperative housing, urban gardening, barter programmes, or ecovillages.

The solidarity economy is premised on the proposition that all economies should sustain and serve human development, as best exemplified by the popular phrase

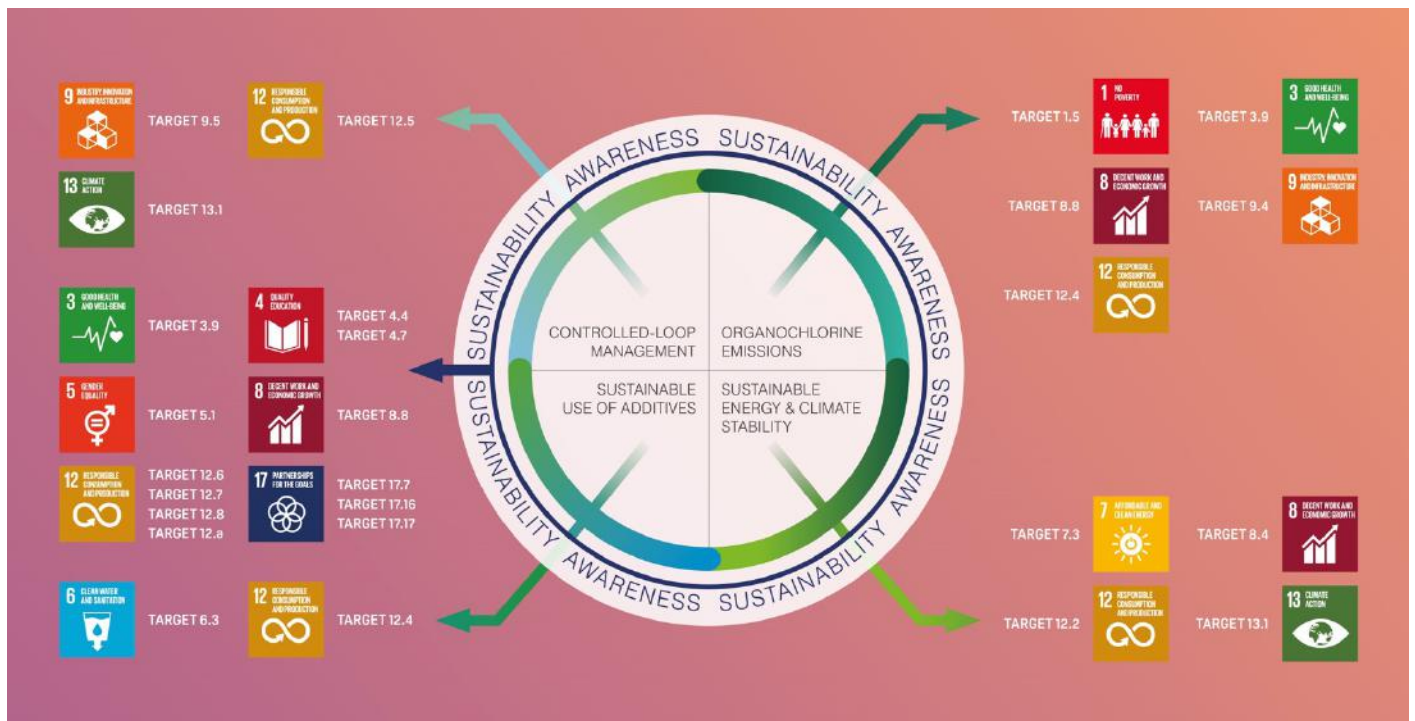
“people before profits.” This economic model seeks to transcend traditional employer-worker relations through principles of self-determination and cooperation, drawing on alternative ways of living, producing and consuming.

Most often, though not exclusively, the solidarity economy tends to promote and rely on small and medium enterprises with strong links to local communities. While many of these enterprises may be profit seeking, generally the benefits of their activity accrue directly to producers and consumers. At the global level, the solidarity economy can be seen in developments such as the fair-trade movement, which ensures producers (e.g. coffee growers) in developing countries earn their fair share and that inputs (e.g. coffee beans) are sustainably produced.

Whilst possessing the potential to reduce environmental footprints, particularly when it relies on local inputs or products that have been sustainably produced the broad objectives of the solidarity economy focus on the social aspects of economic activity, with grassroots democracy and empowerment at its core. In other words, pursuit of these social objectives can take place irrespective of ecological considerations.

#### Opportunity to Transition out from the non-sustainable fossil fuel economic model

The current growth-centric economic paradigm has inspired national and international economic policy for a long time. A radical departure from this status quo will therefore pose considerable and unique challenges from the status quo fossil fuel economy stakeholders— and will require a fundamental rethinking of consumption and production patterns, investment and employment policies, and ultimately of the underlying relationship between people and nature, to overcome it. The legal, regulatory and institutional barriers to these changes will need to be addressed and the policies that encourage advancement toward the green economy promoted.



## Mahaweli Organic Zone to showcase sustainable development goals

The following is a list of concrete actions involving all three pillars of sustainable development – economic, social and environmental – would need to be implemented in this newly declared Mahaweli Zone. Realign public expenditures towards the promotion of green investments and resource efficiency:

- The local Provincial Councils and the local administrators can enact laws that facilitate the redirection of public expenditure and investment away from resource intensive and polluting activities to investments in green infrastructure (e.g. recycling plants, railways), renewable energy (e.g. solar, wind), science, research and development for more efficient consumption and production, and public goods (e.g. schools, health clinics, community centers, public transport, internet connectivity). To be effective, these laws should redirect state subsidies away from the fossil fuels industry or introduce taxes or other measures to discourage fossil fuel use. Laws can also require public procurement to follow green practices and the use of public funds toward a low-carbon green economy.

- Promote national laws and regulations to raise capital for green investments. Laws should allow governments to raise capital for green investments (e.g. through taxes, fees, or the issuance of green bonds). Laws that encourage both multilateral funding and in-country investment opportunities relating to the green economy can also be developed to ensure that a wide array of funding opportunities is made available to Sri Lanka, in addition to public funding. This would include legislation that regulates whether and to what extent private funds are directed towards activities that support the green economy, taking into account the profit-making objectives of most private enterprises.
- Strengthen national environmental and planning processes. This includes establishing the legal requirement to conduct strategic environmental assessments (SEA) of proposed projects of any kind within the declared area for any trade or investment initiative, and of public infrastructure projects, to evaluate their impacts and ensure that they are planned in consultation with relevant constituencies to adequately address any foreseeable impacts at the earliest possible time.
- This also includes requiring environmental impact assessments (EIA) to be carried out prior to important private sector projects, and requiring that the costs of environmental degradation be borne by the polluter. Zoning laws and regulations can be enacted or amended to achieve optimal levels of urban density, create mixed neighborhoods of residential and work spaces, and incentivize local production and consumption.
- Enact laws that promote sustainable production and consumption practices. This will include legislation to enable the application of the polluter-pay principle in all sectors of the economy, to include relevant environmental information in product labels (eco-labelling), to promote the implementation of environmental management systems and the internal audit of these systems, and to make environmental education mandatory from the early grades. The use of market-based financial

mechanisms, such as subsidies and taxes to encourage “buy-in” and reduce the costs of compliance with these laws, could be considered.

- Put labour market reforms in place. Labour market reforms to provide affordable education, vocational training and re- or up-skilling, can reduce social inequality for marginalized and low-skilled workers by facilitating their access to green employment opportunities (e.g. in the clean energy or waste sectors) as more polluting industries are being phased out. In high-income economies, labour market reforms can extend to legislation to reduce work time as a way of promoting full employment on relatively lower levels of new productive investments. This will result in increased human well-being in terms of more time for family and community life, more time for learning, and less stress society wide.
- Regulate finance and promote policies that support the productive sector. The monetizing focus of the economy and its inherent tendency to financial speculation can have a negative impact on the real economy of workers and producers. Laws that limit financial speculation and reduce risk for investors and savers can help stabilize the overall economy while redirecting resources toward the productive sector. This in turn may contribute to greater capacities for green economy investments. A tax on financial transactions, for example, may help raise revenue for public goods and infrastructure investments.
- • Support alternative business models. The prevailing business model revolves around the profit motive. Large corporations in particular need to return sufficient dividends to often distant shareholders with little oversight of business decisions and no particular responsibility for environmental and social outcomes. A large menu of laws and regulations is available to promote alternative business models that are more rooted in local communities to which producers and consumers are closely connected and so are more sensitive to the environmental impacts of their activities. This includes worker-owned cooperative enterprises, consumer cooperatives, or community-based enterprises that are less driven by the profit motive than they are by social objectives, such as employment creation, sustainable production and healthy lifestyles. Shift towards an impact investor mindset.

- Champion laws that broaden and strengthen rights to access information and to public participation in decision-making. Establishing the legal right to access environmental information and the right of relevant stakeholders to participate in the decision-making process will significantly increase public education and awareness, engendering a shift in consumer practices and societal behavior.
- Establish monitoring and evaluation (M&E) regimes to ensure transparency and accountability. Laws can set, or enable the setting, of specific and quantifiable goals and benchmarks to track progress towards the implementation of green economy initiatives. Laws can designate independent institutions vested with sufficient authority and endowed with adequate resources to monitor and evaluate government Mahaweli Authority and other allied agency action, and make results publicly available.
- Require the institutionalization of environmental accounting principles and new metrics of progress. The environmental cost of consumption and production (externalities) needs to be factored into the market place, as well as into the system of national accounting. In particular, the Gross Domestic Product (GDP) needs to be reformulated to reflect only environmentally sound production, i.e. discounting from the calculation those goods and services that are produced to remedy environmental externalities (e.g. health care for respiratory diseases linked to environmental pollution). As the GDP does not capture the many dimensions of human well-being that are intrinsic to the green economy, in the longer term, new metrics will need to be developed and adopted. These may include the Ecological Footprint .

## Conclusion

The green economy is an indispensable pathway to meet the inter-related economic, social and environmental objectives of sustainable development. At its core, this economic model calls for a re-think of the very meaning of human development and progress as something more than material accumulation, important as this measure may be. When fully applied, the green economy can lead to a more equitable social order, a more fulfilling lifestyle, and a more symbiotic relationship between people and nature.