SRI LANKA

Overarching Agricultural Policy

Draft

Ministry of Agriculture, Rural Economic Affairs, Irrigation, and Fisheries, And Aquatic Resources Development

Ministry of National Policies, Economic Affairs, Resettlement and Rehabilitation, Northern Province Development and Youth Affairs

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ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AERE	Agricultural Education, Research and Extension
CBSL	Central Bank of Sri Lanka
CC	Cashew Corporation
CEA	Central Environment Authority
CDB	Coconut Development Board
CRI	Coconut Research Institute
DAPH	Department of Animal Production & Health
DAD	Department of Agrarian Development
DEA	Department of Export Agriculture
DOA	Department of Agriculture
DCS	Department of Census & Statistics
DLCG	Department of Land Commission General
DFC	Department of Forest Conservation
DOI	Department of Irrigation
DWC	Department of Wildlife Conservation
ETI	Enabled Trade Index
EUD	European Union Delegation
FAO	Food and Agriculture Organisation of the United Nations
FDI	Foreign Direct Investments
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GoSL	Government of Sri Lanka
HARTI	Hector Kobbekaduwa Agrarian Research and Training Institute
ICT	Information Communication Technology
IPS	Institute of Policy Studies of Sri Lanka
LUPPD	Land Use Policy Planning Department
MASL	Mahaweli Authority of Sri Lanka
MMD&E	Ministry of Mahaweli Development & Environment
MoA	Ministry of Agriculture
MoF	Ministry of Finance
MOPI	Ministry of Primary Industries
MT	Metric Tonne
NAP	National Action Plan
NAQDA	National Aquaculture Development Authority
NARA	National Aquatic Research & Development Agency
NARS	National Agricultural Research System
NDC	Nationally Determined Contributions
OAP	Overarching Agriculture Policy
OECD	Organisation of Economic Cooperation and Development
PA	Protected Area
PC	Provincial Council
PDB	Palmyra Development Board
PIP	Public Investment Programme
PMB	Paddy Marketing Board
RDD	Rubber Development Department
RRI	Rubber Research Institute
SAPRI	South Asia Policy Research Institute
SCPMD	Seed Certification and Planting Materials Division

SDGs	Sustainable Development Goals
SLCARP	Sri Lanka Council for Agricultural Research Policy
SPMDC	Seed and Planting Materials Development Centre
TAMAP	Technical Assistance to the Modernisation of Agriculture Programme in Sri Lanka
TBT	Technical Barriers to Trade
TRI	Tea Research Institute
TSHDA	Tea Smallholdings Development Authority
UNFCCC	United National Framework Convention on Climate Change
WB	World Bank
WRB	Water Resources Board
WTO	World Trade Organisation

Overarching Agriculture Policy

1. INTRODUCTION

1.1 Overview

Agriculture in the 21st century fulfils multiple roles and purposes, including producing more food for a growing population, supplying raw materials for expanding industrial and bioenergy sectors, conserving the natural environment and biodiversity and, particularly in many agriculture-dependent developing countries, contributing meaningfully to rural employment, livelihoods and economic development. This overarching agriculture policy document is part of a process intended to better position Sri Lanka's agriculture sector to more effectively and efficiently fulfil its multi-functional roles.

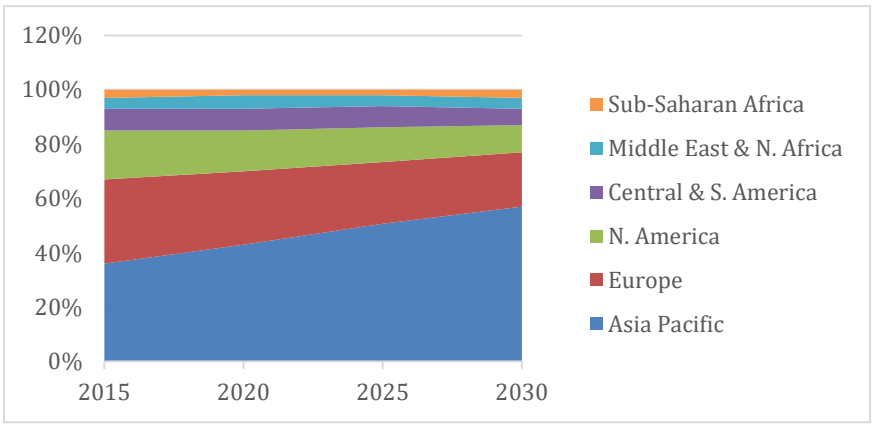
1.2. Global Trends in Agriculture

By 2050 the global demand for food is projected to increase by 50% compared to 2013[1]. In part, this increased demand for food will be driven by population growth - by 2050 it is projected that the earth will have 9.7 billion people, representing an increase of 26% from the 2019 population of 7.7 billion[2]. Other major drivers of the demand for food will be urbanisation (68% of global population in 2050 versus 55% in 2018 is projected to be urban [3]) and the growing size of the global middle-class. It is projected that the global middle class will increase from 3.03 billion in 2015 to 5.41 billion in 2030, with Asia-Pacific accounting for well over half (57%) of the total middle-class consumption market[4]", as shown in Figure 1.

Consumption patterns will continue to change in a process of dietary transition driven by income growth and the growing middle-class, particularly in low and middle-income countries. There will be greater consumption of processed foods, animal proteins, fruits and vegetables, higher demand for food quality and safety, and higher levels of consumption of food (energy) in developing versus developed countries (see Figure 2). At the same time there will be increasing efforts to address some of the negative impacts resulting from great disparities in consumption and diets as reflected in an epidemic of overweight and obesity alongside pockets of undernutrition including stunting, and micro-nutrient deficiencies such as anemia and vitamin deficiencies.

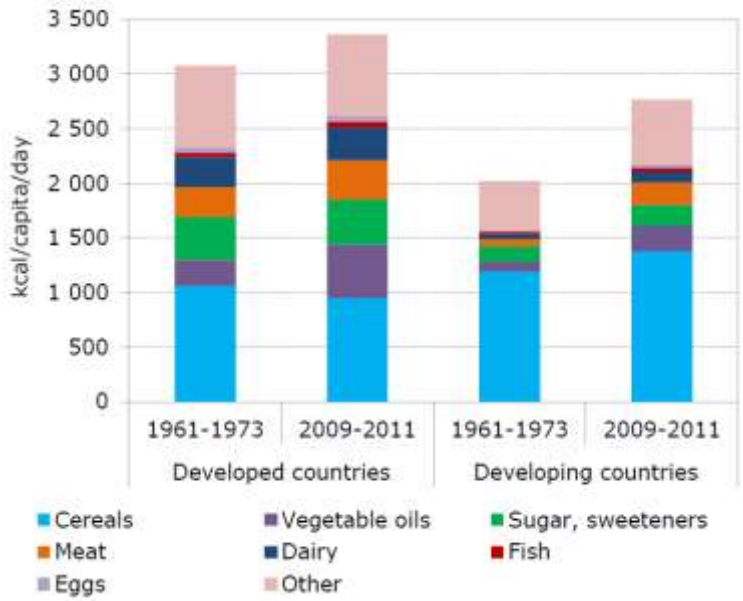
Figure 1: Global Middle-Class Consumption by Region

[1] FAO (2017). The Future of Food and Agriculture. Trends and challenges.
[2] World Population Prospects 2019: Highlights; https://population.un.org/wpp/Publications/ Files/WPP2019_10KeyFindings.pdf
[3] https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html
[4] Brookings Institution; 2017. The Unprecedented Expansion of the Global Middle Class – An Update. https://www.brookings.edu/wp-content/uploads/2017/02/global_20170228_global-middle-class.pdf



Data extracted from Brookings institution (2017)

Figure 2: Changing Energy (food) Consumption in Developed and Developing Countries



Source: duplicated from: European Commission (2015); World Food Consumption Patterns, trends and drivers

Meeting changing food demand and consumption patterns presents challenges on many fronts. More directly it highlights the need for continued good returns to research and technology development and continuing investment in human and physical capital in order to boost productivity, reduce food losses and improve systems for food quality and safety and strengthen linkages between production and consumption areas. At the same time experiences from recent decades have highlighted the environmental consequences and sustainability issues associated with meeting the growing demand. Drawing in more land and water to support resource-intensive production practices have contributed to massive deforestation, water scarcities, soil degradation, loss of biodiversity and increasing levels of greenhouse gas emissions leading to increased volatility of food systems[5]. Climate change impacts further accentuate the pressures on the natural resources stock. This underscores the necessity to conserve natural resources by supporting less resource-intensive and more sustainable production and consumption patterns.

5 UNEP (2012); The Critical Role of Global Food Consumption Patterns in Achieving Sustainable Food Systems and Food for All.

Global trade is also an important avenue for meeting the increasing food demands and changes in consumption patterns. Increased volatility in domestic food systems from impacts of climate change or pests and diseases have increased the reliance on trade as a means of smoothing out supply variations. Also, innovations and developments in food processing and transportation have made food trade a reliable option for meeting food needs, through both the supply of production inputs and final products. The FAO estimates that over the next 30 years global trade will provide a growing share of developing country requirements of food[6].

Addressing the global trends and associated and consequential issues will require appropriate responses at the national level backed by frameworks of international cooperation that assure a global response. These national and international responses must have sustainability - economic, social and environmental – as an important outcome of meeting the increasing demands for food and non-food products. These responses will need to address issues such as development and adoption of technology, improved farm-market linkages, natural resource management and conservation, climate change mitigation and adaptation, enhancing knowledge of all participants, and policy and institutional effectiveness and efficiency.

1.3. Sri Lankan Economy

Sri Lanka was elevated to Lower Middle-Income country status, under the World Bank's classification, in 2019. The country had total gross domestic product (GDP) of USD 82.6 billion and a gross national income (GNI) per capita of USD 4,060 as recorded in 2018[7]. It has a population of 21.67 million[8] with median age of 32.7 years and concentrated in rural areas. The annual average inflation in 2018 was 4.3% and the unemployment rate was 4.2%. The trade balance in 2018 was11.6% and the budget deficit was 5.3% of GDP, both indicators showing improvements from the previous year[4].

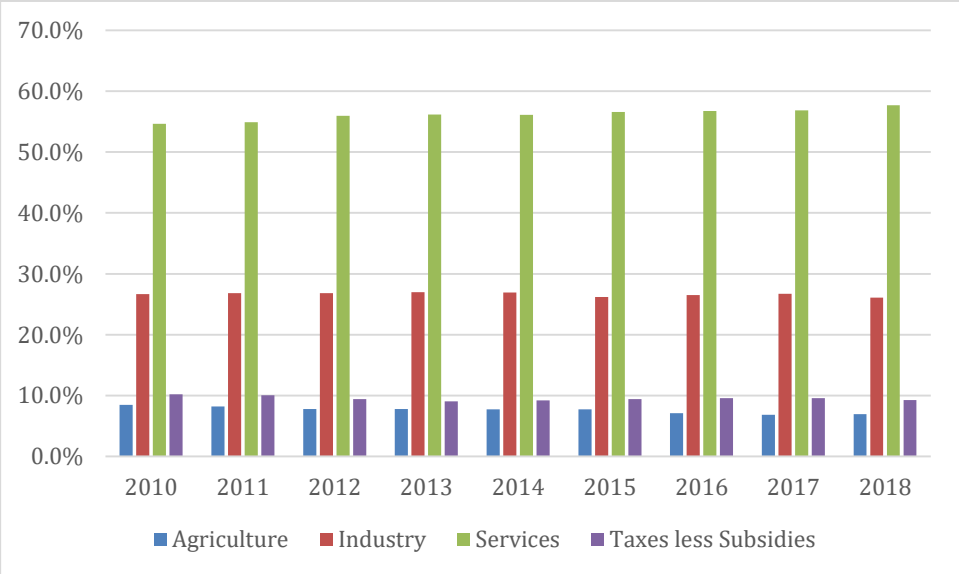
The economy grew at an average of 5.5 percent during the period 2010-2018 and at a rate of 3.2% in 2018. In recent years growth of GDP has been aided by reforms in areas such as trade, promotion of foreign direct investment (FDI), financial services and capital markets, and privatization of state-owned enterprises. In 2018, foreign direct investment (FDI) inflows recorded its historically highest level (USD 2.3 billion), although a sharp drop in the ratio of investment to GDP was observed from 2012 (39.1%) to 2018 (28.6%). Economic growth has translated into a considerable degree of shared prosperity with the national poverty headcount declining from 15.3% in 2006/07 to 4.1% in 2016 and extreme poverty limited and concentrated to a few geographical pockets.

The structure of the economy is changing with a longer-term trend of declining contribution to gross domestic product (GDP) from agriculture and increasing contribution from services. With the main contributions to economic growth during the post-conflict period (post 2009) coming from construction, tourism, communications, trade and financial services, the share of agriculture in GDP has declined from 8.5 percent in 2010 to 7.0 percent in 2018. In 2018, the contributions of the components of the GDP were agriculture (7.0%), industry (26.1%), services (57.7%) and taxes less subsidies (9.2%)[9]. (Figure 3) provides data on the changing structure of the economy for the period 2010 to 2018. Even though drought has adversely affected the agricultural and industrial sectors in recent years, the decline in the agriculture sector reflects the normal decline in its share of the total economy as economic growth proceeds over time.

[6] World Agriculture: Towards 2015/2030: An FAO Perspective. Agriculture Trade, Trade Policies and the Global Food System, Jelle Bruinsma (ed). 2003.
[7] http://repo.statistics.gov.lk/
[8] http://www.statistics.gov.lk/PopHouSat/VitalStatistics/MidYearPopulation/Mid-year%20population%20by%20age%20group.pdf
[9] https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/annual_report/2018/en/5_Chapter_01.pdf

The agriculture sector still is significant in the economy. It employed 24.3% of the labour force in 2017[10]. It accounted for 17.8% of total exports during the period 2013 to 2016[11] and in 2018 the total value of agricultural exports was provisionally estimated at USD 2,579 million or 21.7% of total national exports[12]. Agriculture also is the mainstay of the rural sector, where most of the population live and thus important in rural incomes and livelihoods. However, that the 24.3% of persons employed in agriculture earned just 7.0% of the value of gross domestic product indicates low returns/incomes to the land, labour and capital employed in the sector.

Figure 3: Sri Lanka: Changing Structure of the Economy



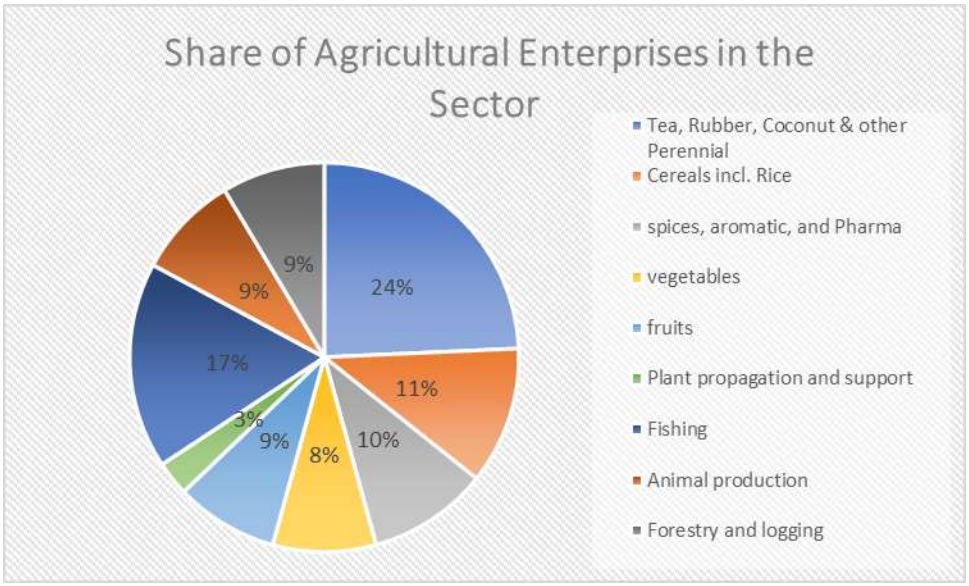
Source: Data from Department of Census and Statistics – Sri Lanka

1.4. Agriculture Sector in the Economy

The agriculture sector is constituted mainly of the crop subsector comprising the plantation and non-plantation crop segments, livestock and poultry, and the fisheries and aquaculture subsectors. Of the 7.0% contributed by the agricultural sector to national GDP in 2018, the crops subsector contributed 4.6%, fisheries 1.2%, animal production 0.6%, and forestry and logging 0.6%. Figure 4 below provides the percentage contribution of major agricultural enterprises to agricultural gross domestic product in 2018. The figure shows that the tea, rubber, coconut and other perennials contributed 24% of the value of agricultural GDP in 2018 with fisheries contributing 17% and cereals including rice 11%.

[10] http://www.statistics.gov.lk/samplesurvey/2018Q3report.pdf
[11] Calculated with data from http://www.statistics.gov.lk/EconomicStat/EconomicStat2017.pdf
[12] Centsal Bank of Sri Lanka. https://www.cbsl.gov.lk/en/statistics/statistical-tables/external-sector

Figure 4: Shares of Various Enterprises Comprising the Agriculture Sector



Nationally, approximately 2,140,000 persons or 25.5% of the total employed population are engaged in agriculture, inclusive of forestry and fishery[13]. However, in the rural areas, agriculture is of even greater importance as over half of the work force[14] in rural areas is employed in agriculture. Nationally, of those employed in agriculture, about 1.3 million (65%) are also engaged in activities other than crop production. Of the farm population, approximately 51.8% are part-time farmers who spend most of their time in non-agricultural activities[15]. Approximately 67% of farmers have declared their main purpose as producing for the market (i.e., commercially oriented farming), with 33% mainly engaged for own consumption (i.e., subsistence farming).

The total land area developed for crop production consists of about 865,000 hectares (ha) planted to permanent crops (primarily tea, rubber, coconut and spice crops) and another 850,000 developed for paddy cultivation[16] and 200,000 ha used for other food crops. Another 200,000 of high ground area is cultivated as 'chena' under temporary licence. The area cultivated to different crops in 2014 is shown in Table 1 below.

Table 1: Cultivated Area of Major Crops

Crop	Cultivated area
Paddy rice	1,100,000 ha
Maha season	760,000 ha
Yala season	360,000 ha
Other field crops	215,000 ha
Other export agricultural crops	125,000 ha
Coconut	400,000 ha
Tea	203,000 ha
Rubber	137,000 ha

[13] Ibid.
[14] Department of Census and Statistics, Quarterly Labour Force Statistics
[15] DCS (2018). Statistical Handbook.
[16] Little over 700,000 ha regularly cultivated, with close to 150,000 ha remaining abandoned.

Source: Calculations based on data from the Department of Census and Statistics, Economic Census 2013-14.

Monsoon and inter-monsoon rainfall patterns shape the agricultural seasons and irrigation patterns. Two thirds of the agricultural land is in the dry zone where the bulk of Sri Lanka's irrigation infrastructure is located. The majority of farmers cultivate both lowland rice and other food crops, such as cereals, pulses, condiments, fruits and vegetables, on higher ground. During the secondary (yala) rainy season some farmers take the opportunity to cultivate other crops in the paddy fields. This also, includes crops grown as feedstuff used in the livestock industry, which is a fast-expanding market. While paddy production has reached levels sufficient to meet nearly all of domestic rice requirement, production of most of the other food crops including fodder and feed crops have not reached the levels required to meet domestic demand. The shortfall is imported. Table 2 below shows the trends in crop production from 2008-2017.

Table 2: Production of Major Crops for the Period 2008-2017

Crop	Production, '000 metric tons (MT)									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Paddy	3,875	3,652	4,301	3,894	3,846	4,621	3,381	4,819	4,420	2,383
Other Field Crops										
Manioc	240	278	283	293	291	303	310	324	324	306
Maize	112	130	167	138	202	209	241	261	244	196
Potatoes	75	62	52	59	72	79	83	97	96	73
Big Onions	57	82	59	46	84	70	111	89	65	53
Red Onions	50	46	62	72	74	56	63	61	64	58
Groundnuts	10	13	14	17	22	27	25	29	24	22
Minor Export Crops										
Cinnamon	15	16	16	18	17	18	18	18	20	22
Pepper	13	16	17	11	19	28	19	28	18	30
Cloves	8	3	10	6	4	6	3	5	2	6
Plantation Crops										
Tea	319	291	331	328	328	340	338	329	293	308
Rubber	129	137	153	158	152	130	99	87	79	83
Coconut	380	367	251	386	351	379	716	552	765	466
Source: Central Bank of Sri Lanka. Economic and Social Statistics 2018.										

The plantation crop segment is dominated by tea, rubber and coconut but also includes cashew, oil palm and sugarcane. Plantation crops are cultivated in large estates and small and medium land holdings and grown under rain-fed conditions. Tea, rubber and coconut with 740,000 ha under them account for about 33% of the total land area utilized for cultivation. Small and medium holdings account for 59% of the total production of the 3 tree crops. Exports of tea were provisionally valued at USD1,428 million in 2018 or 55.4% of total agricultural exports[17]. The exports of rubber and coconuts were provisionally valued at USD31.6 million and USD311 million or 1.2% and 12.1% respectively of the total value of agricultural exports. Plantation crops will need substantial investment and organisation to increase productivity, develop value-added products and exploit new markets in order to further enhance their potential for foreign exchange earnings.

Minor export crops including spices such as cinnamon, pepper, cloves, cardamom, and vanilla, and other perennial crops such as cocoa, coffee, cashew and palmyra are cultivated on small and medium land holdings and typically grown under rain-fed conditions. As indicated in Table 2 above, the production of minor export crops, such as cinnamon and pepper have been on an upward growth path in the period 2008 to 2017. In 2018, over 72,000 metric tons of spices were produced from approximately 125,000 ha under cultivation. Sri Lanka is the world's largest producer and exporter of cinnamon and ranks third for cloves and fifth for nutmegs. Sri Lanka accounts for approximately 77% of the world exports in cinnamon with exports largely targeted to North and South America. In 2018 the Central Bank of Sri Lanka provisionally estimated the value of spices exported at USD360.2 million or 14% of the total value of agricultural exports. Sri Lanka has a global comparative advantage in spices, and more particularly cinnamon, due to recognized high inherent quality of material. There is opportunity to capitalize on this in the global marketplace by leveraging country name recognition into building export markets for other agricultural products.

The non-plantation food crops comprise rice, maize, fruits, vegetables, and other minor food crops that are primarily grown in holdings smaller than 2 ha. Typically, non-plantation food

[17] Central Bank of Sri Lanka; https://www.cbsl.gov.lk/en/statistics/statistical-tables/external-sector

crops are grown under irrigated and rainfed conditions. Smallholders dominate contributing 80% of the total agricultural production. In 2018, provisional statistics released by the Central Bank of Sri Lanka put the value of exports of vegetables and unmanufactured tobacco at USD28.2 million and USD35.6 million respectively or 1.1% and 1.4% of total agricultural exports. About 1.8 million farmers are engaged in cultivating 800,000 ha of paddy land, the largest extent devoted to a single crop in Sri Lanka. Over 700,000 ha are planted in a 'good' maha season (maximum 743,000 ha in 2015/16 maha) and another 450,000 ha in yala (maximum 476,000 ha in 2015 yala). Over 82% of cultivated holdings are less than 1 ha in size, with an average holding size of 0.35 ha. Holding sizes of paddy range from under 0.3 ha in the wet zone to 0.9 ha in the irrigated dry zone[18]. Paddy cultivation benefits from subsidized fertilizer and seed paddy, free irrigation water and advisory services, and a guaranteed price scheme. In the irrigated dry zone, average rice yields are 5.0 tons/ha while yields average 3.2-3.3 tons/ha in the wet zone. Sri Lanka produces all its rice requirement in a good season, while shortfalls are met with imports. The cost of production of paddy for the most productive regions in Sri Lanka averages around Rs. 30/kg[19], which is considered not competitive in the export market for rice. There is need for substantial increases in land and labour productivity to improve competitiveness against potential imports.

The floriculture industry in Sri Lanka has developed rapidly and now earns substantial foreign exchange and generates direct and indirect employment. It is mostly carried out in the wet zone and in the highlands under greenhouses or open fields. Europe is the main market for floriculture products and 60% of Sri Lankan exports are destined to Europe, while Japan, Middle East, USA and Korea make up the other key markets. Exports comprise foliage (55%), live plants (44%) and other (1%). In 2018, exports were valued at US $8.5 million. However, Sri Lanka's share in world trade is only about 0.2% indicating a tremendous potential to expand the floriculture sector.

Animal production systems are dominated by small producers who engage in a range of animal production systems but primarily poultry and dairy production and some small ruminants and pigs. The chicken and dairy segments have experienced considerable expansion during the last ten years (see Table 3). The poultry population recorded nearly a 100% increase during the 2002-2017 period reaching over 20 million animals and producing 200,000 tons of meat and 2,856 million eggs in 2017. Milk production from cattle and buffalo has almost doubled over a 10-year period to reach 389 million litres in 2017. However, the industry meets only about 40% of domestic consumption of milk. High cost of production, in part due to high cost of feed, is a factor in constraining the competitiveness of animal production systems.

Table 3: Livestock Production, 2008-2017

Product	**Production (Various Units)**									
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Cattle										
Meat (MT)	3,362	3,513	4,254	3,321	3,635	3,356	3,168	3,488	3,516	3,270
Milk (ltrs million)	172	184	192	203	238	268	273	305	318	328
Buffaloes										
Milk (ltrs million)	36	49	56	55	62	64	61	69	66	61
Sheep & Goats										

18 Computed from Census of Agriculture, 2002.

19 Cost of Cultivation of Paddy, 2018. Socio-Economics and Planning Division, Department of Agriculture.

Product	Production (Various Units)									
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Meat (MT)	18	63	68	63	73	65	56	51	52	43
Poultry										
Meat (MT 1000)	103	99	104	117	137	145	150	164	183	201
Eggs (million)	1,900	1,623	1,385	1,711	2,279	2,075	2,232	2,294	2,304	2,856
Source: Central Bank of Sri Lanka. Economic and Social Statistics 2018 and Department of Animal Production & Health (2018). *Poultry Industry – Key Statistics.*										

The fishery segment comprises coastal and deep-sea marine fishery and aquaculture practiced in coastal waters and large inland reservoirs and ponds, producing finfish, prawns, ornamental fish etc. Fisheries are dominated by small producers with half of the over 30,000 fishing fleet comprising small traditional crafts. The large network of inland reservoirs developed for irrigation, in addition to coastal lagoons, bays, and ponds, are exploited for aquaculture and inland fisheries. Cultured fishery in the form of prawn farming, cage culture of fish, and crab fattening are considered to have great growth potential over current levels. Aquaculture and inland fisheries contribute only about 15% of the current annual fish catch/production of about 530,000 MT. About 5% of catch/production, comprising tuna, shrimp, lobster, crab, etc., is exported. The high cost of feed is a constraint to increasing output and exports. Table 4 provides data on fish production for the period 2008 to 2017.

Table 4: Fish Production, 2008-2017 (MT '000)

Commodity	**Production**									
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Total	319	340	385	445	486	513	535	520	531	531
Coastal	165	180	202	222	258	268	279	269	274	260
Deep Sea	109	113	130	163	169	178	180	184	183	190
Inland	44	47	42	60	69	67	76	67	74	82
Source: Central Bank of Sri Lanka. Economic and Social Statistics 2018.										

1.4. Policy Environment for Agriculture in Sri Lanka

Agricultural activities in Sri Lanka operate within a framework of national policies and sectoral policies. National policies of the Government of Sri Lanka are focussed on addressing the country's many economic, social and environmental challenges and guiding it onto a sustainable development path. Government policies are guided by a vision of transforming Sri Lanka into a knowledge-based, export-oriented competitive economy at the centre of the Indian Ocean. Government policies also aim to meet the ambitious sustainable development goals (SDGs)[20] by 2030. Towards achieving the SDGs, the GOSL is working on the provision of basic needs of the people, progressive alleviation of poverty, elimination of all forms of discrimination and inequalities, establishing a society based on social justice and human security, and advancing sustainable management and use of natural resources and ecosystems.

Sectoral and sub-sectoral policies for agriculture recognise the need to facilitate improvements in crop, fishery and livestock production, strengthen markets and value chains, find solutions to connectivity and logistics issues and strengthen private sector participation in service delivery. They also recognise concerns on sustainability and the challenges associated with changing weather patterns, labour shortages, fragmentation of

land holdings and continuing land degradation in trying to improve food production and establish commercially viable agriculture units. These are closely interwoven with the welfare of persons engaged in the sector from the point of human development, poverty eradication and quality of life.

There are several sectoral and sub-sectoral policy and strategy documents covering agricultural activities. These include the National Agriculture Policy, which was introduced in 2007 by the Ministry of Agriculture with key aims of assuring food security, ensuring environmental sustainability and developing economic opportunity. Other key policy documents include the National Land Use Policy (2007), National Plantation Industry Policy Framework (2006),National Livestock Policy (2006), Sri Lanka Rubber Industry Master Plan 2017-2026 (2017),National Fisheries and Aquaculture Policy (2018), National Policy and Strategy on Cleaner Production for the Agriculture Sector (2012), and National Agricultural Research Policy and Strategy 2018-2027 (2018). While several of the existing policy documents need updating, they are still relevant in guiding government interventions in the sector and relevant sub-sectors.

A number of national policy and strategy documents encompass activities in the agriculture sector. The most relevant of these policy documents include, the New Trade Policy (2017), the National Policy on Sustainable Consumption and Development (2018), and the National Export Strategy (2018). The Public Investment Programme (PIP), a major planning and implementation instrument used to operationalise government policy, also contains substantial sections pertaining to the agricultural sector. Agricultural strategy, as expressed in the latest version of the PIP (PIP 2017-2020[21]), identifies two core strategic elements, namely (1) food security of people by way of substituting possible imports and (2) promoting exports of agro-based products through increased competitiveness in the international market. In 2019 the planned public investment for the seven major areas of agriculture (namely, food crops, livestock, plantation and minor export crops, fisheries, land, irrigation and environment) was 15.3% of total public investment. For 2020 it was set at 14.1% of total public investment.

Government interventions towards improving agriculture and food production have focussed on investments in a number of areas including irrigation, research and development, and training, education, and dissemination of knowledge. Irrigation development, initially undertaken with the reconstruction and rehabilitation of ancient tank networks, have transformed towards major river and catchment management schemes with land development for rice cultivation as the primary motive. The fertilizer subsidy scheme, introduced in 1962, was intended to increase productivity and support adoption of modern high-yielding rice varieties and other food crops. In the tree crop sub-sector, the development of new high-yielding cultivars coupled with replanting and new-planting subsidy schemes have supported the participation of smallholders in the production of tea, rubber and coconut. In food crops, interventions have focussed on the provision of research and development, pest and disease control, extension and knowledge transfer, and high-quality seeds.

In livestock and poultry, genetic improvement of the breeding stock, disease control and the production of feed and fodder are targeted. In aquaculture, programmes have provided fingerlings and shrimp larvae, fish feed etc to support expansion of fisheries and increased production of shrimp and other high-value fish products. In the wider fisheries sub-sector, investments in fish landing facilities and harbours, supply of vessels, storage, processing and marketing infrastructure have sought to expand capacity in fish production and improve quality. Agricultural producers also have access to agricultural credit at reduced interest

rates and crop and livestock insurance schemes. There also are programmes aimed at improving the regulatory environment to support more efficient and stable functioning of agricultural markets including expansion and operation of a system of markets, establishment of product certification and quality standards, provision of services to support the adoption of good agricultural practices and programmes aimed at improving food safety and promoting exports of fresh and processed food products. Governments have also intervened rather directly in markets through adjusting tariffs and imports of products sensitive to food security and farm incomes.

In general, the thrust of policy in recent years have been a departure from the import substitution policies and strategy of the 1970s. In the 1970s and subsequent years import substitution policies supported domestic food production through producer support programmes such as state procurement, guaranteed price schemes, quantitative restrictions on imports, tariff adjustments, state marketing boards, and concessionary comprehensive rural credit and crop insurance schemes. Government continues to provide subsidised seed and fertilizer, free irrigation water, publicly funded research and extension services, marketing infrastructure, and price guarantees for paddy, selected food crops, and milk. It also provides a range of financial and economic incentives such as cultivation credit at reduced interest rates, tax exemptions and concessionary financing for developing, processing, value addition and exporting of farm produce.

Since 1988 and particularly after the coming into being of the World Trade Organisation (WTO) in 1995, Sri Lanka has increasingly pursued a path of economic liberalisation. This shift has seen many of the quantitative restrictions applied to food imports replaced with tariffs, higher levels of participation of the private sector particularly in the off-farm stages of agricultural value chains, and a shift in public policies towards creating an enabling and conducive environment for private sector investment. There will need to be further movement on the path of economic liberalisation if the agricultural sector is to meaningfully contribute to and be a part of the national vision of transforming Sri Lanka into a knowledge-based, export-oriented economy.

2. RATIONALE FOR THE OVERARCHING AGRICULTURE POLICY AND CORE STRATEGIC ELEMENTS ON THE WAY FORWARD

2.1. Rationale for Overarching Agricultural Policy

This overarching agriculture policy document is part of a strategic response by the Government of Sri Lanka to the evolving priorities and challenges in the global, national and sectoral environments while working towards the national vision of transforming Sri Lanka into a “knowledge-based, export-oriented competitive economy at the centre of the Indian Ocean”.

At the global level, the trade environment will become more competitive as Sri Lanka consolidates as an upper-middle income country. Thus, there will be increasing pressure for Sri Lanka to remove quantitative restrictions and lower tariff levels on imports that compete with its home-grown products. Additionally, there is increasing attention in global markets to product characteristics of food quality, food safety, ethical standards and sustainability.

At the national level, the agricultural sector faces many challenges. At a macro-economic level, because of its relatively small and declining contribution to GDP, the agricultural sector must strive to meet standards set in the wider national economy in areas such as labour productivity, wage rates and incomes, interest rates and attractiveness of investment.

At the sectoral level, Sri Lanka’s agriculture sector has experienced trends which are in line with the experience of other countries – i.e., declining share of the labour force in agriculture and declining contribution of the sector to national income. These trends are part of the economic structural transformation that all countries experience as they develop and shift towards manufacturing and services. The challenge for Sri Lanka, as for all other countries, is to make the needed investments so that agricultural production, foreign exchange earnings and farm incomes do not collapse as a consequence of the loss of labour in the process of economic structural transformation. Meeting the challenges will mean adopting technology to increase labour productivity, improving farm-market linkages, investing in value chains and also generating off-farm employment to absorb excess labour in the rural areas.

A strategic path forward requires for the sector to build on strengths, address weaknesses, capitalise on opportunities, and counter threats. Below are the findings of an analysis of strengths, weaknesses, opportunities and threats (SWOT) carried out for the Sri Lankan agriculture sector. The details of the analysis of the existing scenario are given in the annex1.

An overarching agriculture policy is part of the process of addressing weaknesses in the sector. Resolution of the critical problems identified requires a broad-based approach that is harmonized with the wider economic development framework of the country. The large number of institutions with mandates in the sector, at minimum, point to the need for high-level coordination and harmonisation of efforts. Many issues to be confronted to further develop and transform the sector cut across mandates of individual institutions and therefore cannot be managed fully within agency-specific policies and plans. Issues such as climate change responses, sustainability of development interventions, responses to increasing globalization, threats to biodiversity and prevalence of trans-boundary pest and diseases, and food safety concerns and standards etc. demand more coordinated action. Given the situation existing in and confronting Sri Lanka, an Overarching Agriculture Policy can provide the framework for responding to emerging developments and coordinate actions to create an efficient, diversified, sustainable, market-oriented and inclusive agriculture sector.

2.2. Core Strategic Elements on the Way Forward

To be effective an overarching agricultural policy must provide clarity on the way forward by specifying the focus of strategic policy action in the sector so that these can form the basis for coordinated action by the several public institutions operating in the sector. This policy document identifies 5 core areas for strategic policy action. These are identified below.

2.2.1 Increase productivity of farming

One of the underlying causes for poor performance and weak global competitiveness in the agricultural sector is the low productivity of farming operations. Insecure land tenure, inappropriate land use, land fragmentation, small farm sizes, and climate change impacts hinder productivity improvements in the agriculture sector. Climate change alone is expected to reduce paddy production in Sri Lanka by up to 30% over the next 20 to 30 years[22], which is a threat to overall food security. Ineffective, inefficient, uncoordinated and unfocussed research and development programmes mean that research outputs are often inaccessible, irrelevant, or non-functional to farmers' needs.

Increasing the productivity of both land and labour used in agriculture is a core strategic element on the path forward. Unclear rights and land ownership issues experienced since the colonial era, which are yet to be resolved fully, have affected the functioning of the land markets in agricultural areas. This has seriously limited the efforts to improve productivity and market responsiveness by preventing farmers acquiring land and other resources to increase production. This highlights the need for amendments to the related regulations. Land fragmentation is also a major problem as small farm sizes seriously constrain efforts for mechanisation and also provide low farm incomes insufficient to undertake significant productivity enhancing investments. Land productivity can be increased through, inter alia, use of higher yielding varieties and species, improved pest and disease control, increased soil fertility and improved husbandry, and more effective ways of managing the impacts of climate and weather.

Agricultural productivity measures show, very low labour productivity indicators for Sri Lanka compared to other south Asian countries. Agricultural labour productivity as measured by gross value added is the lowest of all 3 economic sectors[23], i.e. Rs. 182.19 per hour worked in agriculture compared to Rs. 528.27 in industry and Rs. 613.91 in services. Data from farm surveys clearly demonstrate that gross margins from farming continue to decline in real terms[24]. Labour productivity is directly linked to farm incomes and therefore increasing labour productivity will have positive impacts to standards of living. Labour productivity can be increased with mechanisation and by switching to higher-valued commodities. The small-scale farmers producing most of the country's agricultural output are in the main in production systems producing commodities with low economic value. Changing this will require strength in research programmes and effective marketing to domestic and international markets. A programme of mechanisation would be most effective if there were consolidation of small farms (through, e.g., purchase, lease or rental agreements) or implementation of mechanisation services for groups of farms.

Addressing land and labour productivity will require more efficient and effective research and development institutions and systems and research-extension linkages, and addressing the issues affecting land fragmentation and soil degradation. Increased productivity, particularly labour productivity, will have beneficial effects on farm income. Increasing land and labour productivity is a priority in the way forward.

[22] https://www.ifad.org/en/web/knowledge/publication/asset/39430715
[23] Central Bank of Sri Lanka, Annual Report, 2018.
[24] Socio Economics and Planning Division, Cost of Cultivation of Agricultural Crops, various years

2.2.2 Energize domestic farm-market linkages and the rural economy

The development plans of the GOSL[25,26] and investment programmes of the Department of National Planning[27], speak of reviving the rural economy of Sri Lanka by transforming farming to be more competitive and market oriented. One focus of efforts has been on improving the functioning of agricultural markets. However, there are problems in that, for commodities sold on the domestic market, farmers often lack the information and systems that would influence when and what is produced and how the produce is packaged, moved and presented to consumers. These farm-market linkage problems can be addressed through improved information flows, and/or forward (farmers becoming more involved in meeting the needs of consumers) linking of farms to markets and backward linking of consumer supply businesses (supermarkets and processors; out-grower schemes or other supply/value chain networks) to markets.

The development of agro-industries can have a dramatic impact on reducing underemployment and rural poverty by creating new opportunities. Despite considerable agro-industrial potential, only few of the annual food crops including rice, animal and fishery products are used in industries. Many horticultural and floricultural crops, medicinal and ayurvedic herbs, ornamental and inland fishery, livestock and poultry, with such potentials are not cultivated/reared at adequate extents with better and improved varieties/breeds, technological know-how and relevant market information to support large-scale industrialization. Also, the promotion of small and medium enterprises (SMEs) can help in product diversification and movement of competitive and high-quality products to the domestic markets.

Energising domestic farm-market linkages and the rural economy is a priority in the way forward. A keyway to achieve this is for the development and growth of market-oriented value chains and for policy, planning and development efforts to be organised along the lines of cluster or value chain development. Assisting producers to obtain a fair share of market prices is a desirable goal that can be achieved through strengthening of information networks for informed-decision making by the agricultural practitioners, providing extension and training, promoting private-public partnership, facilitating competitive and commercially-oriented agriculture through appropriate changes made to regulatory enactments, and providing timely agricultural inputs at affordable prices, and appropriate risk management options.

2.2.3. Increase export earnings

Sri Lanka needs foreign markets so that it can obtain higher prices for items in which it has a comparative advantage which would facilitate expanded production, better utilisation of land and other resources, improved incomes for farmers, and higher rates of economic growth. Tea is a good example as exporting allows Sri Lanka to connect with foreign markets much larger than its own and have a much larger land area under tea than if it were produced only for domestic consumption. Blessed with a high diversity of climatic zones appropriate to grow a range of crops year-round, Sri Lanka has the potential to develop exports in fresh and processed fruits, vegetables, and floricultural products. With the recognition of proper market niche, Sri Lanka may have potential to develop exports in rice and other food crops that are deemed non-competitive in high-volume generic markets.

The agribusiness private sector is an important partner for improving farm incomes and creating better rural jobs in marketing, processing and food value chains. Agricultural modernization and agribusiness go hand-in-hand in modern and advanced food systems.

[25] Vision 2025
[26] Sustainable Sri Lanka - 2030 Vision and Strategic Path
[27] http://www.mnpea.gov.lk/web/index.php/en/news-events/2-uncategorised/181-public-investment-programme.html

Global agricultural markets are becoming increasingly complex due to concentration at all points in the value chain and the increasing scope and intricacy of food standards, particularly those relating to food safety. Thus, achieving potential benefits of agricultural export growth requires careful analysis of trends in global markets and the policies that will unlock the potential for growth.

The Global Competitiveness Index (GCI) that ranks countries by overall competitiveness ranked Sri Lanka at 85th place out of 140 countries in the 2018 GCI. Lack of competitiveness in agricultural products on global markets seems to be due to technology gaps, low investments, non-availability of adequate quantities of high-quality inputs, transportation and market-related problems, absence of consistent trade and tariff policies[28], and impediments to foreign and private sector investment.

There are some avenues for Sri Lanka to build on for increasing exports. There are strong systems for exporting the current commodities – plantation crops and spices – and these institutions and systems represent a large reservoir of knowledge and experiences in accessing and developing export markets. Can the knowledge entrenched in these institutions be leveraged for the benefit of other commodities? Acquiring geographic indicators (GI) and patent-related agricultural products to secure the brand names and global marketplace for products such as cinnamon and pepper in the global export markets could assist with country recognition for other products, which could be a useful selling point. The numerous rice mills can become more involved in converting rice to value-added products.

Sri Lanka is standing far behind other rice consuming countries in converting rice to value-added products. Rice mills which are the agricultural product processing units of industrial scale do not manufacture any new products but process the primary agricultural products for easy preservation/storage or transportation to markets. Properly networking such processing units to allow for development and supply of high-quality processed products to meet the domestic and export demand can expand markets.

Adherence to the product quality standards set by importing countries plays a crucial role in market development. There are few accredited laboratories in Sri Lanka such as the Industrial Technology Institute (ITI) that provides fee-levied services to the industry such as testing for pesticide, natural toxin and antibiotic residues, industrial pollutants, chemical adulterants, allergens, and vitamin and nutritional analysis. However, many independent certification groups accredited to world's leading organic certification bodies provide the services for organic exporters assuring the required quality. Also, Fairtrade products such as green tea, black tea, herbal teas, spices, coconut products and traditional rice are also exported to many developed countries in the world. All these provide enormous opportunities to promote export agricultural products reaching global markets and there is an urgent need for further expansion of the niche markets to reach larger masses. These certification bodies should be strengthened further in order to promote agricultural exports from Sri Lanka while supporting the livelihood of practitioners.

Sri Lanka requires to invest more on research and development, shift to qualitative aspects of agricultural produce from the quantity, infuse technology and innovations, and facilitate agricultural export through appropriate amendments to exploit the guidelines set by the trade agreement. Also, there must be more support provided to entrepreneurs in identifying export products and markets and in accessing these markets.

[28] CBSL (various reports)

Increasing exports from a more competitive and commercially oriented agriculture sector is a priority in the way forward. The emphasis should be on high value and high-quality agricultural products.

2.2.4. Mainstream gender and youth

Women and youth constitute the largest segments of the population but are under-represented in both the economic and political spheres in the country[29]. Though the Sri Lankan population consists of more females than males, the economic participation of women remains at a low 35%. Further, the high rate of youth (15-24 years old) unemployment affects the future of nation's 4.4 million young people, particularly young women. The youth unemployment rate stood at 21.6% in 2016 while the gender gap was also evident with 29.2% of young women were unemployed compared to 17.1% of young men. At higher levels of education, the unemployment rate was 4.7% for men and 11.9% for women[30].

Poor income prospects have made it difficult for the agriculture sector to attract youth with better skills. Small scale of operation remains a major constraint in adopting technology-driven agriculture, particularly in crops produced and processed in larger volumes as application of such technologies have distinct scale-economies. To remain competitive and to draw and retain high-skilled human resources, the agriculture sector must create opportunities for large operational holdings, animal rearing or aquaculture complimented by modern technology including mechanization.

Mainstreaming gender and youth in policies, implementation strategies and action plans has been emphasized by the 'Country Gender Assessment of Agriculture and Rural Sector'[31]carried out by the FAO. Insufficient access to resources such as land, water and capital and not having access to markets are the key factors hindering youth entering to commercial agriculture. Remoteness in job location discourages youth, particularly graduates, to find a job in the formal agricultural sector. In order to attract more youth and female workers to the agriculture labor force, adjustments in the supply side and demand side are required. On the supply side, skill development through education and training is essential. On the demand side adjustments are needed through changes in the regulatory and institutional environment to eradicate the obstacles that hinder women and youth acquiring land and other assets and participation in the labor force.

Increasing the participation of women and youth in a more competitive and commercially oriented agriculture sector is a priority in the way forward. This can be facilitated through mainstreaming youth issues in agriculture with appropriate interventions in skill development, increased ownership and access to assets particularly land, strengthening organizations, enhancing partnerships, and increasing availability of appropriate technology.

2.2.5. Implement effective mechanisms to coordinate, guide and monitor sector development

Several national level ministries and institutions plus the ministries of the provincial authorities operate in the agricultural sector. There is little in the way of a formal overarching mechanism for coordination of the policies, plans and interventions of these multiple entities so as to strategically guide investments and development efforts. Also, there is little in the way of active monitoring of outcomes of interventions. Stakeholder participation in the

[29] ADB (2018): https://lk.one.un.org/wp-content/uploads/2018/07/Sri-Lanka-Report-MAR18.pdf
[30] NPD (2016): Public Investment Programme 2017-2020
[31] FAO (2018): http://www.fao.org/3/CA1516EN/ca1516en.pdf

processes of policy formulation and sector and sub-sectoral planning, for the most part, is under formal institutionalised mechanisms.

Implementing a high-level mechanism of relevant Ministries and Provinces for coordination and monitoring of interventions into the agricultural sector is a priority. Increasing the level of stakeholder participation in evidence-based policy dialogue (such as through the formation of cluster groups) and sub-sector reviews, and value chain planning will be undertaken on a regular basis.

The implementation of the OAP will be coordinated, guided and monitored by an overarching coordination committee. The OAP will be subject to review for achievements and relevance as required by the changing circumstances.

3. SCOPE OF THE OAP

The Overarching Agriculture Policy (OAP) embraces all key agriculture sector institutions from crop, livestock and poultry, fishery (excluding marine fishery) sub-sectors, agro-processing, and allied services such as irrigation, agrarian development and environment. In the development of the OAP a thorough examination was made of the connectivity across all subsectors and related fields with a focus on the modernization of the agriculture sector towards enhancing and realizing the potential of agriculture to support sustainable national development and prosperity.

The subsectors and operational areas analysed in the OAP are summarized in the table below:

Subsectors	Operational areas	Main Institutions
Food Crops	Rice, other field crops, fruits, vegetables, Cashew, Oil Palm, Palmyra	MOA, DOA, CC, PDB, SLCARP, HKARTI
Plantation Crops	Tea, Rubber, Coconut	TRI, TSHDA, RRI, RDD, CRI, CDB
Export Agricultural Crops	Spice Crops	MOPI, DEA
Livestock and Poultry	Dairy, Poultry, Swine, Goat, etc.	MOA, DAPH,
Inland fisheries	Aquaculture including near-shore fish farming, ornamental fish etc.	MOA, DOF, NAQDA, NARA,
Agrarian Development	Farmer services including agricultural development	DAD
Irrigation & Water	Major and minor irrigation under the DOI and DAD	MOA, DOI, DAD, WRB
Land	Ministry and Departments in charge of the subject	DLCG, LUPPD
Environment	Environment including climate change	MMD&E, CEA, DWC, DFC

Issues and concerns pertaining to different agricultural enterprises were collated through stakeholder consultations, thoroughly reviewed and analysed to rank them based on their impact on realizing objectives of designing the OAP. Key policy-related positions and principles emanating out of the review and stakeholder consultations gave rise to 10 different thematic areas.

3.1. OAP – VISION, MISSION AND OBJECTIVES

With a view to overcome the constraints that hinder the progress of the agriculture sector, the Overarching Agriculture Policy with the following vision and objectives is proposed:

Vision: *Globally competitive agriculture sector for national prosperity.*

Objectives: *To enhance competitiveness of agriculture and agri-businesses through innovative and sustainable technologies, and constructive partnerships, in a conducive institutional and regulatory environment, with a view to enhance contribution to economic growth and raising living standards of people engaged in agriculture, while ensuring sustainable use of natural resources and contributing to national food security.*

The Overarching Agriculture Policy would achieve the vision and objectives through statement of policy principles and policy action areas organized under 10 thematic areas. The following policy principle are presented under the 10 thematic areas were examined in relation to interconnectivity among the existing sub-sectoral policies and the alignment with all major development policies of the country.

- Prosperous farmer community
- Energizing market linkages
- Revitalizing rural economy
- Reaching to Global Value Chain
- Ensuring food and nutrition security and food safety

Historical developments, present scenarios and future prospects, and lessons from experiences from global approaches and best practices related to agricultural development were also considered. The 10 thematic areas and the key elements discussed under each are shown below.

1. **Reserving Natural Resources**: Agriculture in natural ecosystems, biodiversity conservations and human-animal conflict.

2. **Land Use Planning, Land Administration and Land Degradation**: Sustainable land management and administration, legislation reforms for productivity enhancement and land tenure.

3. **Agriculture Water Management**: Water productivity and allocation of water resources, major and minor irrigation development

4. **Climate Change**: Adaptation to climate change, minimize loss and damage via increased climate resilience and climate-smart agriculture.

5. **Food Security**: Contribution to enhancement of availability, affordability, accessibility of nutritious food, and stability of food supplies.

6. **Border (trade) Measures**: Regulation of food and agricultural imports and exports, commitments with bilateral, multinational and regional trade agreements.

7. **Effective Governance**: Improved coordination and implementation of policies between central provincial set up.

8. **Development Subsidies for Value Chain Actors**: Subsidies for value chain actors to enhance agriculture production, including provision of seeds, fertilizers and machinery at affordable prices.

9. **Production Support and Service Delivery**: Indirect support provided to facilitate agriculture production.

10. **Strengthening Education-research-extension**: State and private sector contribution to agricultural education, research, and extension, and promotion of private-public partnerships.

4. JUSTIFICATION AND POLICY STATEMENTS

4.1. Natural Resources

4.1.1. Introduction

Sri Lanka is widely recognized for the existence of a wide range of terrestrial and aquatic ecosystems and rich biological diversity. Globally, Sri Lanka is rated as one of 34 biodiversity hotspots. Being designated a 'biodiversity hotspot' means that Sri Lanka, along with the Western Ghats in India, is biologically rich (specifically, it contains more than 1,500 endemic vascular plants) but has lost 70% or more of the original natural vegetation. Sri Lanka's ecosystems and biological biodiversity is an important component of its natural wealth. Preserving, conserving and nurturing this diversity is important for national pride and well-being and also for sustainability and economic returns in areas such as agriculture, industry and tourism.

4.1.2. Existing regulatory and policy actions on Natural Resources

Declaration of protected areas has been the mainstay of protecting the critical endemic biodiversity of the country. The Fauna and Flora Protection Ordinance (1964) has classified three types of protected areas, namely National Reserves, Sanctuaries and Managed Elephant Reserves. Other areas have been declared under the National Heritage Wilderness Areas Act (1988), Fisheries and Aquatic Resources Act (1996) and the National Environmental Act (1988). Approximately 2.3 million ha, equivalent to 35% of Sri Lanka, is administered as protected areas by the Department of Wildlife Conservation and Forest Department[32]. Preventing further reduction of protected areas is critical for biodiversity protection.

The Fisheries and Aquatic Resources Act No. 2 of 1996 has provisions to declare areas for management, regulation, development and conservation of fisheries and aquatic resources and to prohibit importation of any species that can adversely impact aquatic organisms. The Coast Conservation and Coastal Resource Management Department (CC&CRMD) has declared Special Management Areas (SMA) and is currently developing their ecological profiles & SMA plans with community participation. There are 15 operational SMA sites and 30 proposed SMA sites[33].

4.1.3. Agriculture and Natural Resources

Being integrally dependant on natural resources including land, water and genetic resources, agriculture requires conservation of natural eco-systems for assuring sustainability of production systems. However, most threats to ecosystems and biodiversity arise from human activity, and from the intentional or accidental introduction of new plant and animal species that later on become a threat to endemic species. The remaining natural ecosystems in Sri Lanka are being encroached to meet human needs through activities such as resettlement, farming, logging and resource extraction, irrigation, energy generation, drinking water provision, and infrastructure development. Consequently, there is alteration and destruction of natural ecosystems, increased habitat fragmentation and pollution. In Sri Lanka, 81.5% of bee species, whose presence is required for pollination, are listed as threatened. Furthermore, since 1900, more than 75% of the forest cover has been lost, and 50% of the wetlands have been reclaimed or destroyed indicating a significant loss in natural ecosystems and biodiversity. Genetic diversity preserved in the wild species is a critical source in the development of new cultivars of crops and animal

[32] Ministry of Mahaweli Development & Environment (2016). *National Biodiversity Strategic Action Plan 2016-2022*
[33] https://www.cbd.int/doc/world/lk/lk-nbsap-v2-en.pdf

species in the future and an important defence against possible devastating pest and disease outbreaks.

The negative interactions between humans and wildlife occur around the globe. Judging by the current trends of human population growth and land use patterns, human-wildlife conflicts can be predicted to increase and be one of the most significant impediments to conservation of endangered species as well as increasing agricultural production. Already threatened species such as elephants, leopards and giant flying squirrel have become casualties of such conflicts driving these already threatened species further towards the brink of extinction. In Sri Lanka, through the previous 5 years, over 375 humans and 1,100 elephants have died from human-elephant conflicts. In urban areas, the damage from monkeys to crop production has been on the rise. The cost of wildlife damage to agricultural production is continuing to rise.

The lessons from past experiences and study of natural systems can be applied for the sustainability of all economic activities, including farming, forestry, fisheries, biofuels production or bioprospecting. Some options include introduction of environmental performance certifications such as 'ecolabels' that certify to consumers the implementation of responsible production practices that don't harm the environment. Mainstreaming such improvements require proper definition and monitoring of labelling systems and their recognition. Good Agricultural Practices (GAP) and Good Manufacturing Practices (GMP) introduced by some agencies are currently limited to tapping into export markets. (agriculture and eco system)

4.1.4. Issues to be addressed

The following key issues were prioritized to be addressed under the 'Natural Resources' theme.

- Sustainable utilisation of natural resources in agricultural production.
- Adverse impacts to natural ecosystems, and in particular biodiversity, from agricultural production.
- Human-animal conflict

Two policy statements are proposed under the thematic area of 'natural resources'. These statements align with national policies, to ensure sustainable utilization of natural resources and adoption of eco-friendly practices in the process of modernizing the agriculture sector.

Policy Statement:

(1) **Promote and support exploration, conservation and utilization of biodiversity and sustainable management of natural resources.**

Policy Thrust Areas:

- Sustainable utilization of natural resources through community participation and appropriate regulations.
- Incorporation of agro-ecology in the sustainable use of natural resources.
- Reduce dependence on gathering/natural harvesting through establishment of outgrowing systems and improving community-based resource management.

- Promote useful elements of biodiversity-friendly traditional practices integrated with modern technology.

Policy Statement:

(2) **Promote eco-friendly farming systems for sustainable and efficient agricultural production.**

Policy Thrust Areas:

- Enhance sustainable management of ecosystems involving crops, livestock and poultry, aquatic resources and native biodiversity.
- Markets and marketing systems for produce of the eco-friendly farming systems.
- Introduce certification schemes and measures to enhance marketability of eco-friendly agricultural products.
- Ensure spatial planning considerations including environmental, economic, social and cultural aspects are addressed in the development of crops, livestock and poultry, and aquatic resources.
- Conserve native genetic diversity of cultivated plants, of farmed and domesticated animals, and wild relatives and soil biodiversity.

4.2. Land Administration, Land Degradation, and Land Use Planning

4.2.1. Introduction

Arable lands in Sri Lanka amount to 2.9 million ha, with 35% of this under agricultural use. Farms less than 2 ha comprise 90% of holdings and two thirds of the cultivated land. Co-ownership of land is common in the irrigation settlements where alienated state lands follow a restricted tenure system introduced in an attempt to maintain viable farm units without subdivision. This leads to inefficiency in land use. Two thirds of the private sector owned land is farmed by owner cultivators.

4.2.2. Land Administration

Because land is one of the fundamental factors that shape social and cultural identities, land administration concerns many factors other than its economic value as a platform for food and shelter. Therefore, administrative arrangements pertaining to land in a country like Sri Lanka, which has a long history of settled civilization, are governed not only by regulations but also by traditions and communal compacts. This makes land administration inherently much more challenging. Further, Sri Lanka has not made significant changes to the process of registering property in recent years and this reflects in the low ranking (155th of 190 economies in 2017 from 154th in 2016) for registering property.

The administration and management of land in Sri Lanka is governed by more than 39 operational laws, which are vested with the Ministry of Agriculture, Ministry of Lands and even departments such as Irrigation Department and are implemented without a proper coordinating mechanism.

4.2.3. Existing regulatory and policy actions on Land Administration

The Crown Land Encroachments Ordinance (1840) made almost all the lands crown property thereby gradually creating a landless peasant sector in the country. The Land Development Ordinance (1935) provided a guarantee to settlers with legal background. This act, governed by the Land Commission, restricts transactions such as leasing, mortgaging and selling and allows only a unitary system of succession to protect the rights of the allotees. Later, the Land Sales (Special Provisions) Act (1973) provided freehold tenure to allotees subject to certain conditions on sale and subdivisions. The Land Development (amendment) Act (1981) provides legal provisions to mortgage the lands only to prescribed banks and institutions, and subsequent amendments facilitated mortgaging the lands in the state banks (1993), and private banks (1996).

Encroachment of state lands by the landless and for economic purposes has been widespread. An island-wide survey done by the Department of the Land Commissioner General (DOLCG) in 1979 revealed that an extent of 386,038 ha was encroached, out of which, about 155,803 ha were distributed among encroachers by 1980. Since then, the DOLCG has undertaken further clearances of encroachment.

The Matrimonial Rights and Inheritance Ordinance of 1876, which was amended in 1922, provides for equal rights to inheritance for male and female spouses, though several traditional and customary laws and practices favour men and limit women's access and control over land. The full range of *de facto* rights to agricultural lands are observed in irrigated settlements in Sri Lanka. These *de facto* rights are bestowed under transactions that include, traditional mortgage transactions, fixed rental transactions, sharecropping and jointly operating systems (see Table 5), All such transactions are informal and not at par with the provisions in the land legislation.

Table 5: Percentages of Land Parcels of Operational Lowlands of a Sample Set of Farmers

Tenure System	Land Parcels (%)
Formal land tenure system	
Legal owner operator	34.8
Purchasing with legal ownership	2.5
Owner operator without legal documents	1.4
Formal	**38.7**
Informal land tenure system	
Purchasing without legal documents	4.6
Operating separately without legal documents	5.8
Operating jointly without legal documents	0.7
Leasing on cash basis	7.8
Leasing (on fixed produce)	31.8
Mortgaging	5.6
Encroaching (private)	1.4
Encroaching (government)	3.6
Informal	**61.3**
Total	**100.0**
Source: Chandrasiri, J.K.M.D (2010). Impact of Informal Land Transactions in Settlement Schemes in Sri Lanka. HARTI-Research Report No. 132.	

The Agrarian Development Act (2000) and the Amendment Act (2011) constitute the legal environment on matters relating to landlords and tenant cultivators of paddy lands and the utilization of agricultural lands in accordance with agricultural policies. The Agrarian Development Act restricts cultivation of paddy land, from which the maximum production can be obtained, to only paddy, with powers to prescribe paddy lands vested in the Land Commissioner-General (LCG) under the Paddy Lands Act (1958), which was later replaced by the Agricultural Lands Law (1973) and also extended to uplands. Several deviations allowed with written permission of the LCG. Further, Sri Lanka has not made significant changes to the process of registering property in the recent past.

The Land Reform Act (1972) nationalized the most productive private lands, amounting to 419,000 ha and mostly cultivated to perennial crops, during a three-year period from 1972-1975. Under this act, the marginal land acquired were redistributed (nearly 10 per cent) but

the majority of the acquired land (e.g. >60% of the tea land) was vested with state agencies, further shrinking the privately-owned productive agricultural land and limiting access to productive lands by the poor. The colonisation/settlement programmes initiated in the 1930's alienated well over 2 million land holdings under different land distribution programmes under different tenure schemes. The colonisation/settlement programmes, with provisions for irrigated agriculture, was a landmark in the land policies for development of the dry zone. In a break with the past, the government intends to provide transfer full land ownership to those who farm on temporary permits[34].

4.2.4. Agriculture in relation to Land Administration

Private ownership of agricultural land is limited to 50 acres (approx. 20 ha) per person and restrictions apply to sales, leasing, and mortgaging. Restrictions also apply to the use of state lands. About 27% of farmers in Sri Lanka are landless and for those who own land, 42.4% own less than 0.4 ha. A decrease in land sizes by 45-60% over a 30-year period after establishment of settlements has been observed in Sri Lanka. Such small holders as separate economic and decision-making entities have difficulties in engaging meaningfully in commercial agriculture owing to their poor access to capital, technology, value chains and markets. Also, in the absence on land zoning agricultural lands are fast being converted to residential, commercial or industrial purposes. Malfunctioning land markets and weaknesses in regulatory framework that led to non-viable holding sizes, have negative implications on agricultural productivity.

4.2.5. Land Degradation

Land degradation has emerged as a serious problem in Sri Lanka over the last century. Sri Lanka's agriculture sector suffers from low productivity[35] with more than 44% of the soils in the country under some form of degradation. As example, soil fertility issues affect agricultural land productivity making 1.2 million ha[36], mostly in the Dry Zone, unproductive and of limited use. Marginal lands under annual and perennial cropping and animal production also suffer from the loss of land productivity. Around 11.8% of the land area of Sri Lanka is categorized under high hazard level of erosion while 4.8% is under very high level of hazard[37]. Both these categories are not suitable for any land use in terms of sustainable productivity. In the long run these are leading to loss of water resources, ecosystem, biodiversity and ecosystem services, and less climate resilience agricultural production systems.

4.2.6. Interactions between Agriculture and Land Degradation

Inappropriate land management under all land use types is a major contributor to land degradation. The main agricultural practices contributing to land degradation are, inappropriate agricultural practices (see Table 6), inadequate adoption of soil conservation methods, over extraction of ground water, misuse of agrochemicals, poor soil fertility management practices, deforestation, and discharge of toxic materials to soil. The main drivers contributing to land degradation include, low farm income (poverty), inappropriate land tenancy arrangements, pressure for land, weak institutional framework, ignorance, inappropriate development activities failure in law enforcement.

[34] Sustainable Sri Lanka – 2030 Vision and Strategic Path
[35] Vision 2025
[36] Sustainable Sri Lanka – 2030 Vision and Strategic Path
[37] Jayasekera M.J.P.T.M., Kadupitiya H.K. and Vitharana U.W.A. (2018). DOI: http://doi.org/10.4038/tar.v29i2.8284

Table 6: Soil Loss in Different Land Use Systems in Sri Lanka

Aqro-Ecological Region	Location	Land Use	Soil Loss (t/ha/y)
Mid country wet zone	Peradeniya	Seedling tea without conservation	40.00
		Well managed tea in contour	0.24
		Mixed home gardens	0.05
Up country wet zone	Talawakele	Clean weeded VP tea	52.6
		VP tea with mulch	0.07
Mid country Intermediate zone	Hanguranketha	Tobacco: no conservation	70.0
		Capsicum: no conservation	38.0
		Carrots: no conservation	18.0
Low country Dry zone	Mahailluppallama	Sorghum & pigeon pea	21.3
		Sorghum & pigeon pea with mulch	3.90
		Cotton	22.2
		Cotton with mulch	2.0

Source: Ministry of Environment and Renewable Energy (2014). *National Action Plan for Combating Land Degradation in Sri Lanka 2015-2024.*

4.2.7. Land Use Planning

Given that land use is determined by a multitude of physical, social and economic factors, land use planning envisages ensuring that land users are encouraged to select options that increase their land productivity in a sustainable manner. It is a decision-making process that facilitates the allocation of land that provide the greatest sustainable benefits[38]. Farmers with secured tenure rights are more likely to undertake productivity enhancing investment than those who have no such rights. Further, increasing returns from farming and also better credit access are important for improving land use practices that enhance agricultural productivity.

4.2.8. Existing regulatory and policy actions on Land Use

The Land Development Ordinance (1935), State Land Ordinance (1947), Forest Ordinance (Amendment) (2009), and Soil Conservation (Amendment) Act (1996), are some important legislative measures introduced in the country for sustainable land management. However, land fragmentation has subdivided agricultural lands to economically unviable levels. Scarcity of land suitable for commercial operations has affected modernization in agriculture. The current actions for curbing land degradation are elaborated in the NAP for Combating Land Degradation in Sri Lanka, 2015-2024.

[38] Agenda 21; Paragraph 10.5

The National Land Use Policy (2007) and National Land Use Planning Bill (2014) have addressed the issues related to protected areas, misuse of land, underutilized and unused land, and land use conflicts. In this regard, the Land Use and Policy Planning Division (LUPPD) has up-to-date use plans for 8 districts in the Northern and Eastern Provinces and 251 Divisional Land Use Plans covering the remaining 17 districts of Sri Lanka.

The GoSL policies seeking to improve land administration has proposed to implement scientific land management practices, improve land administration and modernize land management[4]. The State Land Bank Act and Lands (Special Provisions) Act are some of the regulatory measures proposed as government initiatives to strengthen sustainable land management.

4.2.9. Issues to be addressed

The following were identified as key issues to be address under the theme 'Land Administration, Land Degradation and Land-Use Planning'.

- Husbandry, soil management and conservation practices to minimise soil erosion and fertility loss.
- Implementation of legislation protecting land quality, i.e. Soil conservation act.
- Land tenure insecurity and lack of transparency in land administration.
- Land fragmentation.
- System for identification and approval of lowlands that can be used for cultivation of crops other than paddy.
- Inter-agency (ministerial and institutional) coordination at national and provincial levels to address main issues in agricultural land management.
- Land zoning based on land suitability assessments
- Non-scientific allocation of land among alternative uses.
- Loss of grazing lands due to appropriation by state agencies,
- Holistic mechanisms involving institutional, legislative and participatory approaches through enforcement of existing legislation.
- Participatory approaches in land use planning and sustainable land management.
- Restrictions to consolidating, renting, selling or mortgaging agricultural, and in particular 'permit', land.

The prudent direction the policy relating to the agricultural land should adopt is captured in two policy statements that deal with land administration and rational land use planning and land management in keeping with the national policies.

***Policy Statement**:*

(1) Facilitate appropriate changes in the institutional and regulatory framework governing administration of agricultural and allied land, in a manner contributing to improving land productivity.

Policy Thrust Areas:

- Create enabling legal backdrop for increasing investments in land by facilitating expedient transfer of cultivation or user rights from the land permit and grant holders to prospective users.

- Introduce science-based and transparent land classification and approval procedure for the cultivation of more economical crops in the paddy lands.

- Enact a regulatory framework to limit sub-division of land below the current levels except where novel technologies are being used to improve productivity by revising provisions under the Land Development (Amendment) Act No. 16 of 1969.

- Create conducive environment for landowners to increase investments by strengthening ownership rights of land operators including the amendment of ordering of succession and granting of land titles.

- Energize investment climate for land by allowing landowners to consolidate ownership legally by eliminating restrictions on land acquisition via different transfer procedures such as renting, leasing.

Policy Statement:

(2) Ensure sustainable land management through proper land use planning and rational allocation of lands for different agricultural ventures for enhanced land productivity, while minimizing land degradation.

Policy Thrust Areas:

- Ensure rational and sustainable use of land through land use planning to support agricultural development.

- Mainstream a comprehensive approach to combating land degradation from diverse causes that includes research, extension and management and assistance programs that take a multi-faceted approach.

- Promote measures to increase land productivity by supporting integrated agricultural practices that enhance nutrient recycling, reduce soil erosion and land degradation.

- Adopt measures to arrest further fragmentation of agricultural holdings.

4.3. Agricultural Water Management

4.3.1. Introduction

Sri Lanka is endowed with rich water resources, having 103 distinct river basins covering 90% of the island with total length of about 4,500 km of watercourses. Twenty of these river basins are in the Wet Zone, carrying about 50% of the surface runoff. The significance of the river basins varies depending on the scale, which ranges from 10 to 10,000 km^2. The water to land ratio of 3 ha km^2 is one of highest such ratios in the world[39]. About 260,000 ha of freshwater bodies available are made up of 155,000 ha of large, medium and small perennial reservoirs and tanks, 100,000 ha of seasonal tanks and 5000 ha of 'villus' or flood plains scattered all over the country. The estimated groundwater potential in Sri Lanka is 7,800 million m^3 per annum[40]. The groundwater resources are considered to be lesser compared to surface water resources. In terms of water demands of the country, 87.34% of freshwater withdrawals are used for agricultural purposes and rest is industrial and municipal water withdrawals[41].

Irrigation was essentially developed for paddy cultivation. About 230 man-made major and medium irrigation reservoirs and about 12,000-15,000 minor irrigation reservoirs/village tanks make up the main component of current irrigation sources (i.e. anicuts being another type) with a total irrigable area being about 745,000 ha. The cascade system created by interconnection of many tanks is an important feature in the Dry Zone water resources development pattern. The network of village tanks played an important role in supporting many critical livelihood functions in the village life including supply of water needs of humans and livestock, sustenance of the home garden, food and recreation etc.

Aquaculture initially developed in association with irrigation reservoirs expanded to include a wide range of products and areas. Presently, it comprises fish rearing in the perennial and seasonal reservoirs in the dry zone, fish cage culture, shrimp farming, and ornamental fish production using ponds and tanks, etc. It has also extended to fish, sea cucumber, seaweed farming in the near-shore or lagoon areas. The average water area of seasonal small tanks under freshwater fish culture varies from 4.5 ha to 7 ha and requires stocking with fish fingerlings at the beginning of every season. The stocking of fingerlings and shrimp larvae in the reservoirs used for fishery is carried out under the guidance of the Fisheries Department with many participants in the value chain in breeding and fingerling raising, feed manufacture, harvesting and marketing etc.

4.3.2. Existing regulatory and policy actions on Agricultural Water

Sri Lanka has tried to address water related issues through sectoral policies of different dimensions. However, there is no exclusive formally approved overall water policy. The National Policy on Protection and Conservation of Water Sources, their Catchments and Reservations in Sri Lanka (2014) covers the micro-catchments of rivers and streams, natural and man-made tanks/reservoirs and shallow lakes, and aquifers. The National Rainwater Policy and Strategies (2005) focuses on rainwater harvesting to meet challenges of supplying adequate water, with relevant amendments made to the by-laws of the National Water Supply and Drainage Board (NWSDB) and the Urban Development Authority (UDA). The National Agriculture Policy (2007) addressed irrigation and water management in agriculture.

[39] Sustainable Sri Lanka – 2030 Vision and Strategic Path.
[40] Panabokke, C.R. (2007). Ground Water Conditions in Sri Lanka: A Geomorphic Perspective. NSF.
[41] FAO Aquastat Database.

The Irrigation Ordinance (1946) and amended Act (1994) provides legal powers to the Department of Irrigation to manage major irrigation schemes, The Agrarian Development Act (2000) as amended in 2011 provides the legal authority for the Department of Agrarian Development to manage the majority of the minor irrigation schemes, and the Provincial Councils Act (1987) provides authority to the provincial councils to manage village tanks, anicuts, etc. The Mahaweli Authority of Sri Lanka Act (1979) empowers the MASL to optimize agricultural productivity and employment potential and generate and secure economic and agricultural development within the Mahaweli command area.

Sri Lanka faces numerous challenges related to managing water with nearly 40 statutory bodies responsible for water resources. Besides the complex management challenge that the water sector presents, that no single agency has stewardship over the country's water resources has exacerbated inefficiency in the use of water resources

4.3.3. Agriculture and Water relations

Sri Lanka now cultivates around 1.1 million ha of paddy land of which around 45% is under major irrigation schemes, 25% under minor irrigation and 30% rainfed. In the same areas, the farmers are engaged in cultivation of other highland food crops such as chilli, onion, vegetables, pulses, tuber crops, maize and other cereals in small extents that amount to a total around 150,000 ha.

Expanding world population will increase the demand for fresh water. The World Economic Forum[42] ranked water crisis as the highest concern for the next decade. Thus, measures to keeping a low water footprint[43] to conserve fresh water supply has become a critical aspect in agriculture. The global water footprint in the period 1996-2005 was 9087 Gm^3 per year (74% green, 11% blue, 15% grey) with agricultural production accounting for 92%. The water footprint of different crops and animal products are shown in Table 7. According to the data the production of rubber has a water footprint of 13,747 m^3/ton compared to 2,102 for rainfed rice and 1,519 for irrigated rice. Among animal products meats have a higher water footprint than milk or eggs. Also, irrigated agriculture, manufacturing and animal husbandry have more blue and grey water footprints.

Table 7: Water Footprint of Agricultural Products

Component	Farming system/ Product	Water footprint (m^3/ton)			
		Green	Blue	Grey	Total
Rice	Rainfed	1,912	-	190	2,102
	Irrigated	869	464	185	1,519
Maize[3]	Rainfed	1,082	-	187	1,269
	Irrigated	595	294	212	1,101
Soybean[3]	Rainfed	2,079	-	33	2,112
	Irrigated	1,590	926	85	2,600
Coconuts[3]	Nuts	2,660	2	16	2,678

[42] http://www3.weforum.org/docs/GRR/WEF_GRR16.pdf

[43] The Water footprint the amount of fresh water utilized in the production or supply of particular goods and services.

Component	Farming system/ Product	Water footprint (m^3/ton)			
		Green	Blue	Grey	Total
	Oil	4,461	3	27	4,991
Oil Palm[3]	Fresh fruits	1,057	-	40	1,097
	Oil	4,787	1	182	4,970
Rubber[3]	Natural Rubber	12,964	361	422	13,747
Tea[3]	Made tea	7,232	898	726	8,856
Sugarcane[3]	Cane	139	57	13	209
	Sugar	1,182	487	111	8,856
Cattle[4]	Milk	863	86	72	1,020
Chicken[4]	Eggs	2,592	244	429	3,265
	Meat	3,545	313	467	4,325
Pig[4]	Meat	4,907	459	622	5,988

Sources: [3]Mekonnen, M.M. and Hoekstra, A.Y. (2011) The green, blue and grey water footprint of crops and derived crop products, *Hydrology and Earth System Sciences*, *15*(5): 1577-1600.

[4]Mekonnen M.M. and Hoekstra A.Y. (2010): The green, blue and grey water footprint of farm animals and animal products. UNESCO-IHO.

Note: The green water footprint refers to rainwater consumed; blue water footprint refers to the volume of surface and groundwater consumed (evaporated) as a result of the production of a good; grey water footprint refers to the volume of freshwater that is required to assimilate the load of pollutants based on existing ambient water quality standards

It is estimated that by 2025, under the current scenario, most of the districts in the Dry and Intermediate Zones of Sri Lanka will face severe seasonal or year-round absolute water scarcity[44]. Therefore, attention is shifting to conserving and replenishing water resources, increasing water productivity etc.

Water withdrawal for agriculture in Sri Lanka is close to 90%. Increasing water productivity is a critical factor for irrigation system efficiency and sustainability. Paddy farming is a high consumer of water with up to 3000 litres used for the production of a kg of rice. The average water in paddy cultivation in Sri Lanka is estimated at 1200-1800 cm (4-6 ft.) which is almost double that of other rice growing countries due to issues such as irrigation technique, terrain and levelling of land, soil permeability, water conveyance losses and wastage. Further, paddy represents more than 90% of irrigated agriculture in Sri Lanka placing a heavy burden on the irrigation requirement. Countries like China, Korea and India have a more balanced distribution of irrigated crops with rice representing a third to a half of the total irrigated crop area. Modifying the crop mix by diversifying to include low water

[44] http://slwater.iwmi.org/sites/default/files/DocumentRoot/Report32.pdf

consuming crops, land levelling and changing the irrigation techniques have to be considered for increasing water use efficiency.

In the past, groundwater was little utilized for agriculture, with one main area of use being the Jaffna peninsula. However, it is now utilized more widely in agriculture in addition to its traditional uses for domestic water supplies, industry, etc. Groundwater is extracted for agriculture using open dug wells. As many aquifers are quite close to the surface, digging shallow wells and drilling tube wells is relatively affordable. The number of agro-wells has increased very sharply raising concerns about over-extraction and water quality issues. As excessive extraction of groundwater can lead to many problems, integrated water resources management is critical to ensure sustainability. The dangers are heightened in the face of climate change.

4.3.4. Issues to be addressed

In relation to the various issues highlighted in the discussion above, the following were identified as key issues to be addressed under the theme 'Agricultural Water Management' in the OAP.

- More balanced allocation of water across key economic sectors and within agriculture.
- Un-sustainable extraction of ground water resources.
- Regulatory framework(s) for water pricing for large scale commercial agricultural production.
- Adverse impacts of agriculture to surface and ground water quality.
- Requirements for aquaculture in water resources development planning and design.
- Improving water management and use practices for increased efficiency.
- Funding needs for efficient operation and management of irrigation systems.
- Coordination among and within institutions responsible for agricultural water management at national and provincial levels.
- Long-term strategic planning based on scientific resource assessment, strengthened legal framework and improved focus and resourcing towards effective IWRM.
- Adequacy of resources to authorities charged with conserving areas critical for health of water resources, reservations of waterways and reservoir/tank catchments.

Therefore, the policy statement relating to agriculture water deals with ensuring long-term water resource planning and efficient water management, keeping in line with the national priorities.

Policy Statement:

Ensure rational allocation of water for irrigated agriculture through participatory management of agriculture water resources while applying appropriate technologies and regulatory measures.

Policy Thrust Areas:

- Improve efficiency of irrigation water use.
- Increase in sustainable water capture.
- Implement measures and practices to reduce pollution of water sources.
- Use cascade-level planning in the restoration and management of water resources.
- Protect quality and improve sustainable use of ground water by introducing legislation and institutionalizing community-based management.
- Increased stakeholder participation in management of irrigation systems.

4.4. Climate Change

4.4.1. Introduction

Climate change has the potential to bring disastrous consequences that endanger the earth's fauna and flora, including human beings. It is predicted to lead to more violent weather phenomena, rising sea levels and changes in precipitation patterns that will increase the occurrence of floods and droughts bringing immense destruction to food chains and economic resources. Developing countries face the brunt of climate change impacts due to inadequate capacity to deal with the sheer scale of adversity.

Figure 5: Contribution to Global Warming by Different Sectors

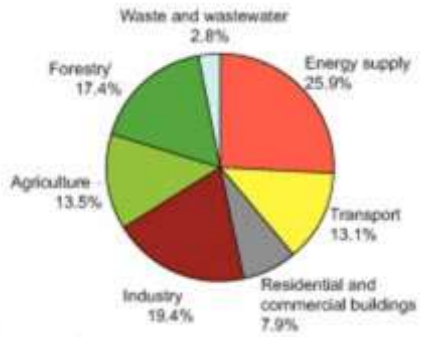


Figure 5. Contribution to Global Warming by Different Sectors

Source: IPCC Fourth Assessment Report: Climate Change 2007, Working Group III: Mitigation of Climate Change, Chapter 1. This is a snapshot of emissions in 2004

Global warming is caused by heat-trapping greenhouse gases. The major greenhouse gases include water vapour; carbon dioxide (CO_2); methane (CH_4); and ozone (O_3)[45]. While some greenhouse gas emissions are due to natural causes, human actions have accelerated the rate of emissions many times. Agriculture is a significant contributor to global warming (Fig. 5). Certain waste management and agricultural practices aggravate the problem by releasing potent global warming gases, such as methane and nitrous oxide.

In Sri Lanka, analysis of past data suggests that ambient temperatures are slowly but steadily increasing at an annual rate of 0.01-0.03 °C. While no clear pattern or trend has been observed in precipitation, it is predicted that the wet regions of Sri Lanka will be wetter and dry regions drier[46]. It has been observed that the intensity and the frequency of the extreme events such as floods and droughts have increased during recent times. The Global Climate Risk Index[47] has ranked Sri Lanka second among countries most affected by extreme weather events in the 20 years since 1998. Hence, climate change impacts have the potential to reverse the country's achievements in poverty alleviation and sustainable development.

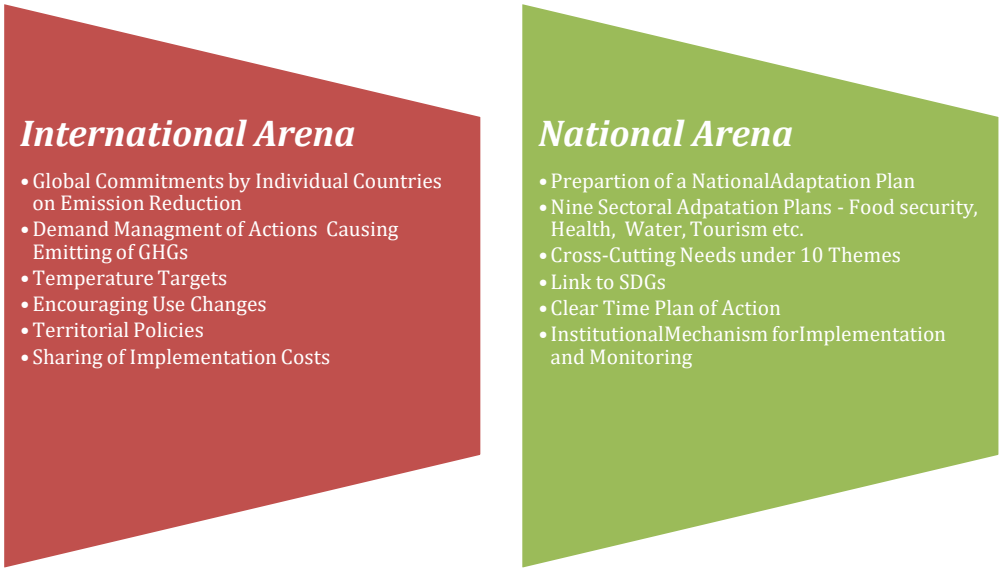
45 https://en.m.wikipedia.org/wiki/Global_warming

46 Marambe B., Punyawardena R., Silva P., Premalal S., Rathnabharathie V., Kekulandala B., Nidumolu U. and Howden M. (2015): https://www.springerprofessional.de/en/climate-climate-risk-and-food-security-in-sri-lanka-the-need-for/11461074

47 https://www.germanwatch.org/en/16046

4.4.2. Existing regulatory and policy actions on Climate Change

Being addressed as an urgent global challenge, many commitments have been made in the international and national spheres to adapt and mitigate climate change. The broad commitments at the international and national levels are highlighted in the diagram below.



International and National Commitments to Address Climate Change

The National Climate Change Policy (2012) provides guidance to national and sub-national levels in addressing both adaptation and mitigation issues. Under the NCCP, the National Adaption Plan for Climate Change Impacts in Sri Lanka (NAP) was launched in 2016 as a rolling plan with a 10-year time horizon. The NAP is divided into three stages, (a) foundation building stage (2016-2019), (b) development stage (2020-2022) and (c) goal achieving stage. The provincial adaptation plans, aligned with NAP, are currently being developed.

The Nationally Determined Contributions (NDC) of Sri Lanka submitted to the UNFCCC in 2016 pledge to reduce greenhouse gas (GHG) emissions by 20% in the energy sector and by 10% in other sectors such as transport, industry, forests and waste by 2030. However, the degree of implementation of the policy and action plans and international commitments to deal with climate change issues in Sri Lanka is far from adequate.

4.4.3. Agriculture in relation to Climate Change

The FAO opines that climate change will have major effects on agricultural production and food security[48]. The likely impacts described are yield decline, shifting of crop production locations, losses in agro-biodiversity and ecological services, loss in agricultural and non-agricultural income, pollution of irrigation water, and spread of diseases.

Agriculture is a major source of greenhouse gas emissions that cause climate change. However, it can also play a positive role to mitigate climate change through biological carbon capture and storage in biomass and soil. The challenge is undertaking this mitigation role without compromising food and nutrition security. The FAO suggest addressing this challenge by developing 'triple-win pathways' – in which more food for a growing population is produced, in a more sustainable way, but with lower overall greenhouse gas emissions. However, implementing 'triple-win pathways' will

[48] FAO (2018). Strengthening Sector Policies for Better Food security and Nutrition results, Climate Change.

require better coherence across policies, legislation and financial mechanisms[49]. Achieving this requires integrating food and nutrition security fully into national policy on climate change adaptation and mitigation and to financing instruments.

According to the Country Climate Risk Profile for Sri Lanka, (Figure 6) the projected changes in climate have been listed as follows:

"• Increase in mean annual temperature of between 0.8°C and 2°C by 2060.

• Increase in both daily maximum and minimum temperatures of between 0.7°C and 0.8°C by 2050.

• Projections of change in precipitation vary, with some predicting decreases and some increases, but generally indicate an increase in variability and extreme events.

• Increase in cyclone frequency and intensity.

• Increased frequency and severity of floods, drought incidence, and landslides.

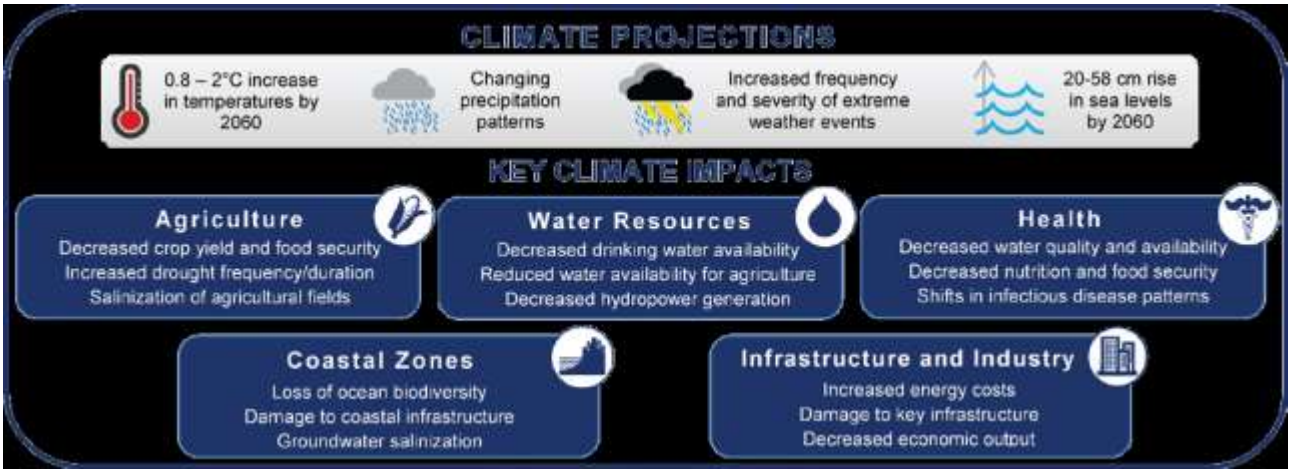
• Total sea level rise of between 0.2 and 0.6 meters by mid-century, compared to 1971-2010 levels."

All these climate impacts have potential to bring some level of disruption in food production, storage, distribution and utilization. With around 25% of the country's population depending on livelihoods related to agriculture and the sectors importance in supporting food supply, particularly in rice and earning export revenue, the impacts on agriculture economy will be significant [50].

Figure 6: Climate Risk Profile for Sri Lanka

[49] FAO (2018). Strengthening Sector Policies for Better Food security and Nutrition results, Climate Change.

[50] http://www.climatechange.lk/NAP/NAP%20For%20Sri%20Lanka_2016-2025.pdf



Source: USAID (2018). Climate Risk in Sri Lanka: Country Risk Profile.

Studies show that climate changed induced decline in agriculture production in Sri Lanka in turn resulted in high food prices leading to low access to food[51]. In 2014, climate affected over 50% of households in the Eastern Province and 48% in the Uva Province of Sri Lanka in terms of affordability of an adequately nutritious diet. Prolonged drought in 2016 and 2017 (worst since 1973/1974) that affected three continuous cultivating seasons contracted the growth rate of the agriculture sector by 4.2% in 2016, and by further 0.8% in 2017. To overcome resulting deficit, imports in excess of 600,000 tons of rice were required in 2017.

Nearly 2% of the paddy crop was destroyed by the floods in 2016, while the loss damages encountered were staggering[52] (Table 6). The floods and landslides have damaged the productive assets, loss of livelihoods, and reduced agricultural, livestock, fishery and aquaculture production. For example, the highest loss reported due to floods in May 2016 was the loss of harvest of OFCs, mainly consisting in groundnut, green chilli, green gram, big onion, maize, black gram, cowpea and the recovery needs are estimated at LKR 2.4115 billion (approx. USD 13.62 million).

4.4.4. Issues to be addressed

Impacts of climate change have been highly visible in Sri Lanka and in general have received policy attention in the national plans by highlighting the policy objectives relating to possible impacts and identifying actions to mitigate them. However, the efforts to mainstreaming the identified actions sector-wide and follow through in implementation plans have been weak. The following were identified as key issues to be addressed under the theme ‘Climate Change’ in the OAP.

- Large Issues related to Institutional managements; Policy and action relating to climate change fall on a large number of organizations given the broad range of activities impacted by it. The implementation arrangements suffer by;

-Weak governance procedures,

-Weak institutional mechanisms and coordination.

- The efforts to mitigate and adapt are affected by inadequate financial and physical resilience measures.

- The adoption of climate-induced disaster risk reduction measures is weak.

[51] Ibid.
[52] World Bank (2017)

- Inadequate efforts are made on education, R&D, training and awareness on climate change related issues.

The OAP make provisions through the following policy statement to ensure climate change issues will be addressed in overall context, keeping in line with the national policy.

Policy Statement:

Ensure a climate-resilient agriculture sector through appropriate adaptation and mitigation measures while addressing loss and damages caused by climate-induced disasters.

Policy Thrust Areas:

- Mainstream climate action in policies, regulations, programs and plans in the entire agriculture sector.
- Strengthen efforts to combat climate-induced disaster risk reduction.
- Take measures to increase resilience of agriculture sector against the emerging climate change impacts by adopting suitable strategies.
- Building the capacity of farming community to adjust readily to unfolding changes of climate through increased awareness and supportive investments on adaptive actions.
- Capture opportunities that arise due to changes of climate for maximum gain of the competitive and comparative advantage in international trade.

4.5. Food Security

4.5.1. Introduction

As proposed by the FAO 'food security' is achieved when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Successive Sri Lankan governments have aspired to achieving self-sufficiency in all major food commodities as the means of achieving food security, a premise that has received popular national acceptance. Accordingly, Sri Lanka's quest for self-sufficiency has extended beyond staple foods and included some condiments (onion, chilli), vegetables (potato), sugar, milk, poultry and fish.

Steady growth of household income with progressively trending down overall poverty levels suggest improved physical and economic access to food[53]. Though the percentage food secure households of the country was as high as 90% in 2014[54] the Global Hunger Index (GHI) has ranked Sri Lanka in the 84th position out of 118 countries, and Global Food Security Index (GFSI) has positioned Sri Lanka 66th out of 113 countries, indicating that all is not well. The child and maternal nutrition status have shown a little progress over time. Over the period 2000-2016, the stunted and wasted population among children under five declined marginally from 18.4% to 17.3% and 15.5% to 15.1%, respectively. During the same period, underweight declined from 22.8% to 20.5%, while overweight increased from 1.0% to 2.0%[55]. The mean household expenditure on food increased from Rs. 5,848 (2002) to 19,114 (2016), with a decline in its share in the total household expenditure from 44% to 35%[56]. This suggests economic access to food by the population improved during the same period.

4.5.2. Existing regulatory and policy actions on Food Security

Sri Lanka has adopted a variety of policies to increase availability of food mainly through increase in local production, to increase accessibility and stability mainly through price controls, and to enhance food utilization by contributing to multi-sector nutrition measures. Table 8 provides a listing of policies and programmes targeting food availability and accessibility.

Table 8: Policies and Programs targeting Food Availability and Affordability

Food Availability	Food Accessibility
Production Support – Seed, fertilizer, water, R&D	Price Controls
Expansion of Land and irrigation	Public Distribution at subsidized prices, CWE, COOP, CFC, MILCO
Intensification	State-owned processing companies - MILCO
Storage and post-harvest	Poverty relief - Samurdhi
Markets -Economic Centers	Tariff adjustments

[53] https://www.wfp.org/sites/default/files/NSRFSNZH_FINAL.pdf
[54] http://www.statistics.gov.lk/page.asp?page=Publications
[55] http://www.statistics.gov.lk/social/DHS_2016a/Chapter11.pdf
[56] https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/annual_report/2018/en/5_Chapter_01.pdf

Food Availability	Food Accessibility
Public procurement - under GPS	
Imports by public entities – CWE	
Stockholding – Rice	
Food Production Drives - NFPP	

Policy objectives of both National Agricultural Policy (2007) and National Livestock Development Policy (2006), which are currently official, emphasize food security. Retail prices of food items in Sri Lanka are regulated through the Consumer Affairs Authority Act, (2003). Ten food commodities (i.e. white sugar, dried chilli, red onion, big onion, dhal, dried sprats, gram, green gram, canned fish and chicken meat) have been declared as essential food items in 2007, permitting implementation of price controls. The purpose of the government in providing input subsidies, e.g. fertilizer subsidy, and border protection that include various import controls such as custom duties, para-tariffs and import licensing requirements, (addressed in a separate section in this OAP), are primarily to protect incomes of the farming community. While they encourage domestic production, border measures impact affordability adversely by raising retail prices. Price ceilings imposed to curb escalation of prices of essential foods (e.g. rice, powdered milk) for the benefit of consumers, however, resulted in sub-standard produce being supplied to remain within the controlled price range [57]. Overall, the policies have paid more attention to addressing food availability, which is only one of the 'four pillars of food security'[58].

4.5.3. Agriculture in relation to Food Security

Generally, about 80% of Sri Lanka's annual food consumption is produced domestically with the balance 20% is imported[59]. Much of that comes from productivity increase of rice where this significant achievement has resulted from investments from 1948. Yield stagnation in almost all other food crops and poor labour productivity limit food supplies. The dearth of new crop varieties and animal breeds that can tolerate the vagaries in climate and emerging pests and diseases have affected the agricultural productivity in the recent past. The agriculture production Index of the country in 2017 for paddy declined to 63.73 (from 128.87 in 2015) owing to drastic climate experienced, while that of livestock (164.77) and fishing (159.25) showed progress.

Despite Sri Lanka's long-established emphasis on self-reliance or self-sufficiency in rice at national level, the household expenditure on food is quite diverse and not only concentrated in rice/cereals (Table 9). In fact, cereals including rice accounts for 11% and 16% of the total food expenditure in the urban and rural households, respectively. The changing pattern of food consumption by income group suggests faster rise in demand for food commodities other than cereals including rice[60].

[57] https://www.research.advocata.org/wp-content/uploads/2018/10/Price-Controls-in-Srilanka-Book.pdf
[58] http://www.fao.org/3/i9553en/i9553en.pdf
[59] https://www.researchgate.net/publication/327221768_Sustainable_Sri_Lanka_2030_Vision_and_Strategic_Path
[60] Dept. of Census and Statistics, Household Income and Expenditure Survey, HIES- 2016.

Table 9: Percentage of Average Monthly Household Expenditure on Major Foods

Food group	Urban (%)	Rural (%)
Cereals	11.4	16.2
Pulses	2.8	3.8
Vegetables & Fruits	11.9	13.5
Meat, Eggs & Milk	16.8	13.3
Fish & Dried Fish	13.3	13.9
Coconuts	4.6	6.1
Condiments & Sugar, Syrup	11.2	9.9
Fats and oils	2.3	2.5
Other food Items	9.2	7.6
Prepared food	16.5	10.9
Total	100.0	100.0
Source: Department of Census and Statistics (2018).		

Inadequate agricultural diversification has created a significant gap between what is available for consumption and what is needed to ensure proper nutrition. Analysis of food consumption pattern shows high year to year variability[61]. Increased domestic production fuelled consumption increases in rice, fruit, vegetables and animal products, and imports fuelled increased consumption of pulses and milk. The strong emphasis placed on increasing rice production seem to have limited prospects for increasing the production of food commodities that are demanded with the economic growth such as animal products including milk, fruits and vegetables. Furthermore, data clearly demonstrate that the demand for rice is declining with the income rise. In fact, at the highest income brackets the actual quantity of rice consumed tend to decline, replaced by other food commodities such as animal proteins, fruits and vegetables.

In terms of affordability, it should be noted that while the national-level statistics indicate increased rising affordability over time, food consumption disaggregated by household income suggests that the persons in the lowest income strata are still highly vulnerable. Policies pursuing self-sufficiency in specific food commodities neglecting changing food demand patterns, limited options accessibility of food alternatives and nutritional considerations can lead to food affordability issues that are difficult to balance.

Poor post-harvest practices and marketing arrangements have resulted in 20-40% loss of perishable foods before they reach the plate. Foods such as fruits, vegetables, milk and fish are more prone to such losses. This waste affect both food availability and accessibility as the prices have to adjust to cover post-harvest losses. It is often stated that Sri Lankan food

[61] Koralegedara, P et al. (2018). The Evolution of Food Policy in Sri Lanka:1948-2017.

consumption pattern should change to include more fruits, vegetables and animal proteins in the diet. But postharvest losses restrict this dietary change by limiting affordability.

In terms of access to food at affordable prices, the price controls have been of limited value in improving affordability. The most they have been able to achieve are welfare losses, deterioration in product quality, reduction in investment and in the long term, and higher prices[62]. Modernization of the agriculture sector requires producers to raise investments in the production of food commodities that have growing demand and better income prospects. It is unlikely that limiting income prospects as happens with price controls will encourage investments in those commodities.

4.5.4. Issues to be addressed

The following were identified as key issues to be addressed in the OAP under the 'Food Security' theme.

- Low productivity of crop and animal products for which the demand is rising.
- Poor match between food commodities that are promoted under agriculture development programs and those important for food security.
- Inadequate attention to agricultural diversification in favour of crops that have better income prospects.
- Heavy post-harvest losses, especially in the perishable products.
- Failure to respond to growing concerns of food safety with appropriate responses through the full value chain.
- Low priority given to processed food products to cater to demand shaped by changing lifestyles.
- Inadequate attention on producing/developing nutrition-rich food products.

Thus, the OAP addresses issues relating to food security in fuller context, within the framework outlined by the national policy documents by proposing the following policy statement and policy thrusts:

Policy Statement:

Maximize the contribution of agriculture to food security through a multi-sectoral approach.

Policy Thrust Areas:

- Promote agriculture modernization by pursuing innovation through the value chain.
- Adopt framing systems approaches for maximum productivity.

[62] https://www.research.advocata.org/wp-content/uploads/2018/10/Price-Controls-in-Srilanka-Book.pdf

- Introduce and implement appropriate technologies to improve quality and safety of food.

- Mainstream nutritional considerations in the food production strategies.

- Develop effective institutional mechanisms to evaluate relevance of policies and effect reform.

4.6. Border (External Trade) Measures

4.6.1. Introduction

Sri Lanka is pursuing a strategy of enhancing exports to increase its share in international trade as a means to achieving higher economic growth, poverty reduction and employment generation. Export competitiveness is a prime concern in achieving the medium-term growth targets of the government. Along with the opening up of the economy from late 1970s Sri Lanka's export basket shifted from comprising primary goods (e.g., tea, raw rubber, and coconut) to manufactured goods, largely garments. With accession to the WTO in 1995 the government further strengthened the trading environment by reducing tariffs and nontariff barriers. However, Sri Lanka's small-farm agriculture sector failed to adjust to be a competitive international supplier of new food products. This was largely due to the shielding of the food sector from import competitionusing a mix of tariffs, surcharges, import restrictions and the like. Food products have always been placed in the 'negative list' of bilateral trade agreements Sri Lanka signed with regional partners in an effort to protect the incomes of small farmers.

The growth of non-traditional exports in the agriculture sector is prevented by a host of factors such as poor product market regulations, a weak business climate, a skills gap, labor market regulations, and an erratic tariff and non-tariff regime in the food sector. Even though Sri Lanka bound its import tariffs at 50% on accession to the WTO, in practice many surcharges and levies as well as outright import bans during specific periods have been applied on top of the tariff to protect domestic produce from competitive imports. This has brought a high level of uncertainty to the food crop sector discouraging investors from engaging in the sector. The large variety of fresh and processed foods exported from Sri Lanka are handled by small-scale exporters with a very low rate of growth of this sector.

Sri Lanka has entered into several bilateral trading agreements, yet some such markets have hardly been 'open' to imports from Sri Lanka. As experienced under the Indo-Lanka Free Trade Agreement (ILFTA), many Sri Lankan exporters entering the Indian market have faced many non-tariff measures (NTMs) – such as state taxes, standards, and administrative procedures, quotas, etc. – which were outside the scope of the Agreement. The export of processed food to some countries is subject to various measures of conformity assessment, including labelling and packaging requirements. Agricultural exports to China are burdened by Non-Tariff-Measures that revolves around high sanitary and phytosanitary (SPS) requirements, and the lack of mutual recognition of standards and certificates. Agricultural exports to China like tea, fish and fisheries and fruits and vegetables face such constraints. Nonetheless, the non-traditional agricultural exports from Sri Lanka are expected to have strong potential if a concerted effort is made to improve weak areas such as regularity in supply, scale of operations, quality standards, etc. The range of food products available in the country are considered invaluable for developing new exports.

4.6.2. Existing regulatory and policy actions on Border (external trade) Measures

There are a number of policy, regulatory and institutional arrangements governing international trade with Sri Lanka. However, shortcomings relating to the national legislation governing international trade have been recognized. The Enabling Trade Index (ETI), which measures the extent to which economies have in place institutions, policies, infrastructure and services facilitating the free flow of goods and services within countries and over borders, ranks Sri Lanka at 103rd of 136 countries and at 117th and 113th with respect to domestic and foreign market access, respectively. Inconsistent and unpredictable policies (e.g. taxation, required approvals, regulations, investment incentives) are the main business concerns.

The Export Development Board Act (1979) is applied when exporting raw material or traditional products without value addition. Under this act, Sri Lanka applies both export duties and the Commodity Export Subsidy Schemes (CESS); e.g. cess imposed by Sri Lanka Tea Board (SLTB), Coconut Development Authority (CDA), and Rubber Development Department (RDD) when tea, coconut, and rubber are exported, respectively[63]. Export cess are collected as sources of revenue to conduct productivity enhancing investments in the respective industries. For some commodities (e.g. cashew nuts), export duties are applied under the Sri Lanka Customs Act.

The timely revision and updating of legislation impacting trade is an issue. Some legislations formulated three or more decades ago have not been reviewed and updated. The Food Act No. 26 of 1980 has not been updated to consider recent developments in food safety, quality and technology, which is an impediment to trade. Sri Lanka enacted a new anti-dumping and countervailing duties law and a safeguard measures law in 2018. The objective of them were to provide protection to domestic industries from injurious dumping and subsidization, and for the application of safeguard measures where import surges cause or threaten to cause injury to the domestic industry. However, implementing regulations necessary to implement the law are yet to be published.

The new Trade Policy (2018), and the National Export Strategy (2018) aim at creating a more liberal, simple, transparent, and predictable trade regime to attract more export oriented FDI, improve trade logistics, make customs procedures transparent and quicker, and boost firms' abilities to compete in global markets. A It provides an accessible, logical, helpful gateway for traders to access important regulatory and procedural information needed to export, import and transit.

According to the Customs (Amendment) Act. (2003), all importers must be registered with Sri Lanka Customs to be able to trade in Sri Lanka with a licensing procedure. The majority of the agricultural items are subject to licensing that is governed by the Imports and Exports (Control) Act (1969) and subsequent amendments. Imports of plant products and animal products are governed under the Plant Protection Act (1999) and Animal Diseases Act (1992), respectively. However, formal regulations have not been issued to-date under the Plant Protection Act.

In 2008, the government introduced a single Composite Levy (Special Commodity Levy - SCL) instead of Custom Duty and other applicable taxes at the point of importation, which is applicable to more than 32 products including eleven essential food items[64].

4.6.3. Agriculture in relation to Border (external trade) Measures

Food and agriculture exports of Sri Lanka contributes to 24-26% of the country's total exports. The GoSL provides various forms of incentives to promote exports of value-added products. Tea, rubber, coconut and cinnamon exports in primary form are discouraged ostensibly for promoting domestic value added through further local processing[65]. A limited number of certification bodies exists in Sri Lanka, especially in the organic food industry, to ensure the quality of the agricultural produce in compliance with the international/local standards (similar to Ceylon Tea) in the global market. As for procedural measures, the agriculture-based products that require registration/licensing for exports are shown in Table 10.

[63] EDB (2014): Industry Performance Report.

[64] sugar, potatoes, dhal, peas, chickpeas, big onion, green gram, sprats, dried chillies, canned fish and milk powder.

[65] https://acde.crawford.anu.edu.au/sites/default/files/publication/acde_crawford_anu_edu_au/2017-04/2017-03_athukorala_sl_export_12april2017.docx_.pdf

Table 10: Agricultural Products that Require Registration/License/Certificates for Export

Product	License/Permit/Certificate	Responsible authority for registration, license/certification
Tea	Certification of Average Auction price (AAP) on Bulk Tea. Quality certificate for each shipment	Sri Lanka Tea Board
Any meat product	Health Certificate for each shipment Processing Centre certification with ISO, HACCP or GMP (either one of the certificates)	Animal Quarantine Station Department of Animal Production and Health Sri Lanka Standards Institution
All spices	Country of Origin Certificate	Department of Commerce/Chamber of Commerce
Cinnamon	License to use Pure Ceylon Cinnamon Logo Compulsory pre-inspection certificate	Sri Lanka Export Development Board Sri Lanka Standard Institution (SLSI)/ SGS Lanka Pvt Ltd
Herbal Plants	Permits for export of raw or dried ayurvedic substances in commercial quantities	Department of Forest and the Department of Ayurveda
Coconut & Coconut Based	Permits for export of DC/fresh coconut/Coconut leaf-based products	Coconut Development Authority
Fruits & Vegetables	Phytosanitary Certificate	National Plant Quarantine service
Ornamental Fish	Phytosanitary certificate	Animal Quarantine Service
Source: Export Development Board (2014): Export procedure.		

In agricultural imports, the GoSL has an import substitution strategy with import tariffs, para-tariffs and various non-tariff measures being imposed. Sri Lanka applies a three-band tariff structure, in which zero tariff rates are applied to import of essential goods and basic raw materials, 15% to Intermediate goods and 30% to finished products. The average tariff rate of Sri Lanka stands at 5.25%[66]. Sri Lanka also implements special commodity levies on imported vegetable oil, onions (and various other vegetables), sugar, garlic, dhal, watana, wheat, rice and fish. Although Sri Lanka has granted preferential tariff rates under different free trade agreements (Box 1), most of the agricultural products and livestock products are in the negative or sensitive list of these agreements so that there is no duty waiver on

[66] https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?language=E&CatalogueIdList=234801,234228,233936,233358,231756,231416,231417,104553,110065,92758&CurrentCatalogueIdIndex=0&FullTextHash=&HasEnglishRecord=True&HasFrenchRecord=True&HasSpanishRecord=True

importation of these products. Agricultural imports face stiff health regulations that sometimes exceed global standards, (e.g. genetically modified organisms).

Box 1: Regional Trade Agreements Signed by Sri Lanka

Sri Lanka has been actively undertaking trade reforms in keeping up with the World Trade Organization's (WTOs) General Agreement on Tariffs and Trade (*GATT*). The country is a signatory to many bilateral & multilateral trade agreements facilitating trade and investment by reducing and/or eliminating tariffs, import quotas, export restrictions and other trade barriers, and enhancing the commercial relationships between the countries involved. A short description of the Free Trade agreements Sri Lanka entered into are given below:

India - Sri Lanka Free Trade Agreement (ISFTA): signed on 28th December 1998 and entered into force with effect from 1st March 2000, provides duty free concessions to a wide range of products traded between the two countries.

Pakistan - Sri Lanka Free Trade Agreement (PSFTA): came into force on 12th June 2005. A substantial improvement in trade has been recorded since the Agreement came into force. Pakistan implemented its final phasing out commitment in March 2009 and Sri Lanka has now duty-free market access for more than 4500 products. Sri Lanka has also completed all her phasing out commitments in November 2010.

South Asian Preferential Trade Agreement (SAPTA): envisages the creation of a Preferential Trading Area among the seven member states of the SAARC, namely Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka signed in Dhaka in April 1993. It was agreed that SAPTA is a stepping-stone to higher levels of trade liberalization and economic cooperation among the SAARC member countries

South Asian Free Trade Agreement (SAFTA): recognizing the need to progress beyond a preferential trading arrangement and move towards a higher level of trade and economic cooperation in the region, the SAARC Council of Ministers signed a framework Agreement on South Asian Free Trade Area (SAFTA) in January 2004 in Islamabad. The SAFTA entered into force on 1st January 2006.

The Free trade agreement signed with Singapore has not come into force yet.

4.6.4. Issues to be addressed

The key issues to be addressed under the theme 'Border (Trade) measures' in the OAP are:

- Absence of a coordinated system to ensure quality of the agricultural produce sent to global and domestic markets are following the international/national standards.
- Lack of expertise and resources to support exporters to successfully navigate cumbersome procedures and penetrate export markets.
- Lack of modern infrastructure and inadequate human resource capacity in the field of SPS-TBT.
- Slow progress in updating enabling legislation and institutions to match developments in the trade arena.
- Non-competitive market mechanism for agro-based products due to protective tariffs and para-tariff barriers imposed on agriculture imports.
-

Therefore, the OAP makes provision to ensure Border (External Trade) Measures are being addressed through the following policy statement:

Policy Statement:

Promote international trade in compliance with national and international obligations and standards, while addressing the needs of the domestic producers and consumers.

Policy Thrust Areas:

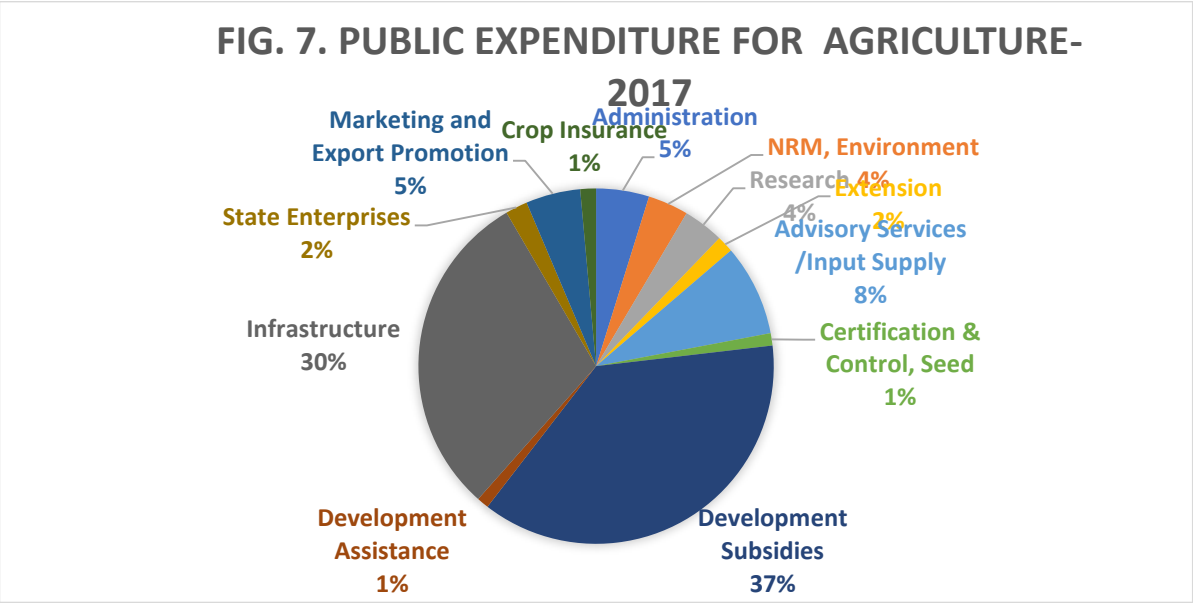
- Create an effective legislative and regulatory environment to enable connecting agricultural exporters with global and regional value chains
- Develop management procedures and processes to minimize costs and delays in trade transactions.
- Develop effective institutional mechanism to overcome the procedural and information barriers.
- Ensure infrastructure and competency of human resources in deficient areas,
- Improve predictability, transparency of the trading environment.
- Upgrade national quality certification process to international standards.

4.7. Governance

4.7.1. Introduction

Sri Lanka has three tiers of government: national, provincial and local authority with the devolution of powers defined under three lists in the Constitution[67]. At the local level, the administration is dual; i.e. Divisional Secretariat under the Central Government, and the Local Government under the Provincial setup. The central government is comprised of Ministries under individual or combination of subjects, while the administration of PCs is organised in five ministries, which includes agriculture. In the PCs, the Ministry of Agriculture is generally responsible for crops, irrigation, animal production and health, inland fisheries and environmental affairs. The main source of financing Central and PC level activities is the Government Treasury, which allocates funds based on annual budget estimates in compliance with their mandates, while PCs have the authority to mobilise their own revenue.

Figure 7: Administrative setup and resource allocation at national and sub-national level



4.7.2. Agriculture in relation to Governance

The devolution of duties and responsibilities to the PCs varies in the different sub-sectors in agriculture due to varying institutional arrangements and governance structures. In non-plantation agriculture, the institutional arrangement is mainly focused on the Department of Agriculture (DOA) under the Ministry of the Central Government of Sri Lanka, which is responsible for crop agriculture. The DOA is mandated to carry out research and extension of the major food crops. Agricultural extension being a devolved subject, the central DOA undertakes extension activities in the inter-provincial areas, with the Provincial DOAs covering the remaining area. Research, development and extension for spice crops are managed by the Department of Export Agriculture (DEA) and in plantation crops by the respective commodity research institutes and corporations/boards[68].

The central Department of Animal Production and Health (DAPH) is responsible for technical and scientific support for livestock and poultry production operations and carrying out monitoring and

[67] List I – the Provincial Council List – identifies the powers/responsibilities of the PCs. List II – the Reserved List – specifies the powers reserved to the national government. List III – the Concurrent List – outlines the powers that may be exercised by the national government and the PCs in concurrence with each other

[68] Tea Research Institute (TRI), Rubber Research Institute (RRI), Coconut Research Institute (CRI), Sugarcane Research Institute (SRI), Palmyra Research Institute (PRI), Sri Lanka Cashew Corporation (SLCC).

regulatory measures with the Provincial DAPH, replicated at each of the 9 provinces. The subject of fisheries is included in the concurrent list. Management, regulation, conservation and development of fisheries and aquatic resources rest with the Department of Fisheries and Aquatic Resources (DFAR). As for aquaculture activities, the PCs are vested with powers for promotion of reservoir fisheries in perennial and seasonal tanks, pond fish/shellfish culture and product marketing.

The major irrigation systems are under the central Government and managed by the Department of Irrigation (DI) and the Mahaweli Development Authority of Sri Lanka (MASL), and the rest by the PCs and Department of Agrarian Development (DAD). The DAD coordinates and collaborates in implementing some agricultural activities and provide farmer services at the divisional level. Conservation of forests and the protection of wildlife are carried out centrally by the Department of Forest (DF) and the Department of Wildlife Conservation (DWC), respectively.

Private sector engagement is high the poultry sector of Sri Lanka, including extension, some level of research and input provision. However, private sector involvement is weak in the veterinary services and artificial breeding activities where the DAPH operates all programs.

Devolution of responsibilities has led to an inadequate service delivery structure, particularly for agricultural extension. The linkage between knowledge generation and knowledge dissemination is weak with duplication of functions, poor coordination in resource allocation, limited participation of PCs at national planning, etc. There is lack of formalised agreements and coordination mechanisms between central government departments and those of PCs to address the major issues in the sub-sector.

The planning, budgeting and implementation of agricultural development has been made difficult and inefficient due to initiation of production programmes at the central government level and handed down to provinces for implementation. This has disrupted the viability of planning at PC level, led to duplication of funding (e.g. National Food Production Programme) and difficulty in maintaining appropriate budgetary discipline due to late disbursements.

A summary of actual expenditure (2016) and estimates (2017 & 2018) for agricultural spending at the level of central government (Fig. 7) and in the nine Provincial Councils (Fig. 8) are presented below. Overall, the expenditure of the PCs only represents some 3.5% of Central Government expenditure, it should be noted that the PCs spending is mainly recurrent, thus concentrated in extension and service delivery.

4.7.3. Issues to be addressed

The following are identified as key issues to be addressed under the theme ‘Governance’ in the OAP.

- Multiple organizations/institutes being responsible for various aspects of agriculture with poor horizontal and vertical coordination among these institutes in planning, implementation and monitoring of activities related to agriculture at central, provincial and local government levels.

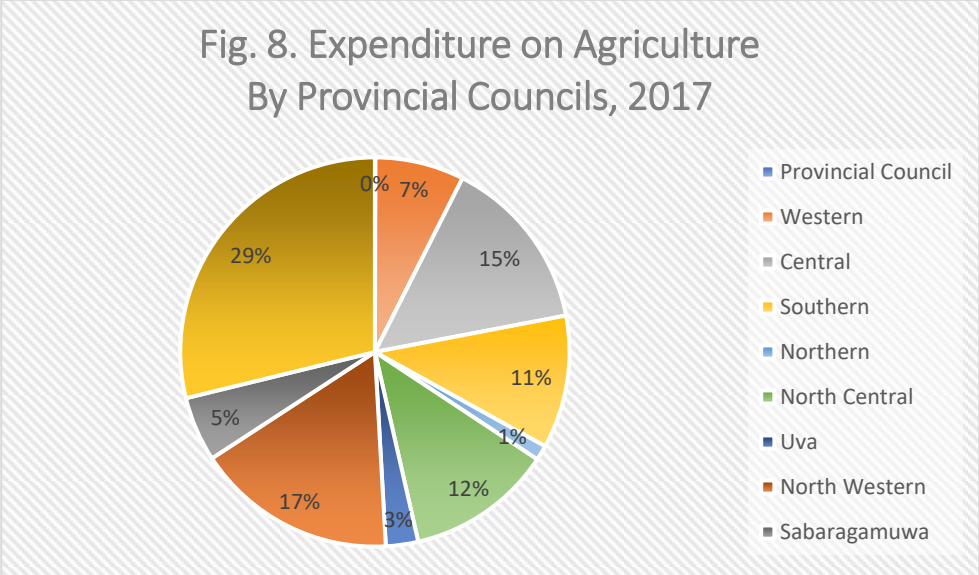
- Insufficient resource allocation from the central Government to the devolved structures, PCs or local governments for agriculture sector activities.

- Lack of human resources capacity in mandated areas relating to agriculture in the PCs or local governments e.g. extension services.

- Partial delegation of power to sub national levels for agriculture development planning.

- Negligible involvement of stakeholders, such as farmers, private sector and academia, at the sub national levels in planning, programming and implementation.

Figure 8: Expenditure on Agriculture by Provincial Councils, 2017



Accordingly, the OAP makes provision to ensure that Governance issues are addressed through the following policy statement:

Policy Statement:

Ensure a strong institutional mechanism and coordination for agriculture development at national and sub national levels with wider stakeholder participation.

Policy Thrust Areas:

- Improve accountability for planning, coordination and budgeting between the Central and Provincial authorities.
- Planning over longer time horizon to avoid wasteful program duplication and low effectiveness.
- Increase accountability of research and extension systems to clients.
- Promote operation of unified extension approach covering crops and livestock at the field level.
- Introduce performance-based evaluation system for extension programmes and practitioners.
- Make formal institutionalised dialogue among private sector, Central Government and Provincial Ministries mandatory for agricultural planning and programming.

4.8. Production Support and Service Delivery

4.8.1. Introduction

Producer incentives in the form of direct and indirect subsidies to producers have been an integral element of producer assistance programs of all governments. Direct input subsidies for procuring seeds, fertilizer and machinery and output subsidies through guaranteed prices were commonly employed. In addition, indirect subsidies have been provided on irrigation water, research and extension, insurance and concessionary credit. The limited investment capacity of subsistence and small farmers, in part due to poor access to capital and quality services and small farm sizes, have provided a basis for such assistance. Also, small farmers' dependence on public assistance programs permitted governments to skew incentives towards the production of staple food crops thereby reducing food import spending and also developing a strong local production base in crops like rice, poultry, milk etc. Also, by linking with production of basic food commodities farmers too benefitted by finding a ready market for their output, even though they were locked into poor revenues. This strategy however has driven groups of small farmers to specialize in a limited number of low-value food crops leading to dependence on the state.

A range of problems such as in marketing, product quality, and poor incomes, etc continue to plague small farmers. The situation was somewhat different for farmers who invested in growing market-oriented export crops such as tea, rubber, spice and beverage crops, etc. However, they too continue to face issues relating to market access, quality and prices on one hand and obtaining quality services on the other. Achieving sector-wide sustainability requires efficient and effective delivery of required agricultural inputs and a range of services. Government can no longer be expected to be the sole provider of inputs and services as there are issues of efficiency and effectiveness. More importantly government activity often suppresses the development of markets with private sector players, who possess the capacity to provide the same services more effectively and efficiently. The OAP, thus, considers the production support and service delivery systems of Sri Lanka as an important section to be addressed.

4.8.2. Existing regulatory and policy actions on Production Support and Service Delivery

Sri Lanka has an extensive set of acts, regulations and policies introduced to guide the production and service delivery mechanisms in the agriculture sector. The main instruments relating to the major products in the sector are outlined in Table 11 below.

Table 11: Legislative and Policy framework Relating to Agriculture

Policy/Act/Regulation	Reference Area
National Seed Policy (1996) The Seed Act (2003) National Agriculture Policy (2007),	Ensure high quality of the imported and locally produced seed; Regulate seed testing and certification and planting material production of food crops; Guide production support and service delivery under different Ministries and line Departments.
National Livestock Development Policy (2006), Animal Breeding Policy Guidelines (2010) The Animal Feed (Amended) Act (2016)	Guide production support and service delivery, breeding guides for cattle, buffaloes, goats, sheep and pigs; Quality of the semen imported for artificial insemination; Vaccination and drugs required to provide quality veterinary service; Provide high quality feed material to the livestock and poultry industry
The Pesticides Control Act (1980)	To regulate import, distribution and use of pesticides

Policy/Act/Regulation	**Reference Area**
The Export Agriculture Promotion Act (1992), National Policy on Export Agricultural Crops (2018)	Authorizes DEA to provide service delivery function on export agricultural crops; Updated policy environment
Fisheries and Aquatic Resources Act (1996) National Fisheries and Aquatic Resources Policy (2006)	Legal authority relating to the sector and provides regulatory framework on the use of fisheries genetic resources
The National Plantation Industry Policy Framework (2006)	Tea, rubber, coconut and sugarcane sector on the provision of planting materials and extension services
Crop Insurance Act (1961) Agricultural Insurance Law (1973)	Regulates the undertaking of agricultural insurance for specified crop and livestock; Make provision for a compulsory insurance and establishment of crop insurance advisory board
The Intellectual Property Rights Act (2003)	Protection of intellectual properties excluding patenting of plants and animals
Agricultural and Industrial Credit Corporation (Amendment) Act No. 5 of 1970	Regulates the functions of agricultural and industrial credit
Agricultural Products (Guaranteed Prices and Control of Hulling and Milling) Act, No. 33 of 1961	Grading of, and the fixing of guaranteed prices for certain agricultural products
Regulation of Fertiliser Act, No. 68 of 1988	Importation and distribution of fertilizer; licensing of private fertiliser imports

However, the follow-up work of enacting regulations for some of the legislation passed in parliament has not always been done in a timely manner. Despite passing of the Seed Act in 2003, no regulations have been gazetted to empower the provisions of the Act. The National Seed Council under the Seed Act was constituted only in 2017.

As indicated a variety of subsidies were extended to agricultural producers over the years. The fertiliser subsidy programme has for many years constituted a cornerstone of government's support to farmers (Table 12) and a substantial part of budget expenditure on agriculture.

Table 12: Major Subsidy and Other Assistance Programs in the Agriculture Sector

Category	Program Coverage
Food Crop Production – Paddy and Other Food Crops	Seed; Fertilizer; Procurement; Special pest control programs (epidemics); Processing machinery
Plantation	New Planting and replanting subsidy; Processing machinery; Factory modernization; Fertilizer
Export Agriculture	Planting material; Soil conservation; Fertilizer; Processing machinery
Fisheries and Aquaculture	Fish fingerling, prawn larvae supply; Fish feed; Fishing vessels
Livestock & Poultry	Breeding programs; Animal imports; Fodder production; Feed manufacturing machinery
Services for all Products	Production credit; Insurance Coverage to more crops and animals

4.8.3. Operation of Subsidies, Costs and Reform Efforts

The major share of support programs in the agriculture sector have always been with the paddy sector. The GOSL has been involved with every single aspect from farm to market in paddy. Even in the assistance programs that covered all crops such as subsidized fertilizer, the bulk of it has been always for paddy due to sheer scale of operation relative to others. Some of the other programs that incurred major expenses were on upgrading infrastructure in the plantation crop sector through factory modernization, replanting and new planting subsidies, supply of modern fishing crafts, etc.

Table 13 shows the cost of development subsidies financed through the national budget. The dominance of the fertilizer subsidy is obvious. As a percentage of GDP, the cost of the programme has varied in accordance with international fertiliser prices and the composition of supplies; it reached 0.65% of GDP in 2011 and declined to 0.45% in 2015. Some of the production and processing subsidies in the plantation crop sector were not directly financed from the consolidated fund, having funds accumulated under export cess utilized for them.

Table 13: Development Subsidies Financed through the National Budget, 2006-2017 (Rs. Million)

Item/Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Fertilizer	10,700	11,000	26,450	26,935	23,028	29,802	36,456	19,706	31,858	49,571	27,771	30,361
Fertilizer (tea, etc.)	-	-	-	-	-	-	-	-	-	-	1,862	1,466
Fertilizer Total	10,700	11,000	26,450	26,935	23,028	29,802	36,456	19,706	31,858	49,571	29,633	31,827
Tea	188	199	232	211	191	171	182	272	331	7,292	549	445
Rubber	176	193	275	200	371	485	435	587	763	2,871	713	703

Item/Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Coconut	270	179	222	237	269	293	353	403	485	471	709	703
Cashew	22	23	35	34	25	29	27	49	40	35	40	54
Minor crops	79	134	117	175	180	220	185	207	254	360	380	336
Source: Ministry of Finance (2018). *Annual Report 2017*												

Seed certification carried out by the SPMDC of the DoA plays an important role in guaranteeing quality of planting material supplied to the farming community. Following the liberalization of the seed market to permit the private seed companies to operate in the sector in the early 2000s, the private sector share in certified seed paddy sold has increased to about 75-80%. Private seed companies are prominent in the vegetable seed market and fruit planting material production and expanding their presence in the other crops sectors (e.g., maize, onion).

As for export agricultural crops (cinnamon, pepper, etc.), plants issued by the central nurseries (total of 10) under the management of DEA represent only an estimated 4% of total plant issued, while private, registered nurseries are responsible for the balance. However, there is no clear role defined for the two sectors and DEA proceeds with plans to increase its own production of planting material[69]. Breeding and issuing of foundation planting materials in the plantation crops sector is totally a responsibility of commodity research institutes.

In poultry, the private sector in Sri Lanka provides close to 100% of the breeding materials. The livestock ministry and the National Livestock Development Board, DAPH and the private sector provide the other breeding animals. The delivery of services for livestock and poultry development are in the hands of the DAPH.

A considerable number of credit schemes are available to farmers, generally targeting commercial farming, small-scale agricultural enterprises, dairy producers and poultry producers. These are granted by state-owned banks but the amount of financing available is considerably lower than the value of subsidies financed through the national budget[70]. The Agricultural and Agrarian Insurance Board implements a subsidized insurance programme for six crops, namely rice, maize, soya bean, potato, chilli and big onion, which is financed under the Ministry of Agriculture budget.

The GOSL has had a major role in paddy procurement throughout. The main paddy/rice procurement program is operated through the Paddy Marketing Board (PMB) which operates at a loss. The PMB has failed to cover its costs due to the inability to sell stocks of paddy at a price that covers operational cost and poor repayment by millers for paddy received. The marketing of rice produced by the PMB is operated through the Co-operative Wholesale Establishment (CWE).

All policies have attempted to deliver efficient and effective services to the producer but have often fallen short of the standards and targets set due to implementation weaknesses emanating from ineffective coordinating mechanisms (as described under 'Governance') amongst others such as lack of clear strategy and quality service.

Overall, the GoSL has focused more on paddy in terms of providing development subsidies thus, imposing a challenge in the policy environment as promoting paddy cultivation provides little incentives for farmers to diversify into higher value crops.

4.8.4. Issues to be addressed

The following were identified as key issues to be addressed under the theme 'Production Support and Service Delivery" in the OAP.

[69] Data are from: Department of Export Agriculture (2018). *Annual Performance Reports 2017.*
[70] CBSL (2018): Economic and Social Statistics of Sri Lanka

- Deficiencies in the improvement of the regulatory framework for the agriculture sector, i.e. Non-gazetting of regulations under the Seed (2003) to empower provisions of the act.

- Absence of a Plant Vareity Proteciton Act and Animal Breed Protecion Act to safeguard the investor interests of the extoci vareities/breeds

- Inadequate resources including affordable credit for the commercialization and modernization of the agriculture sector through mechanization and technology application.

- Lack of a coordinated approach among statutory bodies, state companies and private limited companies under their control, to provide inputs and services to the agricultural sector.

- Mixing up programmes providing relief to poorer segments withn agriculture sector with the input supply and other assistance programs.

- Weak and inadequate private-public-partnerships in the agriculture service provision.

- Lack of a proper institutional structure to strengthen busines orientation of farmer organizations.

- Inadequate efforts to promote commercialization and competitive functiong of markets in the sector.

The OAP identifies the following policy statement to ensure that issues in 'production support and service delivery' are addressed in the emerging context, adhering to the national policies.

Policy Statement:

Ensure efficiency and effectiveness of production support and service delivery, to enhance competitiveness in agriculture, safeguarding the farming community.

Policy Thrust Areas:

- Strengthen effective functioning and efficiency of regulatory and institutional mechanisms to ensure timely availability and accessibility of high-quality inputs.

- Undertake necessary reforms in the governance structure for input and service supply in the agriculture sector to strengthen functioning under competitive market environment.

- Support the private sector to provide accountable, responsive service delivery systems where it has comparative advantage.

- Take measures to strengthen farmer organizations.

- Encourage investment to enhance competition in the agriculture value chains and promote exports.

- Improve targeting and dissociate delivery of social protection for the deserving segments in the agriculture sector from production assistance programs.

4.9. Education, Research and Extension

4.9.1. Introduction

Efficiency, productivity, development and sustainability in the agriculture sector relies on the competence, knowledge and execution by all value chain actors. In a knowledge-based agricultural economy, information and organization in the agricultural sector must assume an increasing importance. Agriculture today is operating in a highly dynamic and transforming context. Improved skills, information and innovations are necessities to develop the agriculture sector that will meet complex demand patterns, reduce poverty and preserve or enhance ecological resources. Agriculture education, research and extension are widely regarded in Sri Lanka to play an important role in improving agricultural systems and its provision has been seen for many years as a principle responsibility of the GoSL.

Agriculture education in Sri Lanka commences at secondary school education and expands to diploma, undergraduate and postgraduate education. The National Agriculture Research System (NARS) consists of crop- and animal-based research institutes/departments, including Universities, and conduct sectoral and cross-sectoral research contributing to the development of the sector. Agricultural extension in Sri Lanka, to a greater extent, is implemented as a merged advisory service and input delivery process operated by the institutes/departments at the central government, and provincial councils. The private sector bundles input marketing with advisory activities internalizing costs of extension. The non-governmental organizations promote technology dissemination and adoption processes largely from a poverty-alleviation focus.

4.9.2. Existing regulatory and policy actions on Education, Research and Extension

The Universities Act (1978) as amended governs the operation of Faculties of Agriculture in the national Universities of Sri Lanka producing graduates based on national needs. The Schools of Agriculture (Ministry of Agriculture) and other training centres under different Ministries also produces middle-level technically qualified people in the field of agriculture. The University Grants Commission has also recognized several private sector organisations to award degrees related toAgriculture[50].

The National Agriculture Policy (2007) and National Livestock Development Policy (2006) have provided the relevant guidelines on capacity building and human resources development in terms of education and training while the National Fisheries and Aquatic Resources Act (1996) and National Aquaculture Development Authority of Sri Lanka Act (1998) make regulatory provisions available to support research and extension/advisory services in the said sector. The Sri Lanka Council for Agricultural Research Policy (SLCARP) Policy (1987) established the SLCARP with the primary responsibility of developing policies and strategies to strengthen research and development in the agricultural sector by creating a conductive environment in the NARS. The Provincial Councils Act (1987) has declared that agricultural extension as a devolved subject to PCs except for the inter-provincial areas.

The National Agricultural Research Policy and Strategy (2018-2017) provides the action plan for 12 broader subject areas for research in the NARS. Promotion of Export Agriculture Act (1992) make regulatory provisions for research and extension for export agricultural crops (mainly spices) and the National Plantation Policy Framework (2006) provide guidance on education, research, extension in the plantation sector, while the Information and Communication Technology (ICT) Act (2008) provides regulatory control of the use of ICT in agriculture-based activities.

4.9.3. Agricultural Education, Research and Extension

Eight Faculties of Agriculture in Universities of Sri Lanka produces more than 750 graduates per annum[71]. The majority of the agriculture graduates are employed in the non-agriculture sector due to limited prospects within the sectoral organizations and acceptance of the degree as an entry-

[71] http://www.ugc.ac.lk/

level qualification. Both DoA and DAPH carry out regular in-service training to update the knowledge of their staff through own in-service centres. The eight Schools of Agriculture under the DoA and three farm schools under DAPH have an output of diploma holders exceeding 250 per year. Post-graduate degrees in agriculture are awarded by the Post-graduate Institute of Agriculture, University of Peradeniya and from the individual Faculties of Agriculture in other universities.

The National Research and Development expenditure of Sri Lanka as a share of GDP in 2010 was 0.16%. This compares extremely poorly with those of India (0.81% in 2011), Pakistan (0.33% in 2011) and Nepal (0.30% in 2010). Agricultural research expenditure as a percentage of agricultural gross domestic product, dropped steadily from 0.66 percent in 1981 to 0.36% in 2003 and 0.34 in 2009[72], while relative investment levels in most other countries around the world have risen.

Agricultural research being designated a 'national' government function, means all research institutes remain under the purview of the central government ministries. The extension activities of the field crop sector and veterinary services are primarily managed by nine provincial departments. The extension services in the six Interprovincial extension areas are under the DOA and the Mahaweli Authority of Sri Lanka. In the spice sector, research and extension services are provided by the Department of Export Agriculture. In addition, the TRI, CRI, RRI and SRI provide research, training/extension services to the major plantation sector and Tea Small Holders Authority (TSHDA) to tea smallholders under centrally-designed, regionally-implemented model. Table 14 shows the responsibilities of the central government and provincial councils in terms of research and extension.

Table 14: Overview of Mandates of Central Government and Provincial Councils in the Agricultural Sector

National	Provincial	Concurrent
Agricultural research (all research institutes in field crops have been designated as national and therefore have not been devolved); research institutes and research divisions in plantation crops		
Six Inter-Provincial extension areas located in the command area of major irrigation schemes in parts of Central, North Central, Southern, Uva and Eastern provinces (Department of Agriculture); extension areas of Mahaweli Development Programme in parts of North Central, Southern, Northern, Uva, North Western, Sabaragamuwa and Eastern provinces (Mahaweli Authority); extension services provided by the Department of Agriculture; extension services provided by the Tea Authority and the plantation research institutes; Agricultural Schools for training of extension staff (Department of Agriculture)	Agricultural extension in areas not covered by the six inter-provincial extension services of the Department of Agriculture and in areas outside of the Mahaweli Development Programme	Agri-business Soil conservation Pest control Producer support programmes primarily funded by Central Government (National Food Production Programme)
Veterinary research (includes animal husbandry), in-service training, vaccine production and veterinary investigation	Animal husbandry and veterinary services	Animal husbandry, animal breeding, establishment of pastures
Inter-provincial irrigation and land development schemes and irrigation schemes relating to rivers running through more than one province; small-	Small-scale irrigation	Water storage and management, drainage and embankments, flood

[72] IFPRI (2015): https://www.ifpri.org/program/agricultural-science-and-technology-indicators-asti

National	Provincial	Concurrent
scale irrigation		protection as well as planning of water resources
Marine fishing; aquaculture	Inland fisheries	Fishing other than beyond territorial waters
Source: Own elaboration based on: Parliamentary Secretariat (2015). Constitution of the Democratic Socialist Republic of Sri Lanka, 13th Amendment, Provincial Councils (Consequential Provisions) Act, No. 12 of 1989, Agrarian Development Act, No. 46 of 2000, Promotion of Export Agriculture Act, No. 46 of 1992, National Aquaculture Development Authority of Sri Lanka Act, No. 53 of 1998, and interviews with Ministry of Agriculture officials.		

Public extension services follow a classic top-down structure originating from the agricultural research system. However, the services are not accessible by all farmers due to issues in connectivity. A number of private and civil society service providers engage with farmers to deliver advice on various technical areas.[73]

4.9.4. Issues to be addressed

The following were identified as key issues to be addressed under the theme 'Education, Research and Extension" in the OAP.

- Large gap in human resources in the public-sector organizations responsible for research and advisory services delivery.
- A highly fragmented national agricultural research system (NARS) that fail to respond to ground realities.
- Absence of a standard blueprint for an appropriate NARS.
- Inefficiencies in NARS due to poorly motivated cadre, resulting from outdated career advancement schemes, poor remuneration compared to those in parallel organizations, in addition to poor facilities, increased allocation of researchers' time on administrative duties etc.
- Inadequate funding for agriculture research and lack of PPPs in research and development.
- Inefficient mechanism of conversion/transformation of agricultural innovations for use by advisory personnel and practitioners.
- Absence of clear accountability between knowledge generation and knowledge dissemination between national and provincial systems.

The OAP makes provision through the following policy statement to ensure that 'Education, Research and Extension' is addressed in a holistic context, keeping in line with the national policies**.**

[73] This does not include some 9,600 Agricultural Development & Research Assistants (ARDAs), employed by the Department of Agrarian Development, whose duties relate to the administration of the Fertilizer Programme and the Agrarian Development Act, participation in the collection of crop data and estimation of yields (crop cutting), etc.

Policy Statement:

Promote appropriate agricultural innovation and technology transmission through investments in research, education, training and partnerships for sustainable agricultural production.

Policy Thrust Areas:

- Take measures to strengthen public-private partnership in agriculture research and investment.
- Put in place an 'Agricultural Knowledge and Information System' for effective transfer of innovative practices.
- Increase resource allocation for agricultural research system.
- Restructure the NARS for greater effectiveness.
- Develop a comprehensive human resource and capacity building program covering all national and provincial agricultural institutions.
- Prioritize all agricultural research programs based on 'return on investment' criteria.
- Strengthen stakeholder involvement in review and oversight of research and extension systems institutions.

4.10. Development Subsidies to Supply and Value Chain Actors

4.10.1. Introduction

The critical role of the state in advancing objectives of national agricultural development through launching of comprehensive producer assistance programs was noted in the previous discussions. It is observed that as similar incentives were mainly targeted towards promoting rice and other primary food crops, the structure of agriculture in Sri Lanka remain narrowly concentrated in low-value food crops. The current objectives for the agriculture sector prioritize increasing farmers' income which would require higher levels of agriculture commercialisation. The strategies of the past must be modified to effectively support modernization of agriculture and establishment of competitive production system targeting global markets.

Financing value chains has emerged as a means to design effective development programs covering the full range of activities which are required to bring a product or service from conception, through the different phases of production, delivery to final consumers. Value chains permit analyses of development needs at each node along the series of activities from production to consumption and address them in an integrated and comprehensive manner. It also permits analyses of gross margins at each node and find ways to increase share of various participants in the chain. By designing incentives to develop out-grower and cooperative production models and strengthen contribution of various intermediaries through the value chain, more opportunities can be created to generate equitable income opportunities to all. Developing agricultural value chains and supporting their efficient functioning through various assistance programs would pave way to modernize Sri Lankan agriculture. It can be a useful tool in producing goods and services to the local and global markets and supporting balanced agricultural development.

4.10.2. Existing regulatory and policy actions on Development Subsidies

Policies targeting food security in rice and selected other food crops prioritized subsidies for new technology such as improved seed, chemical fertilizer, irrigation etc. Although, many of these programs have passed their usefulness, they are being continued effectively as income transfer programs. The fertilizer subsidy program is a clear example of this. However, use of the fertilizer subsidy program as an income supplementary mechanism has essentially worked counter to the interest of modernizing the sector by making it hard to connect farmers with high value crops. Therefore, evidence suggests that the planners must look for new ways of supporting farm income without defeating objectives of sector modernization.

The government introduced the guaranteed price schemes to support producers. At one time paddy could be procured only by the state-owned parastatal. The Paddy Marketing Board Act (1971) which was amended in 1978, removed the monopoly of the Paddy Marketing Board (PMB) or their agents to collect paddy from farmers, store, and process and distribute the milled rice. This allowed the private sector to competitively engage in marketing paddy/rice. Similar updating of legislation will be required in the agriculture sector to ensure market mechanisms can operate creating a level playing field all market participants. Likewise, some of the tax policies introduced by the GOSL have operated counter to the principle of introducing novel technologies to support commercialization and modernization of the agriculture sector

4.10.3. Development Subsidies in Agriculture

In order to move forward the concept of agriculture modernization, the planners have to look for opportunities to encourage farmers and agricultural producers adopting 'modern' technology. Such technologies will be associated with the full spectrum of activities starting from introducing a new product mix to replace what is currently followed. The various principles discussed in relation to modernization such as increasing mechanization of agriculture at all levels of production process from seeding to harvesting, post-harvest processing, value addition, food technology, storage, packaging, marketing will have to be re-examined in relation to this process. Thus, the current assistance programs will have to be completely reformed to support the new direction. Changes must in fact begin at the farm level, making necessary changes in structure of farming so that

mechanization becomes practically feasible and more profitable. Therefore, the type of 'new' development subsidies discussed are of a completely different type from what is presently practiced.

4.10.4. Issues to be addressed

Based on learning from the analyses of the agriculture sector and future development needs, following were identified as key issues to be addressed under the theme 'Development Subsidies to Supply and Value Chain Actors" in the OAP.

- Constraints to agriculture mechanization including small scale of operation.
- Inadequate focus on transforming traditional agriculture to commercial agriculture to face global challenges.
- Inability to create sufficient space for private sector participation in service delivery.
- Failure to target assistance under agricultural development programmes to promote structural changes needed for sector modernization.
- Inconsistency in price regulations affecting the competitiveness of agricultural products and market performance

Therefore, this OAP make provisions through a policy statement to ensure that Development Subsidies for Value Chain Actors' been addressed in overall context, in accordance with the national policy.

Policy Statement:

Encourage agricultural diversification in value chains through a balanced and streamlined approach using public and private goods and services to promote commercial agriculture.

Policy Thrust Areas:

- Create opportunities for faster mechanization of agriculture operations through appropriate incentives.
- Modify the incentive framework for agriculture to make adoption of 'modern' technologies affordable and profitable.
- Provide incentives for initiating product diversification.
- Price and market interventions for enhancing the value chain development.
- Create environment for the market signals to guide producer decisions and appropriate measures to correct price distortions.

5. WAY FORWARD

The Overarching Agriculture Policy (OAP) presented in this document was developed following an evidence-based approach supplemented by observation of best practices from Sri Lanka and elsewhere. The process followed a neutral and objective methodology which included a needs assessment, in-depth analysis of pertinent documentations, a thorough stakeholder analysis representing all strata of stakeholders including private and public sectors, focus group discussions, and consultative meetings with the Department of National Planning (DNP) of the GoSL.

The OAP developed with a comprehensive justification and indicative actions under 10 thematic areas as presented above will now be presented for comments by the general public including representatives of the farming community, national and local level Community-based Organizations (CBOs), and International Non-Governmental Organizations (INGOs), within a specified period. The public comments and recommendations received through an open invitation on approved translations of the OAP will be analysed and considered for further upgrading of the policy statements 'as and where appropriate'. The final OAP will then be submitted to the Cabinet of Ministers for consideration and approval. Future changes made to sectoral policies in the field of agriculture are expected to be built based on the OAP.

Based on the final OAP, a strategic planning process will be initiated through focus-group consultations at sectoral level including state and private sector Ministries/Departments/ Agencies at central government and provincial council levels. The strategic plans will be converted to Action plans with prospective budgets. Depending on the priority ranking of each of the actions, funding for implementation will be arranged both from the national budget and the development assistance envelope.

A comprehensive monitoring and evaluation mechanism will be set in place to assess the progress of activities and propose remedies at review meetings held involving all stakeholders. The implementation of the policy will be monitored annually, and the relevance of the policy statements will be reviewed on a regular basis.

Annex 1: SWOT Analysis of the Existing Scenario:

Strengths	Weaknesses
• Several agricultural products with global reputation and name recognition for quality. • Large segment of the population with involvement in agriculture. • Farming still regarded as a noble profession • A historical and long-standing focus on irrigated agriculture, resulting in strong irrigation-based institutions under key Ministries. • Acceptance of the need to modernize the agriculture sector through greater involvement of the private sector. • Large cadre of professional scientists, professionals and technicians supporting the sector. • Ministries responsible for agriculture subsectors have sub-sectoral policies, strategies and action plans and have experience in implementation. • Line agencies under each Ministry having a combination of mandates and resources (e.g. research institutes, research coordination body, extension units, farms/plantations) to support and manage sustainable agricultural development in Sri Lanka.	• Inappropriate trade policies (e.g. *ad hoc* imposition of tariff and taxes), inhibiting improved productivity, optimal allocation of resources and performance of private sector. • Limited compliance with standards (e.g. spice sector) and poor enforcement of related rules and regulations. • Low land productivity owing to land degradation, misallocation of agricultural lands, land fragmentation, poor land management, inadequate regulations and poor implementation of existing regulations. • Low levels of farm income relative to other sectors of the economy. • Weak farm-market linkages for many commodities. • Absence of sustained farmer networks. • Utilisation of natural resources in various agricultural sub-sectors threatening to environment and sustainability of the agricultural systems. • Insecure land tenure and lack of transparency in land administration inhibiting investments. • Stringent state control over production and supply of seeds, planting materials, animal breeds. • weak regulatory measures for water pricing and water quality management; un-sustainable extraction of ground water resources. • Relatively high level of food insecurity owing to low productivity and diversification, and inadequate knowledge. • lack of attention on nutritional aspects of products, coupled with non-adoption of GAPs, and heavy postharvest losses

	in the absence of food systems approach. • Non-harmonized sectoral policies developed by respective Ministries responsible for agriculture. • Research outcomes inadequate to meet sector needs due to inadequate spending on research and development, insufficient human resources, highly fragmented National Agricultural Research System (NARS), weak and inadequate PPPs in research and development, poor translation/transformation of agricultural research innovations to practitioners. • Complicated and large number of institutions with poor inter-institutional coordination across institutions owing to devolution of powers without real decentralization leading to top-down approach in implementation and rent seeking behaviour due to over-regulation. • Lack of credit facilities for modernization/ commercialization.
Opportunities	**Threats**
• Increased efficiency and effectiveness due to improved institutional coordination. • Efforts to provide farming communities with a demand-driven, service sector support. • Increased use of ICT for information dissemination, coordination of efforts and promoting agricultural development. • Focus on developing appropriate technologies to retain youth and increase participation of women in the sector and to provide equal opportunities to women. • Use of abandoned paddy land for other higher valued crops.	• Inefficient use of budgets and high competition for a share of Government budgets by its agencies. • Protectionist stance of the GoSL that inhibits leveraging of comparative advantages, attention to quality assurance and addressing cumbersome bureaucracy leading to anti-export bias, slower export growth and poor export diversification. • Devolved activities to Provincial Councils overlapping or contradicting with a range of functions and powers covered by central ministries and also by their departments. • Changing global market standards and needs for certification and traceability. • Trade barriers at international markets and cumbersome procedures.

	• High vulnerability to climate change.