National Fertilizer Policy Development

Interim Policy paper (draft)

1. **Introduction**

Sri Lanka is an agriculture-based economy from ancient era. In the present scenario, most agricultural lands are being used more than 50 years for continuous cultivation and some lands have a history of over 100 years. During this period, the types and quantities of nutrient sources added to increase land productivity has also been changed. Both organic and Synthetic/chemical fertilizers have been incorporated to increase the fertility of the soil and support crop growth. Application of synthetic fertilizers in Sri Lankan agriculture aggravated since the Green Revolution. Misuse of synthetic fertilizers, especially overuse, has been reported from many agricultural lands in the recent past, and this intensive application could create several negative impacts on human health, environment and the overall ecosystem.

As per the annual report published by the Ministry of Finance (2017), total expenditure spent to import inorganic fertilizer for the year 2017 was 11,436 million US Dollars. As recorded in Sri Lanka, about 800 million kg of synthetic fertilizers are imported annually, of which about 30% is being used in rice cultivation, 24% by the tea plantations and 12% by vegetable crop sector. Statistics in the past five years shows that fertilizer usage in Sri Lanka has ranged from 80 to 700 kg/ha depending on the crop sector, with a national average of about 270 kg/ha, which is higher compared to many other South Asian countries. Moreover, compared to the recommended levels, the application rates of synthetic fertilizers and organic fertilizers in crop cultivation ranged from 0 to 830 % and 0 to 570 %, respectively.

As at present synthetic fertilizers and organic fertilizers (compost and animal manures mainly) are being used as the main sources of plant nutrients, where 91 % of the synthetic fertilizers are being imported utilizing export earnings, which is the highest expenditure among intermediate goods imported to Sri Lanka. Currently, the treasury spends about Rs. 50 billion (about 2% of foreign exchange earnings) on fertilizer subsidy scheme. A majority of practitioners use only synthetic fertilizers, and organic fertilizer usage is significantly poor due to various reasons.

Eco-friendly fertilizer technologies as alternatives are imperative for sustainable soil fertility and integrated plant nutrient management. Moreover, rapid development of the eco-friendly agricultural sector coupled with the increasing demand for organically-grown food and consumer concerns on food safety and environmental quality, have created an opportunity and demand for organic fertilizers and bio-fertilizers. As the misuse of fertilizers add extra burden to the government treasury, it poses several implications on implementing national policies related to agriculture.

While synthetic fertilizers have become a politically sensitive issue in many of the developing countries having an agriculture-based economy, it appears that inadequacy of policies and regulatory framework governing the overall use of fertilizers in agriculture (including organic fertilizers and bio-fertilizers) remains as a major obstacle to enhance food security and safety while protecting the environment.

Under these circumstances, it is of paramount importance to develop a National Fertilizer Policy (NFP) to facilitate trade, manufacture, formulation, distribution, packaging, labeling, storing, transportation, advertising and utilization of fertilizers for eco-friendly and sustainable agriculture. For these to be realized, the NFP should be developed considering fertilizer market supportive policy elements, and legal and regulatory framework for fertilizer marketing, utilization and impact evaluation framework. The NFP should also provide guidelines for policy instruments, implementation modality, funding requirements and progress monitoring mechanism for achieving the objectives of the NFP.

1. **Background to the Fertilizer Policy**

In line with the “Vistas of Prosperity and Splendor” of government policy documents, it gives an important plan for agriculture to be developed through advanced technology. The plan identifies agriculture as one of the priority sectors for investment given its great multiplier effect on the economy. Indeed, agriculture is the key to the National Development Plan for increasing sustainable production, productivity and value addition and targets the increase of labor productivity. Further the government policy document highlights that the need to have a revolution in the use of fertilizer, and explains that building up a community of citizens who are healthy and productive. Further, it is to be developing the habit of consuming food with no contamination with harmful chemicals, in order to guaranty the people’s right to such safe food. The “Vistas of Prosperity and Splendor” highlights the need to promote and popularize organic agriculture during next ten years. This also warrants accelerated production and use of organic fertilizer.

Ministry of Agriculture, through its implementing Departments/Institutions, is responsible for ensuring the quality and affordability of fertilizers aiming at increasing agricultural production and productivity. Therefore, a revolutionary approach in the use of fertilizer to avoid misuse of fertilizer is an immediate fundamental requirement and that requires strategic interventions. Further, a scientific study carried out on the agriculture policy has emphasized that the contribution of fertilizer subsidy scheme to paddy production is 9.1%. Hence, introducing a NFP, while considering all these aspects will be a top most priority to achieve agricultural development in Sri Lanka.

Accordingly, the National Fertilizer Policy envisions a competitive profitable and sustainable agriculture sector with the objective of maximizing the contribution of agriculture in achieving food and nutritional security and increasing household income.

1. **Rationale, guiding principles and core strategies of the National Fertilizer Policy**

Soil degradation and food insecurity are intrinsically linked. To ensure sustainable food production in Sri Lanka, the soil which is one of the major production factors should be preserved in a sustainable way. All actions and inactions that lead to degradation of the potency of the soil to sustain food production, not meeting the demands of the population, must be minimized till they barely exist or are totally stopped.

Crop production need not be done through mining the soil. There is a need to replenish the soil through an efficient, equitable and environmentally safe use of fertilizer, be it organic, chemical, biological or any combination thereof. This will, however, depend not only on sound agronomic practices but also on the provision of appropriate fertilizer products at affordable prices and above all, the existence of a favorable fertilizer policy environment. Such a fertilizer policy should fit well into and also be well supported by other policies embracing areas like the micro-economy, pricing and subsidy, supply and credit, research and extension, and the environment.

Through these, marketing arrangements that eliminate inefficiencies invariably leads to the provision of quality fertilizer on time at lower cost to farmers. The proposed fertilizer policy gives room to address the constraints and agronomic potential of fertilizer use. It also does not fall short of highlighting the security implications of boosting fertilizer production and distribution in Sri Lanka. It encourages the indigenous mastery of the science in fertilizer production, distribution and use, abd linkages with other legal instruments within Sri Lanka.

1. **Policy problem statement**

Continuous cultivation in the same land for a long period of time has led the soils to lose more and more nutrients yearly. Further, inappropriate fertilizer subsidy schemes has led to imbalance fertilizer application and misuse of fertilizer, resulting in worsening the nutrient balance and inappropriate practices of fertilizer use continuously. Lack of awareness on different fertilizers, availability of information, proper technologies, and fertilizer combinations for different agro-ecological zones, and inconsistencies in fertilizer regulation should be add ressedby a well-defined and implementable National Fertilizer Policy in Sri Lanka.

1. **Vision, Mission, Goals, Objectives and Activities of the National fertilizer Policy**
	1. **Vision:**
	A food secure and food-safe nation through well-managed fertilizer inputs
	2. **Mission statement :**
	To have a fertilizer industry that provides fertilizers at affordable prices while ensuring their ready access to farmers to achieve increased and sustainable agricultural production and productivity and improved farm income.
	3. **Goal:**To ensure profitable, sustainable and affordable use of high quality fertilizer to improve soil texture, soil structure, soil health/quality and supply of required plant nutrients, enabling increase of plant and land productivity, maximizing food security and improvement of the quality of life of people.
	4. **Objectives:**

Objective 1. To ensure chemical fertilizers are utilized efficiently & effectively in crop production

Objective 2: To substitute chemical fertilizers at significant levels by using eco-friendly fertilizers introduced to the market appropriately

Objective 3: To ensure use of optimum fertilizers levels for crops at a given agro-ecological region, through appropriate tools/technologies

Objective 4: To develop incentive-based management practices and Code of Conduct to regulate fertilizer management system of Sri Lanka.

* 1. **Activities**
1. To ensure chemical fertilizers are use efficiently & effectively in crop production
	1. Develop and update the soil fertility map for Sri Lanka to guide fertilizer applications.
	2. Develop and review chemical fertilizer recommendations for different farming system
	3. Establish partnerships with private sector to allow the mass production and popularization of the soil test kits
	4. Provide simple and affordable soil test kits at the sub-county level
	5. Provide information on the fertilizer requirements per region based on aggregated demand

1. To substitutesynthetic chemical fertilizersat significant levels by usingeco-friendly fertilizers introducedto the market appropriately.
	1. Conduct and review scientific studies to determine the practically implementable level of substitution of synthetic chemical fertilizers by eco-friendly fertilizers
	2. Develop investment plans for the commercial production of various  forms of fertilizers from local resources
	3. Promote the mass production of organic and bio-fertilizers such as kitchen ash-based fertilizers, compost from urban garbage, rhizobia and mychorrhyiza, based on local resources
	4. Develop and implement a technical capacity enhancement program for different levels of fertilizer actors focusing on soil fertility and fertilizer management
	5. Introduce a system to convert traditional farming villages into users of only organic fertilizer
	6. Introduce a program to develop 2 million home gardens using organic fertilizer will be initiated in order to promote at the household level, consumption of organic vegetables and fruit in the country
2. To ensure use of optimum fertilizer levelsfor cropsat a given agro-ecological region, through appropriate tools/technologies.
	1. Undertake mass campaigns to promote sustainable use of fertilizer while providing factual information using multiple platforms (media including digital platforms farmer associations, art and drama)
	2. Disseminate and promote technological packages (e.g. integration of organic and inorganic fertilizers and other matching inputs) that provide the benefits of sustainable fertilizer use
	3. Integrate fertilizer-related knowledge and advice into public and private extension  systems, including digital platforms
	4. Provide required infrastructure to facilitate use of fertilizer inputs and agricultural outputs at the community and zonal levels
	5. Establish a mechanism to use the forest and wet lands in the country to the production of organic and bio-fertilizer of higher standard
3. To develop incentive-based management practices & code of conduct to regulate fertilizer management system of Sri Lanka.
	1. Provide adequate staff strength to the NFS and other local Government agencies responsible to oversee and coordinate the implementation of the national fertilizer policy.
	2. Establish minimum standards and certification for organic and inorganic fertilizers for importers, wholesalers/distributors and retailers, including packaging
	3. Register all fertilizers dealers (organic, synthetic/chemical, and bio-fertilizers), and fertilizer premises to foster standards enforcement.
	4. Develop and maintain Information and Communication Technology (ICT) databases of fertilizer dealers (importers, distributors and retailers), fertilizer premises at national referral laboratory for fertilizer (organic and inorganic) analysis.
	5. Identify resource poor farmers and provide them with a seed grant in the form of a voucher system that would guarantee access to and use of fertilizes with minimal leakages and/or abuse potential with a clear time bound exit strategy.
	6. Use the PPS mechanism to procure identified fertilizers for each region, and package and label them to ensure such fertilizer is not re-sold to distort the fertilizer market

**The SWOT analysis**

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| Strengths  |
| 1. Significant financial support in terms of fertilizer subsidy to farmers which will reduce the agricultural production cost.
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| 1. All crops are given with fertilizer recommendations . (i.e. Tea, Rubber, Coconut, Paddy & etc.)
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| 1. Improved productivity of crops (yield per acre) over the years
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| 1. Socially accepted policies
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| 1. Strong political will to improve crop production by providing adequate inputs at the correct time
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| 1. Synthetic Fertilizers are issued in line with the recommendations given on the basis of each agro-climatic zone for different crops.
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| Weaknesses |
| 1. Issuance of fertilizer not aligning with the actual requirement of the selected soil
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| 1. Less focus on monitoring of fertilizer application in the field.
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| 1. Continuous delays & interruptions on transportation and procurement procedures of synthetic/chemical fertilizers.
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| 1. Technological transformation gaps on fertilizer application by the farmers.
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| 1. Micro-elements (required for crops) are not taken into consideration (except for few cases such as Zn in paddy)
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| 1. Gaps on information gathering (i.e. Actual arable land area, Expected crops for cultivation, or mix in the season considered)
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| 1. Unavailability of results-based monitoring or systematic approach.
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| 1. Politicized-decision making for fertilizer subsidy
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| 1. Deterioration of soil health
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| 1. Emergence of new pests and diseases
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| 1. Valuable crops are facing the threat of being in extinction
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| 1. Lack of necessary rules and regulations to monitor fertilizer usage.
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| 1. Reduction of organic production practices and traditional crop practices.
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| Opportunities |
| 1. Focus on micro-elements of the fertilizers by way of bio-fertilizer or organic fertilizer
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| 1. Focus on integrated use of plant nutrients (mixed use of chemical and organic fertilizers).
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| 1. Focus on high land use efficiency and resource use efficiency
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| 1. Potential of fertilizer in contributing to wider productivity growth in staple grains rather than in cash crops.
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| 1. Further strengthening the National household food self-sufficiency & food security via reduced importation of chemical fertilizers and reduced impact on country’s balance of payment
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| 1. 5. Introduction of mobile message service or app services to distribute information about crop cultivation management activities, including fertilizer recommendations, to farmers.
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| 1. Use of available resources and government interventions for policy implementation.
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| 1. Attracting new comers to the agriculture / farming sector by giving an opportunity (with lesser entry barrier, bridging the working capital deficits by a subsidy) to cultivate isolated / fallow fields.
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| Threats |
| 1. Chemical residue disposed (displacement & leakage) on natural resources (water-contamination, Soil- degradation, and Air-pollution, Degradation of bio-diversity).
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| 1. Impact on micro-organisms in the soil/water/air. (Impact on natural soil rehabilitation)
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| 1. Long term health threats like, chronic kidney decease in the areas where the ground water has become the predominant drinking water source.
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| 1. Cost component of the fertilizer subsidy has become a major cost component of the country’s budget.
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| 1. Fatal results affected to numerous animal species by the hazardous contaminated entrants to their food chains (Declining population growth of Sri Lankan jackals while rising population situation of peacocks). Unrest of environmentalists/ stake holders
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| 1. Lack of technical knowhow and attitudinal issues of farmers
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| 1. Intermediate / middlemen activities, other market inefficiency and corruption of officers
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1. **Regulations for implementation**

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**6.1 Implementation Plan -for (2020 April - 2020 September)**

**Agriculture sector development plays an important role in the country’s development plan “Vistas of Prosperity and Splendor“. The country development plan states that Agriculture sector should be developed using advanced technology and requires a revolution in the use of fertilizer. Having such priority requirement, “an interim fertilizer policy framework” was developed for the country, with an anticipation to reach the development targets. The fertilizer policy implementation should be stared immediately and hence, the top most priority activities in the implementation plan were identified to work out during next six month period as follows;**

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| **Objective 01** | **To ensure chemical fertilizers are utilized efficiently & effectively in crop production.** |
| **Activity 1.1: Provide simple and affordable soil test kits at the sub-county level** |
| 1. **Identify user-friendly (simple and affordable) soil testing methods/soil testing kits use in Sri Lanka.**
2. **Establish partnerships with private sector to allow the adequate production and popularization of the soil test kits.**
3. **Provide simple and affordable soil test kits at the District/Regional level.**
4. **Conduct Training and awareness programs about such tool kits for relevant officers/Farmer leaders**
5. **Conduct soil testing in island wide**
6. **Identified different nutrient contents in soil**
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| **Activity 1.2: Develop and review chemical fertilizer recommendations**  **For different farming systems** |
| 1. **Develop and review fertilizer requirement/ recommendations for different soils in regions**
2. **Develop and update the soil fertility map for Sri Lanka to guide fertilizer applications**
3. **Identify or calculate actual fertilizer needs for Sri Lanka**
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| **Objective 02.**  | **To ensure use of optimum fertilizer levels for crops at a given agro-ecological regions, through appropriate tools/technologies.** |
|  **Activity 2.1: Disseminate and promote technological packages**  **( e.g. integration of organic and chemical fertilizers**  **and other matching inputs) that enhance the benefits** **of sustainable fertilizer use** |
| 1. **Identify, through scientifically valid methods, the technological packages for crops using only organic fertilizer or integration of organic and chemical fertilizer application in different regions**
2. **Conduct field trials to identify fertilizer requirements at different areas**
3. **Support infrastructural development for production, transferring and storing of products**
 |
| **Activity 2.1: Undertake mass campaigns to promote fertilizer use while** **providing factual information using multiple platforms**  **(media including digital platforms, farmer associations, art**  **and drama)** |
| **1. Develop suitable promotional programs****2. Establish mechanisms for Integrated fertilizer management-related** **knowledge and advice into public and private extension system** **3. Conduct workshops, awareness program and meetings for different**  **stakeholders**1. **Use mass-media including digital platforms through private public**

 **partnership (PPP) to disseminate the findings.** |
| **Objective 03.** | **To substitute synthetic chemical fertilizers at significant levels by using eco-friendly fertilizers introduced to the market appropriately**  |
| **Activity 3.1: Develop investment plans to support the commercial production of various forms of fertilizers from locally available resources.** |
| * 1. **Identify commercial producers who have potential to produce fertilizer with locally available resources.**
	2. **Conduct feasibility study on the production process.**
	3. **Identify the need / inputs for the production**
	4. **Develop investment plan for support production.**
 |
| **Activity 3.2:: Promote the mass production of local organic and bio-**  **fertilizers such as kitchen ash- based fertilizers, compost**  **from urban garbage, rhizobia and mychorrhiza based on**  **local resources** |
| 1. **Review research outputs to identify scientifically valid quantitative and qualitative impact of organic fertilizer/bio-fertilizer on agricultural production/productivity**
2. **Conduct scientifically valid tests to match the nutrient supply curves for fertilizers and nutrient absorption curves of the respective crops (at least for three major nutrients)**
3. **Reviewing and identifying of international standards of organic/biological fertilizer to be recommended for providing fertilizer subsidy Sri Lanka**
4. **Setting up local standards for organic/biological fertilizer to be recommended for providing fertilizer subsidy**
5. **Identify Local producers and implement a program for their registration**
6. **Conduct Training/awareness program for mass production such quality- certified organic fertilizers/bio-fertilizers**
7. **Introduce an incentive system for mass production of quality-certified organic fertilizers/bio-fertilizers**
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| **Activity 3.3: Introduce a system to convert traditional farming villages** **Into users of only organic fertilizer** |
| 1. **Identify traditional farming villages using scientific methodologies**

 **and surveillance programs**1. **Conduct a feasibility survey to obtain farmer perceptions on**

 **proposed conversion**1. **Develop and implement a technical capacity enhancement program**
2. **Identify system to EFF make available in the market for easy access**
3. **Introduce incentives system for EFF users**
4. **Introduce a program to develop 2 million home gardens using organic fertilizer will be initiated in order to promote at the household level, consumption of organic vegetables and fruit in the country**
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| **Objective 04.** | **To develop incentive-based management practices & code of conduct to regulate fertilizer management system of Sri Lanka** |
| **Activity 4.1: Provide adequate staff strength to the NFS and other local** **government agencies responsible to oversee and coordinate** **the implementation of the national fertilizer policy** |
| 1. **Establish minimum standards and certification for organic and synthetic/chemical fertilizers for importers, wholesalers/distributors and retailers, including packaging**
2. **Register all fertilizers dealers (organic, chemical and bio-fertilizers) and fertilizer premises to foster standards enforcements.**
3. **Develop and maintain Information and Communication Technology (ICT) databases of fertilizer dealers (importers, distributors and retailers), fertilizer premises and laboratory for fertilizer (organic and synthetic/chemical) analysis.**
4. **Identify resource poor farmers and extend to them a seed grant in the form of a voucher system that would guarantee access to and use of fertilizes with minimal leakages and/or abuse potential with a clear time bound exit strategy.**
5. **Use the PPS – purchasing power support mechanism to procure identified fertilizers for each region, and package and label them to ensure such fertilizer is not resold to distort the fertilizer market**
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Extended Activities

* + - 1. Importation of exact chemical fertilizer requirement will be done based on the fertilizer map prepared by the soil testing by the tool kit by 2021
			2. Manufacturing of Urea, P will be initiated with the private sector participation after feasibility studies using local raw materials
			3. Discussion with indigenous fertilizer experts for strengthening the usage of bio-fertilizer with bio- safety mechanisms

**M & E**

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| Activity/s | Sub activity/s | Source of data | Method of data collection | Responsibility |
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