

# Reforming Fertilizer Import Policies for Sustainable Intensification of Agricultural Systems in Sri Lanka: Is there a Policy Failure?

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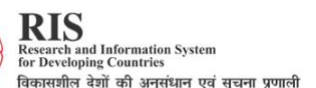
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## Key Messages

- Sri Lanka recently banned the importation of chemical fertilizers.
- While easing of the foreign exchange burden from chemical fertilizer imports is the prime motive behind the new policy, the policy will very likely result in yield losses of key crops, increased rural poverty and rural-urban migration, agricultural export revenue loss, and an increased food import bill.
- Other adverse effects of the ban are likely to include rent seeking behaviour, creation of monopoly power, importation of sub-standard organic fertilizer substitutes, and illegal trade of items under the ban.
- Potential alternatives to the ban are economic instruments and regulatory measures to reduce inappropriate use of chemical fertilizers, strengthening the implementation of Good Agricultural Practices (GAP) to enhance food safety, and providing targeted assistance for the adoption of sustainable land use management practices.



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# I. Sustaining Agricultural Systems through Fertilizer Policy Interventions

The government of Sri Lanka has implemented a myriad of fertilizer import and use options during 2015 – 2021 with the objective of making agricultural systems more financially and environmentally sustainable. However, these policy actions were not fully informed by global and national evidence. This policy brief illustrates how the fertilizer policy environment influences the performance of agricultural systems in Sri Lanka, reviews past policy changes and presents a set of options for sustainable intensification of Sri Lankan agricultural systems.

## II. Historical changes in Fertilizer Policy of Sri Lanka

Since its independence, successive governments of Sri Lanka pursued several strategies to achieve food and nutrition security and to enhance earnings from agricultural exports. Expansion of irrigated land was a major strategy of the British rulers during the 1930s and 1940s and the newly appointed governments of post-independence Sri Lanka. In the 1950s and 1960s, a strategy of intensification of farming practices to increase agricultural productivity was pursued with the use of modern varieties of food and plantation crops requiring increased use of agrochemicals. In the absence of a local chemical fertilizer industry, the Sri Lankan government intervened in the fertilizer sector by establishing government institutions to import and distribute fertilizers among farmers. The private sector was allowed to enter the fertilizer market under the strict scrutiny of the government.

Since 1962, successive governments provided fertilizer subsidies in various forms focusing on supplying nitrogen, phosphorous and potassium for paddy, other field crops, and plantation crops with the exception of the period 1990-1994 when no subsidy was provided. An attempt was made to cut expenditure on the subsidy by converting it into an equivalent cash grants scheme in 2016, but this approach lasted only two years. In 2019, the rate of fertilizer subsidy provided to paddy farmers was approximately 86% and it ranged between 48% - 88% for other crops. In 2020, fertilizer subsidy was provided for all crops at a subsidized rate. From mid - 2020, for the first time in history, fertilizer was provided free of charge for paddy up to a cultivation extent of 5 acres. On May 06, 2021, Imports & Exports (Control) Regulation No 07 of 2021 was issued banning importation of chemical fertilizers, pesticides & herbicides (Finance Ministry of Sri Lanka, 2019 and 2020). On July 31, 2021 an import licensing requirement on chemical fertilizers replaced the import ban. Until the time of writing this policy brief, no licenses have been issued to import chemical fertilizers despite the change in regulation.

Fertilizer subsidies, along with other incentives, led to increased food availability, export earnings, farm incomes and food self-sufficiency in Sri Lanka. However, the high cost of these subsidies crowded out other public expenditure within the agricultural sector. In 2020, approximately USD

188.5<sup>1</sup> million (LKR 34,966 million) was spent on fertilizer subsidy for food crops which constituted 53.6% of the government expenditure on the agriculture sector (Finance Ministry of Sri Lanka, 2020).

In addition, certain environmental costs, namely soil degradation and water pollution owing to overuse of chemical fertilizer application, also emerged. Even though the subsidy was provided only up to the recommended dosage, over-application of fertilizers has been evident in vegetable farming systems in Nuwara Eliya district of Sri Lanka (Ariyapala and Nissanka, 2006; Upekshani et al., 2018). This has become a major concern among environmental activists even though both overuse and underuse has been reported by other researchers including Ariyapala and Nissanka (2006). The fertilizer use efficiency ranged from 71 to 161 in rice-rice systems and 6 – 297 in rotation systems of rice and other crops. A value over 100 shows overuse and a value below 100 shows underuse as per Kanderagama (2006). Efforts made by the government and non-governmental agencies to promote more effective use of chemicals in agriculture did not yield anticipated results. This made the Sri Lankan agricultural systems environmentally unsustainable and compromised food safety.

One of the objectives of imposing stringent restrictions on imports of chemical fertilizers is to reduce threats on soil health and water pollution caused by the overuse of chemical fertilizers. Through this policy, the government of Sri Lanka wishes to be listed as the first country in the world to make its agriculture 100% organic. This policy move is broadly in line with the election promise the ruling party made. Anecdotal evidence also indicates that easing the foreign exchange burden has been another important reason behind the imposition of the ban.

### **III. Likely Economic cost of an import ban – Conceptual effects**

It is highly unlikely that an import ban on chemical fertilizers would convert existing agricultural systems in Sri Lanka into certifiable organic systems, which would be required if the country is to gain any price advantage in commercial markets. So far only a small fraction of the farming population in Sri Lanka have embraced organic production. Official statistics released by Organic International for 2019 indicate that the area under organic farming in Sri Lanka in 2019 was 70,436 hectares which is equivalent to 2.5% of its total agricultural land. There were 2,338 organic producers in Sri Lanka in 2019 and they cultivate tea, spices, coconut based products, vegetables and fruits, coffee and cocoa using organic agriculture technologies (Willer et al 2021).

Those farmers that do farm organically are producing for markets that have a clearly defined demand for organic output and assured sources of organic fertilizers. With an immediate ban, farmers will find it difficult to access organic fertilizers and difficult to sell the produce as "organic" in standard markets and receive a price premium. There is also a possibility of producing

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<sup>1</sup> Exchange rate LKR to USD was 185.52 in 2020 as per the Central Bank of Sri Lanka.

substandard organic fertilizers to cater to the increased demand if standards are not put in place together with this regulation.

Table 1: Predicted yield losses from move to 100% organic production

Crop	Predicted yield loss (%)
Paddy	30-35
Tea	50
Maize	50
Potato	30-50
Sugarcane	30-40
Cinnamon	25
Betel	20
Upcountry vegetables	30-50
Floriculture	100
Protected agriculture	100

Source: National Science Foundation of Sri Lanka, 2021

Therefore, in addition to yield loss (Table 1) there will be issues with markets for organic fertilizers, which are under-developed, and for the organic produce, which are difficult to penetrate. Consequently, large losses in profitability in farming can be anticipated. The immediate ban will impose massive adjustment costs on farmers, drastically decreasing agricultural production and farm incomes, with major adverse implications for the rural economy. Rural poverty rates will increase, and consequently rural urban migration will occur. The loss in export revenue due to reductions in supplies of exportable agricultural items (tea, coconut, rubber, floriculture etc.) will have implications on the country's trade balance. Furthermore, imports of substitutes (such as wheat) of food items which are under import control (such as rice) will increase and ultimately, the food import bill also rise. Finally, other adverse effects are likely such as rent seeking behaviour, creation of monopoly power, importation of substitutes with sub-standard quality, and illegal trade of banned items.

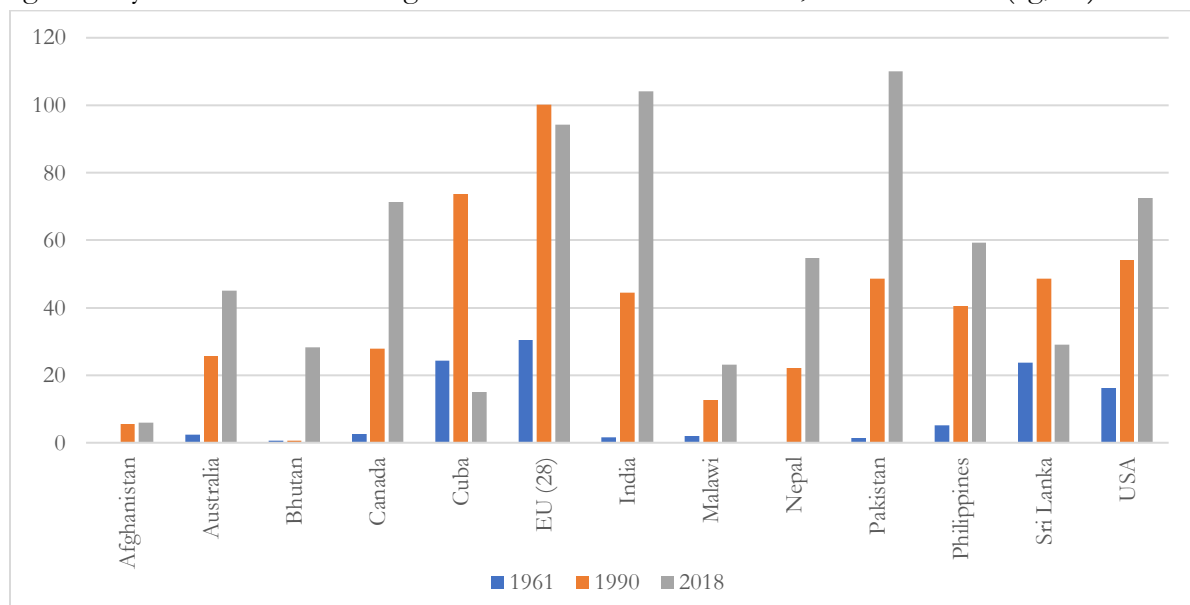
## IV. Contemporary Fertilizer Policies in Developing and Developed Countries

Global experience suggests that Sri Lanka has a wide range of options for promoting farm production while raising yields and protecting the environment. In designing fertilizer policies, governments across the globe balance the vital role that chemical fertilizers play in increasing agricultural productivity and their potential to reduce soil health and water quality when they are used in excessive quantities. Design and implementation of such policies however needs intensive knowledge and long-term investments and commitments to deliver results. HLPE (2019) explored the nature and potential contributions of agroecological and other innovative approaches to transition towards sustainable food systems that enhance food security and nutrition. For a review

on nitrogen losses and potential mitigation strategies for a sustainable agroecosystem see Mahmud et al. (2021). Eradication of chemical fertilizer has not been the prime objective of these endeavors<sup>2</sup>. Figure 1 shows the changes in fertilizer use in selected countries.

According to Abate et al. (2020), use of inorganic fertilizer remains low throughout much of Africa and is considered a cause of low crop productivity. Accordingly, African governments have pursued various fertilizer promotion policies and programs ranging from state-controlled procurement and distribution systems to wholly private sector-led systems. Several South Asian countries started subsidizing fertilizer use during the green revolution but attempted to lower or remove them due to fiscal and environmental considerations<sup>3</sup>. A review of fertilizer subsidies of Bangladesh, India, Nepal and Sri Lanka indicates that efforts made by governments in South Asia to eliminate fertilizer subsidies have not been successful due to economic or political considerations (Kishore et al. 2021). The authors recommend a gradual increase in the price (reduction of subsidies) of urea over the next few years while transferring the money saved to farmers to garner their support for the change.

Figure 1: Synthetic Fertilizer Usage in Selected Countries in 1961, 1990 and 2018 (kg/ha)



Source: FAOSTAT (2021)

The literature provides a number of successful illustrations of countries moving towards more efficient and sustainable fertilizer use by removing subsidies which were initiated at the onset of the green revolution to promote fertilizer use. New Zealand was successful in realigning fertilizer prices with their true cost to encourage farmers to use fertilizer more sparingly way back in the 1980s. The

<sup>2</sup> According to FAOSTAT (2021) synthetic fertilizers have been used even by Bhutan and Cuba which are cited as countries which attempted to pursue 100% organic fertilizer strategy. See Figure 1 for details.

<sup>3</sup> The price of urea in Sri Lanka was USD 0.05 per kg in 2020 where as those in Bangladesh, India and Nepal were USD 0.18, 0.07 and 0.11 respectively (Kishore et al., 2021). The export price of urea in the Russian Federation in the same year was USD 0.21 per kg (International Trade Committee).

removal of subsidy helped to reduce (but not eliminate) fertilizer use and led to environmentally beneficial changes in land use. According to Briones (2014) the Government of Philippines has abandoned price policies and subsidies, focusing rather on standard-setting, quality regulation, and training even though Filipino farmers are under-applying fertilizers. The Fertilizer Regulation Act of Japan aims to increase agricultural productivity and protect people's health by maintaining fertilizer quality, as well as ensure fair trade and the safe application of fertilizers through the establishment of standards and a registration and inspection system, among other things.

## **V. Way Forward - Creating a conducive policy environment for sustainable intensification of agricultural systems in Sri Lanka**

The proposed ban on chemical fertilizer imports will be a significant shock to the agricultural systems of Sri Lanka and will be untenable. Instead, Sri Lanka can adopt a 'sustainable intensification' approach that anticipates a gradual reduction of the use of chemical inputs combined with good agro-ecological production practices that will maintain or enhance yields while protecting and improving long-term soil health. This can be done through prudent application of a combination of instruments in place of the import ban on chemicals. The following options will be more appropriate:

- 1) Economic Instruments
  - a) Introduce tariffs on chemical fertilizer imports that are proven to cause environmental damages in place of the import ban.
  - b) Begin to reduce the import protection provided to soil erosive crops such as potato.
  - c) Provide tax incentives for production, import, and distribution of second and third generation chemical fertilizers (slow releasing compounds) to minimize environmental damages.
  - d) Provide tax concessions and subsidies where appropriate to local production of organic fertilizers and innovations in organic fertilizer production technology.
  - e) Use export cesses of tea collections to invest in soil conservation practices.
- 2) Regulatory measures
  - a) Revisit the standards for chemical fertilizers and strictly enforce them at the point of importation
  - b) Strictly implement Soil Conservation Act No. 25 of 1951
  - c) Strictly implement Food Act No. 26 of 1980
  - d) Scale up soil testing as a mandatory measure
- 3) Voluntary and information approaches
  - a) Promote voluntary certification, standardization and branding
    - i) Strengthen implementation of Good Agricultural Practices (GAP) to enhance food safety
    - ii) Reward organic agriculture domestically and for export orientation

- iii) Increase awareness on environmentally friendly technologies and fertilizer products
- b) Provide targeted assistance to incentivize those who adopt sustainable land management practices
  - i) Revamp the public extension system towards optimizing fertilizer use as key message to improve awareness among farmers on recommended dosages of plant nutrients.
    - (1) Ramp up soil testing to advise on the correct doses of fertilizer use to various crops and soil types with the aid of digital maps and big data techniques.
    - (2) Use digital technologies such as block chain approaches, drone technologies etc. to promote precision agriculture.

It is imperative that Sri Lanka revisit the import ban before it fails due to its own implementation challenges creating massive disruption to the country's agricultural sector. Sri Lanka needs to put in place a gradual approach as outlined above that will help towards sustainable intensification of agricultural systems in Sri Lanka.

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