
ORGANIC FARMING: A FAD OR A SUSTAINABLE REALITY?

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ABSTRACT

Farming has been quintessential to the evolution of mankind. Especially in a highly populous country like India which holds the largest area of agricultural land in the world, agriculture has been the backbone of our country.¹ Bertrand Russell a scholar stated that “certain traits like speech, fire, agriculture, writing, tools, and large-scale cooperation set humans apart from animals”.² Thus, farming taking such a vital role in the human lives, the need to produce maintaining a harmony with the environment is the need of this decade. The laws and policies are presumed to support and strengthen this shift from the farmers for the consumers and humanity at large. In this regard the paper has been apportioned into three parts. The first part gives the introduction and conceptual understanding about organic farming. The second segment deals with shift to non-conventional farming in India and the problem with farming laws specially the market intervention by Government of India with regard to minimum support price. The final portion delves with the argument and conclusion whether organic can be replace with the conventional farming.

Keywords: Organic Farming, Conventional farming, Crops, Farming techniques, Green revolution, sustainable Environment

¹ Cropland Area by Country, Worldometer, <https://www.worldometers.info/food-agriculture/cropland-by-country/>.

²Thomas Suddenorf, What Separates Us From the Animals? (Mar. 3, 2014), <https://slate.com/technology/2014/03/the-science-of-what-separates-us-from-other-animals-human-imagination-and-our-ability-to-share-imaginative-scenarios-with-others.html>.

I. Introduction: Background and meaning of organic farming

Organic farming as a term is being used at present to connote farming by using natural processes, methods and inputs as catalysts for the crops with a blend of new technologies and innovations which doesn't affect the environment. Thus, going out of convention from using synthetic and chemical fertilizers, pesticides and high yielding genetically modified seeds and saplings to a new way of farming process which doesn't affect the soil quality, promotes diversity and sustainability of the farming ecosystem is organic farming. Organic farming is also called organic agriculture, natural farming etc...Organic farming is defined as “a production system that sustains the health of soils, ecosystems, and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic Agriculture combines tradition, innovation, and science to benefit the shared environment and promote fair relationships and good quality of life for all involved.”³

In spite of the fact that organic farming shares its resemblance to natural way of farming done by our ancestors, organic farming is quite different from farming done by the ancient mankind. In the earlier days, farming was done by using traditional mechanical tools invented by human beings without the use of any additives such as pesticides and fertilizers; both natural and synthetic. Thus, human beings purely relied on mother nature for the yield of their produce and did not interfere in the natural process of growth of their crops. Thus, no tilling, weeding, pruning or any form of agricultural processes which involved human intervention was done. It is also described as do nothing farming”. Thus, this type of farming was done before any sort of industrialization was present.

Later with the advancements of agricultural practice, human beings understood the direct correlation between adding various catalysts to the soil and the crops appurtenant to it and incorporating various other agricultural practices in order to improve the yield. Thus came the use of all natural fertilizers and pesticides such as cow dung, decayed matter, earthworms etc. and usage of manmade mechanical tools such as a hand sickle, ploughs, etc. Thus, natural farming involves no interference from mankind other than sowing of seeds and watering whereas the farming before green revolution encompassed various other processes and additives which are attained from nature in order to enhance the yield of crops in a natural

³Definition of Organic Agriculture, Ifoam Organics International, <https://www.ifoam.bio/why-organic/organic-landmarks/definition-organic>.

manner. Thus, farming done in post independent India before green revolution is a newer concept than natural farming and both have stark difference other than one similarity that both types of farming purely encompass nature as its pillar. Thus, when farming by using natural manure and other techniques was being practiced, there was a need to adopt to conventional farming especially in poor countries like India, Mexico, Brazil due to the need for improving yield to feed a hungry population. Hence, we shifted from to conventional form of agriculture in the late 1960s.

Thus, this paper aims to cover the real impact that organic farming can make and the problems associated with the shift to organic farming and a real time example of the impact a sudden change to organic farming can have on the people of a country by understanding how organic farming added fuel to the fire by increasing the economic costs and lowered the overall food productivity during the times of an already debt-ridden economy of Sri Lanka. To not end the dreams of organic farming, the remedial measures which can be taken in order to keep the hopes of organic farming a reality and not just a fad which passes by in order to ensure the entire ecosystem of earth exists and flourishes along with our lives is the ultimate goal this project strives to contribute to.

II. The Shift to Conventional Farming In India

Plastic bags were invented to replace paper bags as paper bags caused deforestation and plastic bags can be reused again and again⁴. Cigarettes were marketed around the world as a ‘stress buster’.⁵ But the costs involved in the aforementioned innovations were realized much later when the entire earth was filled with plastics and cigarettes were found to be one of the major causes for a series of health problems. This is because human beings realize the present needs by ignoring the future costs involved. The same holds true for the green revolution which took place in India which resulted in replacement of traditional methods of agriculture to a more industrialized way involving pesticides fertilizers, machineries, high yielding variety of seeds, focus on a few crops instead of growing a diverse set of crops etc.

But the need for such change has to be analyzed to understand whether such shift to conventional farming is justifiable. To understand this, we need to analyze the farming sector

⁴ Phoebe Weston, Plastic bags were created to save the planet, inventor’s son says, (Oct. 17, 2019), <https://www.independent.co.uk/climate-change/news/plastic-bags-pollution-paper-cotton-tote-bags-environment-a9159731.html>.

⁵ Catriona Coull, Reduce stress’ and ‘look sexy’ – marketing tobacco to the world,(Mar. 20, 2013), <https://news.cancerresearchuk.org/2013/03/20/reduce-stress-and-look-sexy-marketing-tobacco-to-the-world/>.

in India post-independence. The post independent India i.e., during the late 1940s to 60s faced a huge challenge in feeding its population as the British even though brought us many new technological advancements in various sectors such as the railways, no reformatory changes were made in the agricultural sector. Hence the farming sector as a whole was dim post-independence. Post-independence, the then government of independent India tried various mechanisms and schemes to ramp up agricultural production to feed its mass but all the efforts were in vain. The predominant crops which were grown during this period were rice, wheat, barley and other millets and the production of rice and millets were higher than others.⁶⁷ . Initially before independence the political leaders were so focused on the rampant political issue of independence and partition that alleviating hunger was always secondary. But after the Bengal famine of 1943 which resulted in death of around 3 million people, and the independence in 1947; there came a huge responsibility to the then formed interim government to solve the hunger crisis. Various schemes and policies such as “Collective farming”, “Reducing consumption of food”, “Free market for crops” etc... were advocated during the then regime but it didn’t solve the problem of hunger but further exacerbated the existing situation. Added with frequent droughts, the policy mismanagement made India’s situation far worse and made our country completely dependent on import of wheat from various other countries especially the USA⁸.

Thus, to steer our country in the path of development, self-sufficiency became an important agenda for the political leaders. This was also the time when research on agricultural crops was carried out in various international organizations such as International Maize and Wheat Improvement Center, International Rice Research Institute (IRRI). Thus, new strains and genetically modified variants of the existing crops were developed which had more resistance to climatic conditions, had higher yields by better absorption of nitrogen from the soil, which used fertilizers as a catalyst to grow, and had reduced crop cycles. Thus, to solve the food crisis in India the Indian government in 1965 decided to use these genetically modified seeds also called “High Yield Variety Seeds” in the place of existing native seeds. Also subsidization of fertilizers, pesticides and other additives which were complementary to the HYV seeds was

⁶ Hall WF, Agriculture in India. Regional Analysis Division, Economic Research Service, United States Department of Agriculture, (1964) at pg. no. 13, <https://archive.org/details/agricultureinind64hall>.

⁷ US Department of Agriculture - Economic Research Service, Regional Analysis Division, the 1964 Far East, and Communist China, Oceania Agricultural Situation: Supplement No. 4 to the 1964 World Agricultural Situation, (1963) at pg. no. 49–50, <https://archive.org/details/1964fareastcommu74unit>.

⁸The Public law 480(PL480) allowed USA to export wheat to developing countries using the importing country’s own currency.

done and as a result overall output in India increased drastically .Wheat was given primary importance in the 1st phase of green revolution and as a result production of wheat that increased from 50 million tons in 1950 to 79 million tons in 1964 and later to 95.1 million tons in 1968.⁹.This was followed by introducing high yielding varieties of rice the most popular one being IR-8 which resulted in increased outputs of rice as well. This entire systemic change in the agricultural sector was termed “Green Revolution”.

The other side of the coin to this history were arguments such as that India was always self-sufficient with its own produce and green revolution was merely an policy attempt to impress the developed nations, green revolution caused a change in consumption pattern of food in India as people in India didn't even consume wheat predominantly as rice and other coarse were predominantly consumed before green revolution, the food crises was not experienced in rural areas and was only felt among the urban crowd¹⁰. While concurring to the above arguments it is also important to look back at that time and understand that the introduction of agricultural reforms seems like a necessity as every other developing country was incorporating these changes too and hence not following the crowd would have been politically suicidal for the then government. Also thinking about the impact green revolution had on land and indigenous crops, change in consumption pattern of people cannot be made as a sound argument back then when majority of the population slept with an empty stomach.

III. Problems Associated with Conventional Farming

Thus, as analyzed before, the shift to a new form of agriculture resulting out of green revolution led to exponential agricultural output from the 1970s all the way to the present. Thus, this present way of farming is referred to as “conventional farming” involved the usage of modern machinery, HYV seeds, fertilizers, herbicides, pesticides etc...But since every pleasure has a pain attributed to it, conventional farming has a lot of disadvantages.

Existing malnutrition: Various critics of green revolution point out that inadequacy of food was never a concern for India but inadequacy of nutrition was and is always a concern and conventional farming failed to address this issue and in fact elevated the problem. Human

⁹ B. Bowonder, Impact analysis of the green revolution in India, *Technological Forecasting and Social Change*, Volume 15, Issue 4, (1979),pg. nos. 297-313,<https://www.sciencedirect.com/science/article/pii/0040162579900234>.

¹⁰ Richa Kumar, Putting wheat in its place, or why the green revolution wasn't quite what it's made out to be, (NOV. 4, 2016), <https://hss.iitd.ac.in/article/putting-wheat-its-place-or-why-green-revolution-wasn%E2%80%99t-quite-what-it%E2%80%99s-made-out-be>.

beings require a whole host of nutrients in order to survive and lead a healthy life. A proper balance of carbohydrates, fats, protein and various other vitamins and minerals are essential for our survival. Conventional farming in India focused the limelight only on 2 major crops; rice and wheat and a few other cash crops. Rice and wheat contain carbohydrates and lacks in all other essentials. Thus, as a result majority of the population in India in spite of having access to food; such food which they receive predominantly consists only of carbohydrates and lacks in all other aspects. Thus, dietary diversity is a huge problem at present.¹¹ A 2022 survey by the World Food Program states that 1/4th of the worlds undernourished population lives in India¹². Thus while conventional farming might have ensured adequate food for every person in our country it certainly didn't provide a balanced diet involving fruits, legumes, pulses vegetables, nuts etc... which provides various nutrients which rice and wheat cannot provide.

Monoculture and change in consumption patterns: As stated before green revolution in India resulted in supply of rice, wheat and a few other cash crops all over our nation. This resulted in monoculture. Merriam Webster dictionary defines monoculture as "the cultivation or growth of a single crop or organism especially on agricultural or forest land".¹³ Thus while rice and wheat is essential in Indian diets, the replacement of all other types of grains, millets and coarse cereals resulted in monoculture. The biggest concern with monoculture is that in spite of the fact that the new genetically modified strains of rice and wheat are immune to pest attacks, pathogens and diseases try to evolve constantly in order to attack and survive on its plant hosts. And monoculture provides a very suitable ground for such process as while more diversity of crops makes it less prone to diseases, monoculture increases the chance of disease attacks due to the generic nature of all the crops in the field. Also, the practice of monoculture resulted in extinction of ancient and native crops varieties including various varieties of rice and wheat.

Infertility of land and agricultural pollution: Infertility of land and exponential increase in pollution of air, water and soil due to conventional farming has resulted in imbalance in biodiversity, reduced productivity when compared to the initial years of green revolution, health problems in farmers and consumers. The main causes for such degradation is partly due to the crops which are grown and partly due to the chemicals introduced to improve plant growth and output. Also, the requirement of water for growing rice and wheat is very high

¹¹Daisy A. John and Giridhara R. Babu, Lessons From the Aftermaths of Green Revolution on Food System and Health, (Feb. 22, 2022) ,<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7611098/>.

¹² <https://www.wfp.org/countries/india>.

¹³ <https://www.merriam-webster.com/dictionary/monoculture>.

when compared to other crops as both rice and wheat which were the key players of industrial revolution are water intensive crops. India has the highest demand for fresh water and 91 percent of it is used for agriculture.¹⁴ Also since usage of pesticides, weedicides and fertilizers has been abundant in India, it has resulted in severe water pollution as a consequence of such inorganic chemicals mixing along with the local water bodies and potable ground water. It has also affected the soil by increasing the PH level of soil which is unsuitable for the crops and the beneficial pathogens and bacteria subsisting in the soil, making such soil unsuitable for crop production. Burning of residual crops instead of decomposing it and converting it into manure has contributed to both air and soil pollution. Usage of such inorganic chemicals has resulted in such chemicals entering our bodies through our food and has resulted in a host of diseases too. Also due to the damage caused to the soil and the environment, the productivity levels have been stagnant. The rate of growth of production of food grains fell from 2.9 per cent per annum in 1980s to 2.0 per cent per annum in 1990s and stood at 2.1 per cent per annum in first decade of the present century.¹⁵ Thus, the aforementioned consequences have questioned the suitability of continuing such conventional agricultural practices.

Increasing disparity between farmers and non-farmers: While green revolution has alleviated poverty and hunger to a certain extent around India, it has caused increasing economic disparity between farmers and non-farmers. While green revolution concentrated s on increasing agricultural productivity, a host of other political reforms were made to compliment it. Incentivized fertilizers, pesticides and seeds, minimum support price, rationing of essential produce have resulted in preference towards the conventional method of agriculture. While incentives and MSP may appear to make agriculture a cheap affair; in reality it is not. Prior to green revolution, buying of seeds was not even a thought of consideration. Farmers always used their own seeds which they get from cultivation. Also, no costs were involved in buying pesticides and chemicals as they relied on natural and readily available manure derived from their livestock and other decayed crop matter. Thus, the costs involved in farming were practically nil as farming was a circular economy prior to green revolution.¹⁶ But at present

¹⁴ Kayatz B., Harris F., Hillier J., Adhya T., Dalin C., Nayak D., et al, "More crop per drop": exploring India's cereal water use since 2005, *Sci. Total Environ.* 673, pg. nos. 207–217 ,(July 20, 2019), <https://reader.elsevier.com/reader/sd/pii/S0048969719313026?token=288D80AC15A00C6A401CD8C1C31FD33BAC40B4C766D4F291F97FA722746BB15C753AE06A5BFBEBAFEDA9EBB14E03276A&originRegion=eu-west-1&originCreation=20220411000618>.

¹⁵ Hemant Singh, Impacts of Green Revolution on India, (Apr. 1, 2019), <https://www.jagranjosh.com/general-knowledge/impacts-of-green-revolution-on-india-1446187885-1>.

¹⁶ Circular economy is an economic system in which the wastes of one process are not discarded directly, but, instead, become the resources for other means.

farmers have to spend a significant amount of money on agrochemicals and seeds and also have huge operating costs from the machinery used. Also, scarcity of water has led to spending huge amounts of money to irrigate their crops through bore wells and other irrigation systems. While Minimum support price has been a life saver for the farmers producing crops covered under the MSP policy, it hasn't been adjusted proportionately to the rising costs of agriculture. As a result, the net money which a farmer cashes from his produce has been declining rapidly. Farmers' income rose by 30 per cent while their debt surged around 58 per cent between 2013 and 2019.¹⁷ As a consequence they have been relying on hefty loans which cause severe economic troubles to them as usually they are exploited by the lenders with steep interest rates and immoral collection methods. This has been a key cause for farmers ending their lives and also resulting in subsequent generations to shift from farming to non-farming jobs. Thus, green revolution has systematically made farming a "un-crony" capitalism where the farmers are not benefitted and supported by any stakeholder of the agricultural sector and thus are left in vain.

IV. The Attention Towards Organic Farming

Increased use of land area and the hoax of reducing pollution: In spite of so many disadvantages that conventional farming has, one major advantage with the conventional mode of agriculture is the number of crops which can be grown in a particular size of agricultural land. Thus, the yield per acre or hectare of agricultural land is more in conventional farming than the yield per acre/hectare from organic farming. For example, the yield per hectare for rice pre-green revolution was around 668 kilograms while the yield per hectare post green revolution was around 1986 kilograms per hectare¹⁸¹⁹. Thus, green revolution ensured that significant amount of produce can be made from the same amount of land. The biggest concern with the natural way of farming pre green revolution and organic farming at present is that the yield per hectare turns out lower. As a consequence, more land area would be needed to meet the current demand of India. A study by Nature Communications in 2019 stated that shift to organic farming would slash yields by around 40 percent in England and Wales²⁰. Thus even if we keep the yield reduction to an optimistic 25 percentage around the world, we would need more than 1/3rd of

¹⁷Samrat Sharma, Explained | Is income loss the major reason behind farmer's debts?, (Sept. 16, 2021), <https://www.indiatoday.in/diu/story/explained-is-income-loss-the-major-reason-behind-farmers-debts-1853276-2021-09-15>.

¹⁸ One hectare is equivalent to 2471 acres.

¹⁹ <https://byjus.com/free-ias-prep/green-revolution/>

²⁰ Smith, L.G., Kirk, G.J.D., Jones, P.J. *et al.* The greenhouse gas impacts of converting food production in England and Wales to organic methods. *Nat Commun* 10, 4641 (2019). <https://doi.org/10.1038/s41467-019-12622-7>

land than what we have now to meet the demands met by conventional agriculture at present.²¹. Destroying forest lands for agriculture has been a grave concern for a long time. Hence shift to organic farming can add to this problem if not done properly.

Agriculture as a practice on its own is environmentally degrading and a non-natural form of meeting sustenance. While arguments hold that organic farming would reduce emissions of greenhouse gases when compared to conventional farming and also reduce the overall impact of ecological damage to the entire farming ecosystem, a contrary argument is worth considering. Anything done in a small scale has different results when compared to the same thing done in a larger scale. For example, green revolution in India was introduced only in limited parts of Punjab, Haryana at the initial stages and the wide scale environmental damage to the farming sector due to the shift couldn't be predicted back then. The same holds true for organic farming also. While it is true that organic farming reduces greenhouse emissions and prevents soil degradation, the argument of shift from conventional farming to greenhouse farming resulting in reduction of impact on the environment holds true only when land area isn't increased to match the yield from conventional agriculture. But when land area is increased to meet the same output, the effect of organic farming worsens the existing impact on environment from agriculture. The reason why increasing land area for agriculture causes higher greenhouse emissions is due to the deforestation of forests which has to take place to make the land suitable for agriculture. A study by Chalmer University of Technology, Sweden showed that organically farmed peas had a 50 percent more climate impact than peas grown in a conventional way.²². Thus shifting to organic farming without solving the problem of increased arable land requirement serves no purpose.

The economics of organic farming: Even though the shift from natural way of farming before green revolution to adopting practices of green revolution involved upfront costs, the shift was under the support of huge international organizations and developed countries which reduced the overall costs and as a result helped farmers adapt to the change. In India the transition to green revolution took place with the help of the Ford foundation and Rockefeller foundation of United States. Even though organic farming eliminates the input costs which arise in conventional farming, the overall fixed costs and labor costs involved in running an organic

²¹Sanjeev, Sabhlok Mandatory natural farming will starve India. ,(Feb. 19,2022) , <https://timesofindia.indiatimes.com/blogs/seeing-the-invisible/mandatory-natural-farming-will-starve-india/>

²² Chalmers University of Technology, "Organic food worse for the climate?" ScienceDaily, (Dec. 13, 2018), www.sciencedaily.com/releases/2018/12/181213101308.htm.

farm is higher than a conventional farm at present. Thus, reduction in input costs is offset by increased fixed costs due to higher land usage and additional costs of labor. Since no effective mechanism or infrastructure exists for farmers to sell organically produced crops at a premium minimum price when compared to regular non organic produce in “Mandis”, switching to organic farming doesn’t receive the attention of farmers. Also handling of smaller quantities of organic produce at present due to lack of full-scale transition from conventional agriculture to organic farming, lack of special or additional insurance coverage for crops which are produced organically to protect from the higher risks of pest and insect attacks in organic crops results in higher storage, distribution and operating costs. Thus, an ASSOCHAM study states that shifting to organic farming would result in an additional expenditure of Rs. 1200- 1500 per month.²³

An interest of the rich: The need for healthy food alternatives, concern over the environment and general health of the population has been a concern only of the affluent class while all the poor cares about is getting food thrice a day to meet their ends. Thus, considering a shift to organic farming due to harm towards the environment and people, pollution, loss of biodiversity and other worries of the future due to the damage caused from conventional farming are not a matter of concern when it is of the fact that organic farming eats away the profitability of the farmers in the initial years.

It is also important to note that while an argument favoring organic farming that organic farming fetches higher prices in the market as it caters to upper strata of population and as result also improves profitability of farmers is an unsound argument. While it holds true that a pack of Atta made from organic wheat is sold for around Rs. 304 for 5 kgs, whereas Atta produced from wheat which is not specifically identified as organic is sold for Rs 205 for the same quantity,²⁴ the benefit of selling organic products is enjoyed only by large FMCG companies and other intermediaries which deal with agricultural produce of the farmers and convert it into a premium product. As a result of demand from the upper strata of the country, many companies and startups have shifted attention towards organic products to fetch a higher margin of profitability and as a consequence result in exchange of money between the rich whereas the poor farmers are out of the picture. Also focus of advertising and marketing from

²³ Kiran Pandey & Rajit Sengupta , India has the highest number of organic farmers globally, but most of them are struggling, (Aug. 2, 2018), <https://www.downtoearth.org.in/news/agriculture/india-has-the-highest-number-of-organic-farmers-globally-but-most-of-them-are-struggling-61289>.

²⁴ <https://itcstore.in/collections/aashirvaad-atta/india-products?page=3>

on products produced using organic raw materials, along with other millennial consumerist terminologies such as being vegan, gluten free, GMO free have resulted in a shift consumer behavior of the rich and as a consequence has created a sense of insecurity among farmers who do not or cannot adapt to the changing trends. This has also resulted in capitalists, startups, and health-conscious millionaires and billionaires venture into the business of food by taking away the market share of farmers and forcing them to take up farming models such as contract farming which serves the wealthy agro industrialists to make their ends meet.

Cumbersome certification norms: In India at present, to recognize a particular produce as an organic produce, a complicated and inefficient system of recognition exists. National Program for organic Production (NPOP) and Participatory Guarantee Scheme of India (PGS) are the 2 existing certification systems and both shares its own set of challenges to the farmers opting to receive the certification. Thus, implementation of both these schemes made selling of organic produce with the organic produce tag or label without such certification illegal.²⁵ Thus introduction of such mandatory certification affected those farmers who stuck to organic farming even before such certifications were made mandatory. It takes 2- 3 years under the NPOP scheme to be certified to a farmer who considers shifting to organic farming and has to comply with the requirements and standards set forth in the program continuously for the aforementioned period depending on the type of crop he / she grows in order to be granted the certification²⁶. Also, a requirement for creation of buffer zones so that chemicals and pesticides from conventional farms around do not affect the organic farms, preparation of a crop production plan, a fee of around Rs 15000-50000 makes certification under NPOP a nightmare. Under the Participatory guarantee scheme, farmers form groups and conduct peer review and self-audit of farms by themselves and ensure all the farmers in the group comply with the PGS organic farming norms and standards. Certification under the PGS scheme also takes around 3 years of time.²⁷ Another concern with the PGS scheme is that since it is a form of self-certification, it is not recognized as a valid certification for exports, and also various food procurement agencies and companies fetch produce from farmers who only have NPOP

²⁵ Section 22, Food Safety and Standards Act, 2006, No. 34, Act of Parliament, 2006.

²⁶National Programme for Organic Production, Agricultural and Processed Food Products Developmental Authority, at pg. no.39, (2018), https://apeda.gov.in/apedawebsite/Announcements/NPOP_Training_Manual_English_E_Book.pdf.

²⁷ Meenakshi Sushma, New regulations to certify organic food likely to favour big brands (July 23, 2018), <https://www.downtoearth.org.in/news/food/new-regulations-to-certify-organic-food-likely-to-favour-big-brands-61194>.

certification and not PGS certification.²⁸ Thus, as a consequence the certification instead of achieving the goal of encouraging the farmers to take up organic farming, has made the farmers rethink and wait till the system of certification turns efficient and easy for them to adapt to organic farming.

V. Analyzing Sri Lanka's Organic Farming Blunder

The economy of Sri Lanka sustains predominantly on tourism and agricultural export. While Sri Lanka has had a rough history involving civil wars between the Sinhala's and the Sri Lankan Tamil's since their independence, their economy as such wasn't majorly affected as a direct consequence of the war. But at present Sri Lanka is in turmoil with its angry citizens rising against the current government. While China's debt trap policy, inefficient administration of the country, family politics and a host of other reasons have resulted in the current state of the island nation, an inefficient policy on organic farming made matters worse.

Rice and tea along with a host of other fruits, vegetables and pulses represent Sri Lanka's agrarian economy. When the current government came to power in 2019, they made a host of promises along with a promise of shifting the entire nation to organic farming in a time span of 10 years. During the Covid-19 pandemic, while the economy of the whole world was affected, Sri Lanka was especially in a very bad state due to falling exports due to the pandemic, nil revenue from tourism, default of debt due to China, falling currency value. But during such time in April of 2021 the government made a bold move to pivot the entire country to organic farming. While this may sound as an innovative and positive policy decision by the government, and as a cost cutting measure as fertilizers and pesticides aren't required for organic farming²⁹, the results of such a policy initiative backfired and was contrary to the praise received from environment fanatics around the world for taking a bold move. After a complete ban on chemical fertilizers and pesticides in the country, Sri Lanka faced a crisis of decreased productivity levels of all the crops. Within 6 months of the ban productivity of rice decreased 20 % forcing Sri Lanka to import 450 million dollars' worth of rice to meet the shortfall and as a consequence resulted in almost 50 percent increase in price of rice. Also, it resulted in decreased production of tea which amounted to a loss of around 425 million dollars as tea

²⁸ Rutaksha Rawat, The challenges of Small Organic Farmers in India, (Feb. 15,2022) ,<https://pureecoindia.in/challenges-of-small-organic-farmers-in-india-rutaksha-rawat/>.

²⁹ The cost of fertilizer inputs was close to 500 million dollars.

contributed a major share of its exports.³⁰ While Sri Lanka boasted lifting majority of its citizens above the poverty line before this decision, this changed the situation completely resulting in around half a million people going back below the poverty line. Thus, after a period of 6 months post this ban the government partially lifted the ban on use of fertilizers and pesticides but irreversible damage was already done. Scarcity of food, people pillaging shops and outlets for essentials, strikes against the government have become a common sight at present. The government has promised to compensate the farmers but it is highly unlikely as the government has failed to pay back any of its debts since the pandemic. Thus, Sri Lanka serves as a great example to understand that organic farming similar to conventional farming is a two sided coin and hence a complete shift to organic farming without proper economic and structural support from the government will result in collapse of the entire country's economy.

VI. Conclusion: The Way Forward

While the argument that organic farming as such cannot be implemented at all is wrong, an extremely careful transitional phase must be formulated to meet the problems which arises out of such shift. While Sri Lanka has been criticized in the global community for its organic farming blunder, no country has been able to introduce organic farming as a complete replacement to conventional farming. Cuba posts the soviet era was forced to shift to organic farming as they couldn't afford fertilizers and pesticides in the immediate years and as a consequence caused severe food shortage among its population. The European Union has been curbing the use of various fertilizers and pesticides for decades but a full-scale transition to organic farming is still a distant reality. In 2011 Bhutan announced that it would go fully organic by 2020 but has failed to achieve the objective.³¹

India is no exception when compared to the above nations. Having a population of around 142 crores, and with a rank of 101 among 116 countries in the global hunger index, access to food is a fundamental issue politically, socially and economically in India.³² Any wrong move would repeat the same consequences as witnessed in Sri Lanka. Hence the following important considerations have to be looked upon before the dream of organic agriculture is realized.

³⁰ Monica Verma, How Environmental Wokeness Cost Sri Lanka Its Food Security, (Apr. 11, 2022), <https://www.news18.com/news/opinion/the-indian-connection-behind-sri-lankas-disastrous-environmental-wokeness-4962938.html>

³¹ Ted Nordhaus, In Sri Lanka, Organic Farming Went Catastrophically Wrong,(Mar. 5, 2022), <https://foreignpolicy.com/2022/03/05/sri-lanka-organic-farming-crisis/>.

³² GLOBAL HUNGER INDEX 2021: INDIA, <https://www.globalhungerindex.org/pdf/en/2021/India.pdf>

Similar to the way fertilizers and pesticides were made available to farmers and usage of the same were taught to the farmers through various programs and awareness schemes back in the day, availability of organic manure, awareness and training for farmers to aid them shift to organic farming from conventional agriculture is mandatory. Arrangements to meet the shortfall in output due to the shift has to be predicted and met by the government out of its food reserves. Instead of organic farming being a fad for the rich to eat health-conscious food, a cultural and societal shift is necessary with the help of the government to change consumption patterns of the entire population such that farmers are encouraged to produce organically. Also, the existing certification systems to recognize a produce as an organic one has to be made more efficient and easier.

While India at present has various schemes and initiatives promoting organic farming this direction is not a sustainable alternative to conventional agriculture. India's portrayal of organic farming walks along the same lines of farming done prior to the green revolution. Government propaganda also favors such direction. Focus on 'Paramparik farming' methods through policies such as Bharatiya Prakritik Krishi Paddhati Programme, zero based natural farming, ministers of the country promoting the use of natural additives such as cow dung and aged cow urine, promotion of natural traditions and customs in which no fertilizers and pesticides are used should not be what organic farming has to represent.³³ At its best such initiatives merely are intended to provoke nationalist sentiments among the people and boast the pride of ancient India without any fruitful results in the agrarian economy. While it holds true that organic farming avoids the use of fertilizers and pesticides and high yielding variety of seeds, completely isolating science and technology from agriculture is not what it means. As already stated above, mere organic farming without involvement of science and technology and government support has dire consequences. Science and technology are essential in undoing the wrongs while ensuring new wrongs don't happen. Technological innovations in agriculture such as bio manures, use of genetically modified crops which do not require any chemical additives, new farming methods such as vertical and hydroponic farming must be blended with non-intensive farming methods which didn't affect the environment as much as conventional farming did of the past to create an sustainable but highly productive farming ecosystem is the way to move forward in the farming sector. And the government has to charter this journey

³³ Cow dung alternative to fertilizers: PM Modi bats for organic farming at National Conclave, India Today, (Dec. 16, 2021), <https://www.indiatoday.in/india/story/cow-dung-alternative-fertilizers-pm-modi-bats-organic-farming-gujarat-national-conclave-1888485-2021-12-16>.

along with various stakeholders by incorporating adequate legislations and policies to ensure that the technological advancements are in line with the long term objective of sustainability, incentivizing organic farming, creating awareness among farmers about the existing impact of conventional farming on the earth and human beings, creating better storage and distribution infrastructure for organic crops and the most important being that the transition to organic farming has to be done without any severe economic costs on the farmers directly or indirectly. Thus, organic farming is an achievable sustainable reality when slow and steady steps are taken to reach the goal of creating an efficient farming ecosystem without hindering the nature.