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Impact of Agriculture Corporate Farm Increase Productivity Widespread Destructive Activity on Earth Democracy in India

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Abstract:
Agricultural productivity in India can be improved by investing in agricultural research and development, improving irrigation infrastructure, promoting farm mechanization, and strengthening agricultural extension services. Agriculture is the foundation of the civilization, culture and heritage of India. It most commonly refers to corporations that are large-scale farms, market agricultural technologies in particular pesticides, fertilizers, and GMO's, have significant economic and political influence, or some combination of the three. The large-scale corporate agriculture is more efficient than peasant farming in the country. It leads to better allocative efficiency, induces higher private investment in agriculture, and results in higher output, income and exports. During 2021-22, in the countries total exports agricultural exports contributed of to the tune of US $ 50.2 billion with a 20% increase from US $ 41.3 billion in 2020-21. In FY 2023, it is projected that the Indian agriculture sector will grow at the rate 3.5%. Agriculture in India is a complex mosaic of distinct agro-ecosystems, differentiated by climatic, soil, vegetation and other natural features.

About half of the Indians derive their livelihood from agriculture and allied activities. Technology and Research Corporate farming enterprises usually invest in research and development of new agricultural technologies, seeds, and farming practices. Farmers who are part of these systems can benefit from access to cutting-edge technology and knowledge that can improve productivity and efficiency. It is one of the oldest systems of the world characterized by its diversity and heterogeneity, unorganized and stressed on account of natural and anthropogenic vagaries from ‘seed to market’. Agriculture is the backbone of the Indian economy, contributing to around 16.5% of India's GDP and employing over 50% of the workforce. The Indian agriculture market is valued at USD 435.9 billion as of 2022 and is expected to reach USD 580.82 billion by 2028, growing at a CAGR of around 4.9% between 2023 and 2028.

Historically, stressed natural resources due to unfavourable weather, monsoon and natural calamities resulted in crop failures leading to food shortage that made serious impacts on the civilization. Post-Independence, the Indian agriculture transformed from a food-scarce to food-exporting country primarily due to science led innovations that caused multi-fold increase in the agricultural production from 135 million tons in 1950/51 to over 1300 million tons in 2021/22 in spite of increasing abiotic and biotic stresses and depleting along with deteriorating natural resources. Agriculture is one amongst the few sectors that made progressive growth after independence and marched well with the need of the country. Success in agriculture since Independence has been the backbone of India’s success.

Keywords: Green Revolution, Land Reforms, G-Technology, Mechanization, Crop seed technology, etc.,

The study research paper highlights on need to corporate farming and production development wide spread destructive activity on earth democracy.

I. 1.0. Introduction:

Indian agriculture, which began around 11,000 years Before Present (BP) with the domestication of animals and early cultivation of plants, has made significant progress over the millennia. This found place in the ancient scripts of Vedas, Upanishadas, Ramayana and Mahabharata. Agriculture in India has been a complex mosaic of distinct agro-ecosystems, differentiated by climatic, soil, vegetation and other natural features, often heterogeneous, unorganized and subjected to vagaries from 'seed to market'. Historically, food shortage in pre-independent India caused serious impacts as agriculture was monsoon-dependent and unfavourable rains and natural calamities resulted in crop failures. India was at the very of mass famine in the beginning of 1960s because of its rapidly growing population. The food grain production, which was merely 51 million tons (Mt) in 1950/51 increased over 6 times to over 314 Mt in 2022. The country has also become the largest producer of milk, pulses and jute and second largest producer of rice, wheat, cotton, fruits and vegetables in the world. India is also one of the leading producers of spices, fish, poultry, livestock and plantation crops. However, Indian agriculture continues to battle several intimidating challenges of increasing productivity, profitability and resilience at the backdrop of increasing population, depleting natural resource base, aggravating climate change and reducing farm income. We are now reimagining the Indian agriculture and prioritized for enhancing farmers income (200%), reducing fertilizer use (25%) and water use (20%), increasing use of renewable energy (50%), reducing greenhouse gas emission intensity (45%) and rehabilitating degraded land of 26 million ha (Mha). In the 1960s, the rice yield in India was about two tonnes per hectare, by the mid-1990s they had raised to six tonnes per hectare. Norman Borlaug was invited to India and the Ford Foundation and Indian Government Collaborated to import Wheat Seed. Panjab was declared the test ground for the new crops by the Indian Government because of its reliable water supply and a history of agricultural success. Borlaug and Ford Foundation then implemented research there and they developed a new variety of rice, IR8 – a semi-dwarf rice variety developed by the International Rice Research Institute (IRRI) that produced more grain per plant when grown with irrigation and fertilizers. India thus began its own green revolution program of plant bleeding, irrigation development and financing agro-chemicals in the decades[2]. Every farmer in the world will tell you otherwise, that sustainability is about survival. Since the times of Neanderthal man, we have worked to sustain ourselves, the Human Race. We aim to sustain ourselves and everything else is a consequence of that action including sustainable agriculture practices to increase productivity and to maintain environment stability. In fact that agriculture is the most widespread destructive activity on earth, but we need to farm and increase agriculture productivity to feed a growing and demanding population. The Quality of future hinges on decisions of today[1]. Further, Rural transformation requires in health, education and skill development. It is underlined that there is a need to forge a link between the corporate world and the agriculture sector to speed up the development process in the rural areas and removal of poverty.In the 1970s, rice cost about $550 a ton, in 2011, it cost under $200 a ton. In 2009-10, India produced about 90 million tones of rice.

India shipped nearly 4.5 million tonnes in 2006. At present, India is one of the world's leading rice producers and IR-8 rice usage spread throughout Asia.

I.2.0 Corporate Governance:

The Department of public Enterprise (DPE) has recently issued a comprehensive "Guidelines on Corporate Social Responsibility for Central Public Sector enterprises. Corporate Social Responsibility (CSR) is a Company's commitment to operate in a economically, Socially and environmentally sustainable manner, while reorganizing the interests of stakeholders. CSR is closely linked with the practice of sustainable development[3].

CSR is a new initiative of Corporate Affairs Ministry to ask companies to contribute to society. Presently, after the enactment of the law as many as 15,000 out of the eight lakh companies will be required to make CSR spend equivalent to 2 *per cent* of their average net profits (before tax) in the last three financial years. Pilot said that the estimated annual spend on account of the new requirement would be about Rs.18,000 –Rs 20,000 crore[4].

ITC Ltd felt as a matter of pride to take initiative in rural India's largest internet based interventions, reaching out to some Quarter million farmers in two thousand villages through 460 choupals in the States of Madhya Pradesh, Karnataka and Andhra Pradesh[5].

I.3.0. Plant Technologies:

The crops developed during the green revolution were high yield varieties- meaning-they were domesticated plants bred specifically to respond to fertilizers and produce an increased amount of grain per acre planted. The terms often used with these plants that make them successful are harvest index, photosynthetic allocation and insensitivity today length. The harvest index refers to the above ground weight of the plant. During the green revolution, plants that had the largest seeds were selected to create the most production possible. After selectively breeding these plants, they evolved to all have the characteristic of larger seeds. These larger seeds then created more grain yield and a heavier above ground weight.

The larger above weight then led to an increased photosynthetic allocation. By maximizing the seed or food portion of the plant it was able to use photosynthesis more efficiently because the energy produced during the process went directly to the food portion of the plant. Finally, by selectively plants that were not sensitive today length, researchers like Borlaug were able to double a crop's production because the plants were not limited to certain areas of the globe based soley on the amount of light available to them.

I.4.0 Globalization and de-consumption:

The precarious living conditions of the 99 *per cent* has created a new class which Guy Standing, Professor of Economic Security, University of Bath, Calls "The precariat". If the industrial Revolution gave us the working class-the proletariat, globalization gave us the free market, "created" the new dangerous class of the precariat"- low wage workers, both migrants and locals, living on the edge of our modern global economy. It is often said that with increasing growth, India and China are replicating the resource- intensive, wasteful lifestyles of the western countries. The reality is that while a small group, three to four *per cent* of India, is joining the mad race for consuming the earth by acquiring more and more automobiles and air-conditioners, the large majority of India is being pushed into de-consumption-losing their basic entitlements like food, water and shelter, because of resource grab, land grab and

market grab. While forced austerity that helps the rich become super rich, and the powerful become totalitarian, voluntary simplicity enables us all to adjust ecologically, to reduce over consumption of the planets resources and create a path for economic adjustment based on justice and equity[6]. Diversified, liberal private and foreign investments were promoted and invited into India for removal of unemployment and poverty. (Annexure –I).

I.4.1 Gene Revolution:

Many Scientists think a new "Gene Revolution" can help both hungry humanity and the sensitive environment. The Gene Revolution uses biotechnology (BT) to create new genetically modified (GM) crops. These crops can potentially produce more food with fewer chemicals and higher nutritional value than traditional crops. Scientists think they can improve not only grains, but also the legumes, vegetables, roots, and fruits that people need for a balanced, nutritious diet. Genomics is the study of an organisms entire genetic instructions. Scientists earlier did 't know what in the tomato leaf repelled insects, with new learning's, scientists can transport DNA codes of unrelated species to get traits like disease resistance, faster growth, better flavor, nutrition, or longer shelf life. Now plant genomics is able to give plants beneficial traits and remove genes for safer food.

I.4.2. Pros and Cons of Genomics:

It is time that we should be more cost effective, resist pests, prosper under non-optimal conditions; at environmental friendly - reduce chemicals, reduce world hunger and poverty, savings in production and financial gain.

This process of combining inter-species genes (recombinant DNA, technology) does not have the checks and balances that are imposed by nature in traditional breeding without these, there is a risk of genetic instability. This means that no one can make any accurate predictions about the long term effects of GM food stuffs on human beings and the environment. Extensive testing in this regard is either very expensive or impractical, and there is still a great deal in genetics that scientists have properly understood.

I.4.3. BT Crops:

BT crop is a Genetically Modified Organism (GMO), which has been bio-engineered to resist the crop pest which causes significant damage to crops. Many nations plant BT corn, and this corn is in use in a variety of industries. In India BT Brinjal, Corn and Cotton are being tried. The general fear is about any adverse human health effects in the long run because scientists are trying to take advantage of toxins produced by select bacterium. The toxins, generally known as BT, ruptures the intestines of the organisms when it is ingested. The pests typically die within two to three days of ingesting the toxins.

GM Crops were regulated from the beginning. The safeguards requirement requires permits and testing for pests and herbicide- resistant crops and is researching the potential problem of super weeds and superbugs. The regulating agencies generally look at the "product, not process". It judges a plant's nutrients, not the process used to make it (genetic engineering). Companies must submit detailed safety information of field tests of GM crops to the regulating authority before introducing a new GM food oversees field tests of GM crops.

I.5.0 Slipshod treatment and low yields:

The fact is that till date our agriculture sector has been given a slipshod treatment. The Food and Agriculture Organisation (FAO) report reveals that India's yields of rice in the period 2003-2005 was 3,034 Kgs per hectare; China's was 6,233 Kgs per hectare during the same period. The same trend was seen in the productivity of other crops like wheat was 2688 Kg per hectare, while in China it was 4,155 Kg per hectare. In 2004, China's aggregated rice production was 186 million tones –way ahead of India's 124 million tonnes. That is not all. In 2009, in the international market, the per hectare crop-produce value for India was $914, compared to China's $2,780 and South Korea's $3,530.

In 2008, China employed 39.6 *per cent* of its people in agriculture, compared to India's 60 *per cent*. But South Korea employs only 7.2 *per cent* of its total workforce in agriculture. This is due to South Korea's committed adherence to incredible growth and its integration with hi-tech western economies and scientific methods since 1960s.

In 2002, India filed only 79 agricultural patents, compared to more than 4,500 filed by the Chinese in the same year, this Chinese figure increased to 9,300 in 2008, on the other hand, the Indian trend went down –hill with 74 patents in 2003; and further down to 63 in 2004. The FDI flow in agriculture for India has been just measly $1.42 billion between 2000 and 2011; this is quite paltry figure compared to China's $8,388 billion FDI inflow in the agriculture sector between 1999-2006[4].

I.6.0 Earth Democracy:

The 'green economy' agenda being pushed in the run up to Rio+20, or the Earth Summit, to be held in June, 20-23,2012 could well become the blue print for the biggest resource grab in history, with corporations appropriating the planet's green wealth and biodiversity. These corporations will take our green wealth to make "green oil" for bio-fuel, energy, plastics, chemicals- every thing that the petrochemicals era based on fuels gave us. Movements worldwide have started to say no to the "green economy" of the one *per cent*, because an ecological adjustment is possible and it is taking place. This adjustment involves seeing ourselves as part of the fragile ecological web, not outside and above it, and immune from the consequences of our actions.

Ecological adjustment requires an end to resource grab and privatization of our land; bio-diversity, seeds, water and atmosphere. It requires the recovery of the commons and the creation of earth democracy[8].

I.7.0 Small Farmer and Livelihood Security: A Case Study:

An integrated farming system assures livelihood security to a small farmer by integrating enterprise and resource utilization.

A dynamic farmer (C.N. Narayana Hebbar) at Bela village, Badiadka panchayath, Kasargod, Kerala has around 2 hectares of land. He developed the farm on a sloppy undulating terrain by successfully adopting suitable soil and water conservation methods such as stone pitched bench terracing, and digging rain water storage pits. He integrated high yielding, fodder grass varieties, vegetables, cocoa, bee keeping, vermicomposting, biogas plants etc. The change towards organic farming became possible through effective recycling of crop wastes to highly valued vermicompost by adopting vermicomposting technology developed by the Central Plantation Crop Research Institute (CPCRI), for which he got trained at KVK.

The dairy unit comprises 11 cows out of which five are in milking. The farmer sells around 75 litres of milk per day. The cattle shed is clean with rubber mats spread on the floor and milking is done by a milking machine.

Animal husbandry plays a crucial role in the overall sustainability of the system not only as the major source of income but also by improving the nutrient recycling and providing energy for household cooking purpose through two biogas plants. Biogas slurry is directly pumped to coconut, arecanut and fodder grass after ensuring proper dilution.

The average production from this system is 90 coconuts per tree per year, 1.7 Kg of dried arecanut per year, 1 Kg dried pepper per vine, 10 Kg banana per plant,1.5 tonnes of vermicompost, 75 Kg of honey, 110 tonnes of cow dung, 170 tonnes of fodder grass besides household consumption of biogas. The net returns from his farm of around two hectares area comes to about Rs.3.5 lakh per year.

This is self-sustained integrated farming system model where in 90 *per cent* of nutrient requirement is met though farm level processing of waste biomass produced in the farm itself, which is one of the basic principles of organic farming practices. Adequate irrigation facilities are provided[9].

In agriculture it is not possible to earn fast. It takes time and needs patience. But if farmers decide to rear animals like goats, sheep, turkey, guinea fowls and pigs, their income will come quicker[10].

Mrs.Puttiyamma, owns about 4 acres of land and is presently growing Rosemary in about half an acre. She was growing ragi and double beans and reaped only a minimum margin. Under MYRADA (Mysore Resettlement and Development Agency), Agency She was grown Rosemary earned Rs.40,000 per year in ½ an acre[11].

I.8.0 Large Integrated Projects: Public Private Partnership Model:

ITC, Nestle and Marico are among the 19 companies that have evinced interest in a new public- private partnership (PPP) initiative that the Government has planned to boost agriculture growth. The Centre has sought views of the States on a draft framework on PPP for integrated Agricultural Development (PPPIAD) plan under the Restriya Krishi Vikas Yojana (RKVY) for facilitating large scale integrated projects led by private sector firms. The draft has been jointly prepared by Ministry of Agriculture and the Federation of Indian Chambers of Commerce and Industry (FICCI).

Under the proposed plan Corporate will emerge as the single window for delivering all interventions to the farmers. Such interventions could range from delivering subsides and arranging credit to inputs such as seeds and fertilizers besides creating market linkages for the produce for which farmers will get market determined prices. The project will focus on high value produce such as horticulture, dairy, Poultry and fish products, which contribute to as much as 75 *per cent* of agri GDP value are favoured by small farmers. ITC is interested in taking up Paddy, Wheat, Maize, Menthe and Vegetable Cultivation in Bihar, Chillies and cumin in Andhra Pradesh, Tamilnadu and Rajasthan. Sriram Bio-seed is keen to focus on cotton and corn cultivation in A.P, Maharastra, Karnataka and Gujarat.

The project is a Collaborative effort between Government, farmers and corporates, which helps to achieve scale in production said Sanjeev-Chopra, Joint Secretary, Ministry of Agriculture.

The companies will have to identify the regions, formulate a strategy and road map based on the availability of land climate for each of the project that will be spread over three to five years. They have to mobilize a minimum of 5,000 farmers in each of the project either in groups or associations and chart strategy for technology infusion, value addition, marketing and project management among others. Pilots of such PPP projects are likely to start in 2012-13. Such projects will be independently monitored

by agencies like NABARD or others. The total projected cost of the 33 projects taken in 17 States currently stands at Rs.8,630 crore, involving some 6 lakh farmers. The proposed plan talks of a disputes redressal mechanism[12]. The Government of India has adopted a policy of having democratic participatory governance for her people ensuring participatory governance in promoting rural development activities. Several reforms have to be carried out in how we implement these schemes with Panchayat raj system. (Annexure –II).

I.9.0. Environmental Degradation and Farming:

Out of 329 million hectares –Geographical area, 144 million hectares land is under cultivation, in it 60 million hectares are under degradation. Under National waste land Development, out of 68.7 Million hectares were in forest, 37 Million hectares were in degradation. In total geographical area, 158 Million hectares were in barren. Much of rural farming was depending on forest based products such as fuel, grass, fruits, wood etc. Due to lack of wood from forests, farmers are using dung as dungcakes in fuel. With this organic farming was under threat and food grains output also under problem. As forest area is under declining, naturally floods were forming and bringing losses to life and property. For mitigating the floods and fuel, it is time to go for massive forestation. Under it also in planned way, fruit bearing plantation is to be developed like Neem, Tamarind, Mulberry, Subabul etc. Mini or Massive forests were always strengthened rural economy in generating income and employment, which is to be given top priority in 12th Five Year Plan (2012-2017)[13].

I.10. Conclusion:

India ranks second worldwide in farm outputs. As per the Indian economic survey 2020 -21, agriculture employed more than 50% of the Indian workforce and contributed 20.2% to the country's GDP. As agricultural productivity grows, food prices decrease, allowing people to spend less on food, and combatting hunger India, one of the world's most populous countries, has taken steps in the past decades to increase its land productivity.

The successful transformational narration of independent India, therefore, is incomplete without the narration of the agricultural transformation from ‘ship to mouth’ to ‘self-sufficiency and export’. The agricultural imperative and achievements of India has been appreciated globally. The book ‘Indian Agriculture after Independence’ narrates the journey of agriculture in the last 75 years of post-independent India. The progress of Indian agriculture has been quite impressive despite several limiting factors such as uncertainties of weather, declining soil health, increasing atmospheric temperature and emergence of virulent pest and pathogens. The transformation from an acutely foodscarce to food-exporting country could be realized with the concerted efforts by ICAR as frontal organization through development and dissemination of technology, building human capital and establishing the rural farm centres to serve the farmers.

In this book, we presented this challenging but successful journey of Indian agriculture. The Institute envisions that by 2050 Indian agriculture should transform itself from subsistence level of farming to commercial farming, input intensive to input responsive, carbon-negative (C-) to carbon-positive (C+), low-efficiency to high- efficiency, polluting to pollution-free, and climate-prone to climate-smart. The economic contribution of agriculture to India's GDP is steadily declining with the country's broad-based economic growth. Still, agriculture is demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of India. Farmers In several major ways,

cooperatives benefit farmers, Members and often nonmembers. Cooperatives enable farmers to own and control, on a democratic basis, business enterprises for procuring their supplies and services (inputs), and marketing their products (outputs). The total agriculture commodities export was US$3.50 billion in March - June 2020. India exported $38 billion worth of agricultural products in 2013, making it the seventh-largest agricultural exporter worldwide and the sixth largest net exporter. Most of its agriculture exports serve developing and least developed nations. Indian agricultural/horticultural and processed foods are exported to more than 120 countries. However, based on current trends and expert insights, here are some sectors with promising prospects for 2024. Technology: India's booming tech sector, fueled by digital adoption and government initiatives like 'Digital India,' offers significant opportunities Infrastructure HealthCare, Consumer Staples, Green Energy.

Annexure -1

Facilitate Private Investment in the Farm Sector

1. Encourage modernization
2. Removal of restrictions
3. Encouragement to contract farming
4. Incentives building of agriculture infrastructure
5. Improve access to farm credit
6. Encourage agri-Corporations
7. Liberalize exports
8. Recognize the private sector
9. Introduction of a single point GST
10. Encourage electronic and future exchanges

Source: Sanjay Kaul (2021) Agriculture, *Businessline*, March.9,p.8.

Annexure -2

Remedial Action Plan for Rural Development

1. Bharat Nirman for Rural Infrastructure.
2. MG National Rural Employment Guarantee Act
3. Backward Regions Grants Funds (BRGF)
4. Rastriya Krishi Vikas Yojana (RKVY)
5. Water Users Associations
6. National Agricultural Research System
7. Krishi Vikas Kendras (KVKs)
8. Agricultural Technology Management Agencies (ATMA)
9. Civil Society Organisations (CSOs)
10. Indian Council of Agricultural Research
11. Integrated Watershed Progremme
12. National Rainfed Areas Authority
13. Integrated Child Development Scheme
14. Mid-day Meal Programme
15. Non-Pesticidal Management (NMP).
16. System of Rice Intensification (SRI)
17. National Dairy Plan

18. National Fishery Development Board.
19. Self Help Group Federations
20. National Agricultural Insurance Scheme.
21. Pradhan Mantri Gramodaya Yojana
22. Indira Awas Yojana
23. Rural Housing
24. National Social Assistance Programmes (NSAP)
25. Pradhan Mantri Gram Sadak Yojana
26. National Rural Health Mission (NRHM)
27. Accelerated Rural Water Supply Programme (ARWSP)
28. Central Rural Sanitation Programme (CRSP)
29. Swarnajayanthi Gram Swarajgar Yojana (SGSY)
30. National Rural Livelihood Mission (NRLM)
31. Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY)
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33. Mahila Kisan Sashaktikaran Pariyojana (MKSP)
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