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TRANSFORMING INDIAN ECONOMY: CHALLENGES & OPPORTUNITIES

(An Overview of Changing Dynamics in Business, Economy & Society)

EDITORS
Arun Kumar Singla
Suraj Walia

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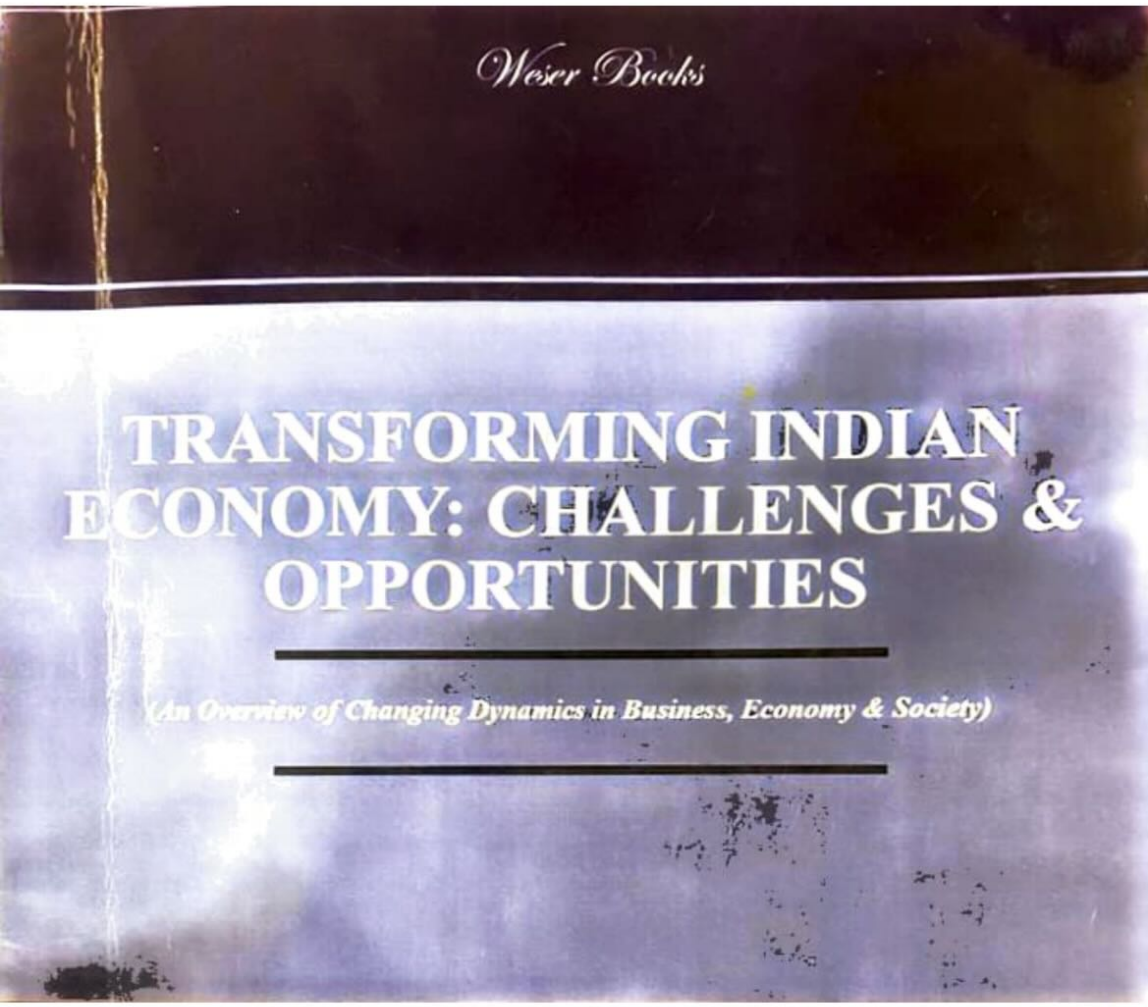

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GREEN, WHITE AND BLUE – PAVING THE WAY FOR NEW THIRD GREEN REVOLUTION – TRANSFORMING THE INDIAN ECONOMY

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ABSTRACT

With a population of about 50%, depending on agriculture as a means of occupation, India as a country, Should have not been facing the problems of food adequacy, poverty, and lack of basic food facility. Even after, a lot of renovations, policies, focusing on agriculture, India has not been able to solve the above stated issues. Comparing it with the developed nations, these nations using a relatively very smaller percentage of people in the profession of agriculture, usually less than 5%, are able to generate enough agricultural products and food that the problem of food shortage does not prevail in the developed nations. A series of events of renovation in Indian agriculture have given time to time push, needed to increase the agricultural production in the nation, starting with the first green revolution in the late 1960s, followed by the 20th century reservations such as organic farming, biotechnology, Diversification, crop protections , Financial and educational support to the farmers etc. this series of events and revolutions gave the much-needed push to the agriculture however the momentum of these revolutions gradually faded away. These revolutions were not able to create the effect as created by the white or evolution or the milk revolution that happened in India, making India the leading producer of milk across the world. For a country like India where agriculture is undoubtedly the backbone of the Indian economy and a means of livelihood for about 50% of population, the country needs another revolution and probably the last revolution that would Bring the intended progress in the field of agriculture-: quite similar to the progress of the milk revolution. This paper talks about, An aspect of the third revolution of agriculture, Which was missing in the first and the second green revolution of agriculture and is probably The most essential part of agricultural marketing and improvement in quality and quantity of agricultural production of India

Key Words: *Agriculture, Revolution, Production, HYV seeds, Technology*

The term Green Revolution very popularly refers to the corrections and renovations in agricultural practises that began in Mexico in the early 1940s. These renovations and new practises that were adopted in Mexico proved highly successful and eventually spread to the rest of the world in the periods of 1950 and 1960s. Norman Borlaug, often attributed to the beginning of this renovation procedure of agriculture started conducting his researches in Mexico and received the recognition for Developing the high yielding variety of seeds or what we call today, HYV seeds. By combining the use of the seeds with modern technology a huge push in the agricultural production was brought and this push came to be known as the Green Revolution. Borlaug and the Ford foundation team brought the Green Revolution to India during the period of later 1960s in the third yearly plan of India

THE NEW AGRICULTURAL STRATEGY: THE BEGINNING OF THE FIRST GREEN REVOLUTION IN INDIA

In 1960s the Ford foundation team after conducting a survey in India, launched to report ' India's crisis of food and steps to meet it '. Initially seven Indians states implemented the new agricultural strategy in seven districts and this new agricultural strategy came to be known as the intensive area development programme for those seven districts. It was only later on that this intensive area development program was expanded to Rest of the states of the nation .The main aim of this new agricultural strategy was to eventually bring about Green Revolution in India and bring about the same impact as it was brought in Mexico.

The strategy focused on four main areas of area development

- Innovations
- Infrastructure
- Institution
- Incentives

The major provisions of the strategy was implementation of ideas such as

- Consolidation of small landholdings so that use of modern technology can be made ... holdings
- Improvement of the variety of seeds or introduction of the HYV seeds
- extension of irrigation facilities and provision of constant water in the fields and not depe... the monsoon season for irrigation
- Introduction of modern technology and modern machinery that would increase the yield of ... use of better technologies that would increase the productivity And decrease the dependen... labour
- Ensuring guaranteed minimum prices to the farmers in case their product goes unsold ... giving them an incentive to carry on productions and cultivation Effectively
- Speedy spread of public institutions that strengthen the agricultural practises, incentive ... among the farmers, better administration and a conducive environment of growth.
- Introduction of plant protection schemes such as herbicides and pesticides that would pre... farmers due to pest infestation And help in providing better quality of agricultural produc...
- Development of good markets and infrastructures that would lead to markets so that the... effectively able to sell the products he produces in his fields

THE FIRST GREEN REVOLUTION

After the implementation of the intensive agricultural development programme, the path to ... Revolution was paved. Under the key leadership of MS Swaminathan in India, in the later 196... adoption of intensive agricultural development Programme of the Ford foundation team, India sa... increase in the production of food grains. This extensive increase in production came to be known a... green revolution of India.

There was a phenomenal increase in the production of agricultural crops mainly the food grains as ... the green revolution that took place in India, it wouldn't be wrong if you call it grain revolution

Year	Production in million tonnes
1960-61	82
1970-71	108.4
1990-91	176

Source: Economic Survey, agricultural statistics at a glance, 2011)

The table given clearly depicts, the tremendous increase that India saw in the production of food ... result of the implementation of the new agricultural policies or Green Revolution

This tremendous increase in the production of food grains because of green Revolution brought ... prosperity and progress in the lives of the farmers yielding a much higher income to them .Also th... the standard of living of the marginal farmers as they were able to increase the productio... implementation of the latest techniques. What we also saw during the first green revolution is capita... a farming where the big farmers who had more than 10 hectare of land were able to get the maxim... from the Green Revolution by investing huge amounts of money in the new inputs like HYV se... machineries, and improved fertilisers. They were able to make the maximum advantage out o... revolution because of better resources available to them

Not only the agricultural sector of India saw a push because of the Green Revolution, but also the industrial sector, saw growth because of increasing input demands from the agricultural sector such as the industrial sector saw high demands for tractors, harvesters, diesel engines, electrical motors . Pumping machines, fertilisers, chemicals etc

Along with the agricultural sector, the industrial sector also began to develop and saw a steady growth

Another aspect of the first Green Revolution that cannot be left without mention is certainly- the huge reduction in imports of food grains that India saw because of this revolution or renovation of the agriculture. With huge increase in the production of food grains, the country saw a reduction in imports making the nation self sufficient and improving the balance of payment conditions of India.

Despite such huge benefits that the first green revolution brought to the nation, the nation urged for a second green revolution which was eventually brought about . It would be apt to say that along with the huge amount of benefits the first green revolution also brought about few drawbacks to the Indian economy and Indian agriculture. Over time, the nation realised, that the original means that were adopted by the first green revolution were getting depleted with the passage of time and the need to correct the shortcoming or the nays of the first green revolution was eventually realised

WHAT DID THE FIRST GREEN REVOLUTION LACK?

The early 20th century, saw a steep increase in the population. The first green revolution Was not perceived strong enough To give the needed push To the Indian agriculture that would be required to feed the massively increasing population of India.

A very major concern that arose with the First Green Revolution was its limited coverage that it extended to only the top states of the nations And the states or the districts with less resourceful farmers, remained more or less unaffected by green revolution. According to the data quoted by Agricultural statistics at a glance, (1985), the first green revolution was only able to extend the use of high yielding variety of seeds to mere 30% of the area of the nation, this accounted for only 51.2 million hectares of land.

The inequality created by the first Green Revolution wasn't only limited to this, the effect of the first green revolution showed an inequality amongst the type of crops as well. It wouldn't be wrong to say that the first green revolution was primarily felt only in the food grains .Amongst food grains: wheat, rice, jowar, bajra, maize gained from the first green revolution, But it was the production of wheat and rice which was benefited the most. Rice and wheat being amongst the top two gainers of the first green revolution, saw a huge increase in the production and there was a surplus of production many a times of wheat and rice. It wouldn't be wrong to say that the first green revolution created a lopsided effect, benefiting few – large farmers and only a few crops.

The list of inequality created by the first green revolution doesn't end over here. The region wise or what we say interstate disparities created by the first green revolution Was a major cause that called for a new or second green revolution. There were few areas or few states that the first Green Revolution benefited largely: Punjab, Haryana, Uttar Pradesh, North and Andhra Pradesh, Tamil Nadu. Then we have the areas which were hardly touched by the first green revolution namely Assam, Bihar, West Bengal, The eastern region, the south most region.

Year		
1962-1982	Area	% agricultural growth rate
	North	3.3
	East	1.3

Source: Economic and political weekly, 2009)

Another very huge drawback of the first green revolution that came in the forefront is the environmental issues that were caused because of the first green revolution and the excessive use of chemical fertilisers, pesticides, herbicides, which the first green revolution, heavily encouraged. Imbalance in the nutrient status of Soil, caused significant deficiencies of the essential nutrients in the soil. Disturbing the soil textures and the physiochemical properties of the soil. This led to the environmental degradation and soil degradation to a large extent, paving the way for the second green revolution in India.

THE SECOND GREEN REVOLUTION

With time it was eventually realised that the first green revolution didn't prove to be a sustain environmentally viable method of increasing the production. Consequently the government of India in a new agricultural policy, taking several steps way forward in the field of agriculture to bring about green revolution or popularly known as the evergreen revolution. The focus area of the second green re lies in the field of organic farming, Biotechnology revolutions, development and researches in the f agriculture and increasing the number of alternatives and choices in the field of agriculture. It aims to a smart agricultural policy which would have customer care services, information provision services to educated farmers, guidance programme for the agriculturalists and Climate and disaster resilient schemes

- Organic farming: it is being largely promoted by the government of India to go organic, primarily the cultivation of the land and raising the crops in a way that the fertility of the soil is not de mainly by promoting maximum use of organic waste and bio fertilisers. This would prove to be friendly way and environment friendly solution to increasing the productivity of the soil.

  A large number of schemes such as the Indo Israel agriculture cooperation agriculture plan project on organic farming. The horticulture Mission for the north-east and himalayan states h been launched by the government of India to give a push to the segment

- The National Mission for sustainable agriculture: was launched in order to adapt to the risk ass with the climate change and agricultural practises, devising and making use of appropriate m strategies .This mission aims to transform the Indian agriculture and making it climate resilient agricultural production does not fluctuate with the fluctuations in climate. It aims on develope infrastructure, promotion of dryland farming and agriculture, developing drought resilient crops et

- The National Food Security Mission: was mainly launched to correct the lop sided increase in pro caused by the first green revolution and for fulfilling the food needs of the increasing populat mission laid Goals and targets in order to bring about a huge increase in the production of rice pulses, cereals, commercial crops. Unlike the first green revolution it covered almost all the categ the crops.

- Integrated Pest Management Scheme: again the scheme was launched as a corrective measur environmental degradation caused by other harmful pesticides used in the first green revolut integrated pest management scheme adopts to the use of environmentally friendly and humar friendly fertilisers, herbicides and pesticides in order to minimise the health related hazards

- Integrated Scheme for oilseeds, pulses, palm, maize: To correct the lop sided effect of the firs Revolution , which focused on development of mainly wheat and rice, the government of India la the integrated scheme for the oilseeds pulses palm and maize in 2004. The scheme p diversification of crops and provides a focused approach by giving the needed financial assis seeds, needed chemicals, expertise, technology to the states required for the production of these c

- In the budget of 2014, a large number of steps were taken to bring about the necessity push to the agriculture that the first green revolution could not.

- A price stabilisation fund of Rs.500 crore was launched to compensate the farmers in case of ag losses

- The Pradhan Mantri Krishi Sinchayee Yojana issued the provision of irrigation facilities to the assuring them a decline in the dependence on monsoon for irrigation

- Kisan Vikas Patrawas reintroduced in order to encourage the people to invest in a savings sch would double the money invested in a span of eight years, seven months. It would help in farmers with the banking system of the nation, an aspect which was left out by the first green re

Third GreenRrevolution: a revolution of White, Green, Blue.

producer. Then we saw the Green Revolution, but in this aspect we all realise that the result of this revolution hasn't been the same as in case of white revolution and India still lags behind in the field of agriculture, Seeing a large number of people still remained in this vicious circle of poverty, have minimum access to food and the agricultural practises are still traditional. The Indian agriculture has still not reached its full potential and at this present time all India needs is, a third revolution of agriculture or revolution of Blue or Cool (cold storage)

India has seen the White Revolution in the milk sector, in which India emerged as an absolute winner, becoming the worlds largest producer of milk. The first and second green revolution in India gave the required push to the Indian agriculture sector however a lot needs to be achieved in this segment.

The way to achieve the full potential of the green Revolution is bringing about the blue or cold storage revolution (the third revolution) A chain of cold storage connecting cold storage farms with the cities and thus giving the small farmers a chance to develop their agricultural business and earning a higher income. The idea of the third revolution came forth and was well narrated in the Prime Minister Modi's Target of doubling the income of the farmers by end of 2022

PM Modi led enough stress on developing the cold chain storage. IIR presented an estimate which lays forth us How essential this third green revolution is. According to this data it was estimated that if the Developing countries like India started using the same level of cold storage like the developed nations, it would save around 200,000,000 tonnes of food and this would increase 14% of food supply, solving the problem of acute food shortage prevalent in the developing nations like India.

India's cold storage infrastructure shows shocking numbers which depict a pressing need to bring about this revolution.

- The country has less than 16% of cold storage trucks than the actual amount it needs
- Less than 1% of packaging houses which is the first and the vital most stage of cold storage transportation
- Cold storage infrastructure of India is as less as 6% compare to the 70% of a developed nation like UK
- Taking example of India, it is evaluated and estimated that almost 40% of the harvest of the farms is lost between transportation from farms to the market. Clearly this is the reason why the Indian farmers are poor and caught in the vicious circle of poverty: they are using their income because of lack of cold storage infrastructure and transportation facility.
- The lack of cold storage or cold chain is the missing link in the Indian agriculture between the farmers and the market and this link is causing a huge discussion in the Indian agriculture And not bringing about as successful results as in case of the milk revolution
- Not only income side of the economy is affected because of lack of cold storage, there is a huge negative impact on the agricultural products quality
- For the perishable agricultural items, when A former uses the available cold storage facilities and transportation, He pays a very high price for the limited cold storage services available Which eventually raises the price of the agricultural commodities and is inflationary.

The example of the white revolution should be put into use over here where the Amul dairy cooperative became the driving force using collaborative farming techniques and adapting clean and cold storage techniques to make India the top producer of milk. It was only because of the fact that new technologies were clubbed with cold storage and cold chain transportation to expand the production of perishable commodities like milk, the India saw huge success of white revolution.

To meet the challenge of food security in India a combination of, the teachings of the White Revolution, the Green Revolution and the blue or cool revolution needs to be brought about, Where we must continue to develop and enhance cold technologies In the field of agriculture, and milk production both in order to exaggerate the production of agricultural commodities in our country and ensure food security To the continuously growing population of India. The third green revolution should eventually be linking the white the green technologies which are regionally, socially and culturally inclusive .

Designed to bring about commercial expansions and enhanced income to the farmers, eventually making country self-sufficient.

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