Food Security in India: Issues and Challenges

Vijay Singh

Research Scholar, Department of Public Administration, H.P. University, Shimla

Abstract

Food security is one of the most important and burning issue not only in India but overall in the world. But it is a big problem especially for developing countries. We cannot survive with sufficient and healthy food. The problem of quality and quantity of food has to be considered. For tackling the food problem of mankind, availability of cereals which the staple food for a large portion of mankind, can be taken as good indicator for quantity food, whereas calories and proteins can be taken as good indicator for the quality of food. Population growth is increasing day by day. So the food problem is also increasing parallel. The present study focused on the need of food and challenges in the way of overcoming food crises. The government of India has launched a big scheme Right to Food (National Food Security Act-2013) in this regard. It is in its initial stage. This scheme will assures food to 67 percent of the people in the country who are likely to suffer food deprivation.

Key words: - food security, issues, problem, challenges,

Introduction

Food, clothing, shelter and public health are basic needs of human life but first and primary need in human life is food without which he cannot exist. Ever since his first appearance, millions of years ago, man has been exploiting the basic resources for producing more and more food. He has been inventing different techniques to increase food production. In spite of above continued efforts, enough food is not available for mankind in several regions of the world. The population of world as well as India is increasing day by day. The population of India is more than 125 crores. 59.7 percent of the working population of India depends on agriculture. Hunger is the main problem in our country. Even in 21st century we are fighting for food. More than 80 crores people of our country are below poverty line. In such a condition it becomes very important to frame the proper policies to overcome the food crises in India. Ensuring food security ought to be an issue of great importance for a country like India where more than one-third of the population is estimated to be absolutely poor and one-half of all children malnourished in one way or another. There have been many emerging issues in the context of food security in India in the last two decades. Economic liberalization in the 1990s and its impact on agriculture and food security is the turning points in Indian economy.

Food security

The Rome Declaration on World Food Security and the World Food Summit Plan of Action, convened by the United Nations Food and Agriculture Organization, resolved that "food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."

The Global Harvest Initiative (GHI) believes that doubling agricultural productivity and improving food systems are integral to achieving global food and nutrition security. Each year, GHI releases the Global Agricultural Productivity Report (GAP Report) to serve as a benchmark for monitoring agricultural productivity growth. The GAP Report® is updated annually to mark the progress made toward sustainably doubling agricultural output to meet the 2050 demand for food, fiber, fuel and other agricultural products. The GAP Report® also highlights key policies required to encourage more investment and innovation, and to build efficient, sustainable agricultural value chains.

Feeding the world in 2050 when our global population is expected to reach over 9 billion is one of the most daunting challenges of our time. In the face of climate change, and with scarce land and water resources, we must rapidly address this challenge and lay in place the right frameworks to boost food production and freeze the environmental footprint of agriculture all along the food value chain. We must also unlock the potential of millions of small producers who could be part of the solution to feed the planet.

The Global Harvest Initiative (GHI) and its consultative partners take a holistic approach to increasing agricultural productivity worldwide in order to meet food security needs and respond to significant systemic factors, including urban and population growth, changing demand for food, climate change, and, ultimately, a rapidly developing, more interconnected global agricultural market. Increasing agricultural productivity essentially means growing more while using less land, water, energy, labor, and other inputs. To meet the demands of a growing world and changing diets, we must foster an appropriate policy enabling environment and harness innovation and technology to create sustainable food systems.

GHI's five areas of policy focus, investing in agricultural research and development, enhancing private sector involvement, embracing science- and information-based technology, strengthening and streamlining development assistance programs, and improving regional and global trade, are all critical, closely connected elements of closing the productivity gap.

Trade is an integral aspect of increased productivity and food security. All farmers, regardless of size, will only produce more when they see an available market. These decisions are no longer as local as they once were. With agricultural value chains becoming more complex, actions taken in far off capitals, and regional and international institutions as well, will have an impact on the rural small farmer more than ever before. The laws and regulations governing the different aspects of value chain development, many of which are part of trade agreements and institutions, also directly tie into market opportunity and productivity.

The potential gains associated with increased trade and easier movement of goods and services are becoming increasingly clear. Trade has now become a significant component of food security efforts and the broader agricultural development agenda. As the following paper will illustrate, fully unlocking the power of trade to deliver development and food security benefits will require a deeper dive into the particular issues that are necessary for spurring innovation and opening up value chains. Lowering tariff and non-tariff barriers to trade will continue to be a priority, as will approaching the rules and regulations around agriculture in a holistic, market-driven way.

A strong enabling environment-with transparent and well-implemented laws, regulations, and trade policy is central to value chain development. One of the biggest challenges in creating this enabling environment will be closing the gap between the system on the books and the realities in the market. This applies to domestic and regional laws and regulations, implementation of trade agreements, and transparent regulatory systems alike.

There are positive developments taking place at the intersection of trade, agriculture, and food security, but trade needs to be further integrated and better used as a tool for market development and productivity enhancement. In order to open markets effectively and to the benefit of all, innovation from both the public and private sectors will be increasingly important, as will creative and practical ways to combine the two.

Targeted Public Distribution System (TPDS)

The Targeted PDS (TPDS) was introduced in 1997 and under this scheme special cards were issued to families below poverty line (BPL) and food grains were distributed at a lower price for these families compared to those above the poverty line (known as APL families). The entire population was divided into three categories - BPL (Below Poverty Line), APL (Above Poverty Line) and AAY (Antyodaya Anna Yojana). The BPL population is provided 35 kg of food grains per month at subsidized price. AAY, the destitute households (part of BPL

households) are provided a monthly provision of 35 kg of food grains at specially subsidized rates (Rs. 2 per kg for wheat and Rs. 3 for rice). About 25 million (38 per cent of BPL) people have been covered under AAY. The central government allocates food grains to different states of India based on poverty ratios. According to the central government there are around 65 million poor households in the country. States in turn distribute food grains based on the BPL list. Targeting is done by states based on 13 non-income indicators to select BPL population. If we add together the households on the states' BPL lists, there are 100 million poor households. There is competitive populism to include more households in the BPL list. TPDS is subsidized by the central government and to some extent by state governments. The total subsidy for TPDS is distributed as follows: 18 per cent for APL, 46 per cent for BPL and 36 per cent for AAY households.

The Public Distribution System (PDS) is one of the instruments for improving food security at the household level in India. The PDS ensures availability of essential commodities like rice, wheat, edible oils, and kerosene to the consumers through a network of outlets or fair price shops. These commodities are supplied at below market prices to consumers. With a network of about 500000 fair price shops (FPS) distributing commodities worth more than Rs. 300 billion annually to about 160 million families, the PDS in India is perhaps the largest distribution network of its kind in the world. The PDS evolved as an important instrument of government policy for management of scarcity and for distribution of food grains at affordable prices. Supplemental in nature, the scheme is not intended to make available the entire requirements of food grains of the households.

But the main problem of TPDS is its inability to reach to the targeted groups in most parts of the country. The geographical condition of our country is also a big problem. Most of the population in India resides in rural areas. Many times it is found that the supply of food grains is not frequently. Poor people are not getting proper benefits of the scheme. Most of the interior areas of the country are facing quality problem of the food. Low quality of food grains is supplied. Inefficiency of Food Corporation of India (FCI), political interference, corruption, lack of proper inspection mechanism of entitlements, leakage of food grain, and unavailability of Fair Price Shops are also some of the very important problems in the way of TPDS.

There seem to be some improvements in the functioning of PDS. These are: higher procurement, higher off-take, larger coverage, improved distribution, and lower diversion. There is need for certain reforms in procurement and distribution for better functioning of TPDS. These are: (i) decentralization of procurement and distribution (ii) involving Panchayats in PDS; (iii) streamlining FCI and involvement of private sector farmers' cooperatives in procurement and distribution; (iv) viability

of FPSs, giving them higher margin, making monitoring compulsory; (v) computerization of records for cross-checking, opening of grievance cells, and strengthening the role of Panchayats and NGOs; (vi) devising an appropriate criterion for selection and strict enforcement of the criterion; (vii) punishment system for the defaulters; and (viii) transparency and accountability at ground level.

Bellow Poverty Line (BPL) and Above Poverty Line (APL)

Households having BPL ration cards are issued 35 kg of rice and wheat for Rs. 5.65 and Rs. 4.15 per kg. Last year the planning commission calculated India's poverty line for cities at Rs. 28.65 per day. The Antayodaya Ann Yojana was launched in December 2000 and it provides 35 kg of grains at heavily subsidized prices to the poorest among the BPL families. 25 kg of wheat is given at Rs. 2 per kg while 10 kg of rice is provided for Rs. 3 per kg per month. Households not covered under the BPL and Antayodaya Ann Yojana are eligible to get 35 kg of grains rice at Rs. 8.3 per kg and wheat at Rs. 6.10 per kg.

Mid-Day Meal Scheme

It involves provision for free lunch on working days for children in Primary and Upper Primary Classes in Government, Government Aided, Local Body, Education Guarantee Scheme and Alternate Innovation Education Centres and Madarasa and Maqtabas supported under Sarva Shiksha Abhian and National Child Labour Project Schools run by Ministry of Labour. The primary objective of the scheme is to provide hot cooked meal to children of primary and upper primary classes. With other objectives of improving nutritional status of children, encouraging poor children, belonging to disadvantaged sections, to attend school more regularly and help them concentrate on classroom activities, thereby increasing the enrolment, retention and attendance rates.

Food Security Bill-2013

Government of India has passed a Food Security Bill-2013, which gives right to subsidised grains to two-thirds of India's 1.2 billion population numbering around 800 million, the largest such scheme anywhere in the world. It includes 67 percent population of the country. The bill costing Rs. 124,723 crore to the government initially will bring an additional burden of Rs. 23,800 crore. The bill specially focuses on nutritional support to poorest of the poor, women and children. In case of non-supply of food grains the people will get Food Security Allowance. The bill provides for grievance redressal mechanism and penalty for non compliance by public servant or authority. Up to 75 percent of the rural population and up to 50 percent of the urban population will have uniform entitlement of 5 kg food grains per month at highly subsidized prices of Rs. 3, Rs. 2 and Rs. 1 per kg of rice, wheat and coarse grains respectively. It will entitled about

two third of our 1.2 billion population to subsidized food grains under the Targeted Public Distribution System. The poorest of poor households would continue to receive 35 kg food grains per household per month under Antodaya Anna Yojana at subsidized prices of Rs. 3, Rs. 2 and Rs. 1. It also proposed to protect the existing allocation of food grains to the states/UTs, which may frame their own criteria or use social economic and caste census data, if they so desire. Eldest woman of eighteen years of age or above will be head of the household for issue of ration card and if not available, the eldest male member is to be the head of the household. At the proposed coverage of entitlement, total estimated annual food grains requirement is 612.3 lakh tons and corresponding estimated food subsidy for 2013-2014 costs is about Rs. 1,24,274 crore.

Challenges for Food Security

Security is one of the major challenges confronting the world today. Food security is inherently interlinked with other current global challenges of economy and climate change. Food security is said to exist when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. The question of food security will remain a worldwide concern for many years at global level. There has been no significant jump in crop yield in many areas stressing the need for higher investments in research and infrastructure, as well as addressing the issue of water scarcity. Climate change and global warming is a crucial factor affecting food security in many regions of the world including India. The most important thing one has to keep in mind is that some of the technologies relating to crop production which were found to be innovative and quite relevant in the vesteryears might need refinement in the present context as far as food security is concerned. Higher use of chemical fertilizers and pesticides was recommended earlier to attain the higher food grain production. However, after realizing the potential ecological hazards caused by them, we slowly started advocating controlled use of fertilizers and pesticides. The concepts of integrated nutrient management and integrated pest management have attained significance in the context of sustaining soil fertility and environmental protection. However, the realization of crop yields may take longer under these sustainable agricultural technologies. Hence, to ensure food security, the following challenges have to be addressed -

Land Degradation

Intensive farming often leads to a vicious cycle of exhaustion of soil fertility and decline of agricultural yields. Approximately 40% of the world's agricultural land is seriously degraded. In Africa, if current trends of soil degradation continue

the continent might be able to feed just 25% of its population by 2025, according to UNU's Ghana-based Institute for Natural Resources in Africa.

Land Deals

Cross-border land deals are increasing. The South Korean firm Daewoo Logistics has secured a large piece of farmland in Madagascar to grow maize and crops for biofuels. Libya has secured 250,000 hectares of Ukrainian farmland, and China has begun to explore land deals in Southeast Asia. Oil-rich Arab investors, including the sovereign wealth funds, are looking into Sudan, Ethiopia, Ukraine, Kazakhstan, Pakistan, Cambodia and Thailand. Some countries are using the acquisition of land for agriculture in return for other gains. Egypt is seeking land acquisition in Ukraine in exchange for access to its natural gas. Qatar has plans to lease 40,000 hectares of agricultural land along Kenya's coast to grow fruit and vegetables, in return for building a £2.4 billion port close to the Indian Ocean tourist island of Lamu.

Agricultural Diseases

Diseases affecting livestock or crops can have devastating effects on food availability especially if there are no contingency plans in place. For example, Ug99, a lineage of wheat stem rust which can cause up to 100% crop losses, is present in wheat fields in several countries in Africa and the Middle East and is predicted to spread rapidly through these regions and possibly further afield, potentially causing a wheat production disaster that would affect food security worldwide. The genetic diversity of the crop wild relatives of wheat can be used to improve modern varieties to be more resistant to rust. In their centers of origin wild wheat plants are screened for resistance to rust, then their genetic information is studied and finally wild plants and modern varieties are crossed through means of modern plant breeding in order to transfer the resistance genes from the wild plants to the modern varieties.

Crop Diversification

In the successive years of green revolution when food security was fulfilled at national level due to stupendous efforts of ICAR, the emphasis of agricultural scientists has been put on implementation of crop diversification. This was advocated to the farmers for two main reasons. First, the prices of food grains like rice and wheat were not encouraging and farmers ended up with very low net returns even during years of bumper production. By concentrating on other crops like cotton, chilli and sunflower the farmers were encouraged to earn higher profits. Second, the productivity of rice and wheat was poor in some regions like uplands and dry lands due to high moisture stress sensitivity of these crops. Hence by encouraging farmers to diversify to oil seeds and pulse crops and high value medicinal plants which require less quantity of irrigation compared to that of field

crops, they would certainly get higher profits. The trend of temporal change in area share of the crops in India revealed that the area under cereals has been found to be declined from 56.53 in 1991 to 51.74 in 2008. Similarly, the area under pulses has also come down from 23.74 in 1991 to 22.77 in 2008 making the area. The need of the hour is to prioritize the preferential crops that suit well under each agroclimatic region of the country so that higher net returns can be achieved by the farming community through crop diversification. The options for combining crop component with animal component such as integrated rice-fish farming may be explored which would result in additional net returns to the farmers without affecting the food security.

Bio-Fuel and Medicinal Plant Cultivation

One of the main reasons for food security crisis at global level is the diversion of agricultural lands that were used for cultivating maize and wheat to bio-fuel and medicinal plants in the United States and other European, Asian and African countries. The recent preference for cultivation of sugarcane and other field crops for production of ethanol is certainly considered to be a big challenge for the food security of the world. At the same time, there has been considerable increase in cultivated area of medicinal plants like amla, ashwagandha, sarpagandha and bio-fuel crops like jatropha witnessed in India in the recent years.

Climate Change

Food security is severely influenced by climate change. The changing climate will influence the food grain production in different ways. For example, the temporal and spatial variations in precipitation including rainfall may result in deficit moisture stress, i.e. drought or excess moisture stress condition, i.e. flooding. Similarly, extreme high or low temperatures result in variations in the length of crop growing season. These factors would also affect the crop productivity and farm net income and hence climate resilient agricultural practices have to be promoted. This is applicable to all the nations, including India. Understanding the impact of climate change on Indian agriculture is quite complex as several factors are involved in this phenomenon. For example, the negative effect of global warming on crop productivity in India may be compensated by carbon fertilization to some extent. Several researchers conducted studies on the interrelationship between climate change and food security in relation to impacts of climate change on crop productivity, food production and socio-economic aspects.

It is already established that some factors of climate such as increased carbon dioxide level would play a positive role in enhancing crop productivity. However, the crop productivity would be negatively influenced by changes caused by extreme variation in temperature and nutrient interactions and higher rate of natural

disasters such as floods and droughts. The fourth assessment report (AR4) of The International Panel on Climate Change predicted an increase in global temperature by 2-6°C by the year 2100 which is alarming. The expected crop yield due to climate change can also be predicted over a period of time through modeling. The changing climate affects food security at the global level as it brings remarkable changes in land utilization pattern and water resource availability. At the same time, increased human interference may fasten the changes. It was reported that ever increasing human population coupled with their changing dietary preferences significantly increased global demand for food and thereby generating tremendous pressure on native vegetation and ecosystems. India also faces a similar grim situation in tackling the issues related to food security and policies related to globalization further affected the environmental health stressing the need for regulation of the same. Though climate change related agricultural research has been focused on assessing the response of various growth parameters of crops due to specific changes in climate, accurate analysis of food security indicators could not be achieved which reflects the vulnerability of food systems to global climate change. There is an urgent need to address the food security concerns that are central to economic and sustainable development issues in both India and the other nations which is possible by integrating bio-physical and socio-economic aspects of food systems.

Global Water Crises

Because of tightening supply and rapid expansion in demand, freshwater is expected to emerge as a key constraint to future agricultural growth and food security. Globally, the demand for water has grown annually by 2.4 percent. About 20 percent of the globally cultivated area is irrigated, utilizing an estimated 70 percent of the global water use and accounts for nearly 40 percent of the total food production. Only 10 percent of the water is used in homes and 20 percent by the industry. Gross water demand for all users in India is expected to grow up from 750 BCM in 2000 to 1027 BCM by 2025. The gross water demand by irrigation sector alone is estimated to be 730 BCM by 2025. The total water received annually in India is about 4400 cubic meter, from precipitation and inflowing rivers which originate outside the country. India's share of water at the global level is about 4.2 percent. Currently, only 29 percent of the total precipitation is conserved and wateruse efficiency seldom exceeds 40 percent. India has 143 million ha of arable area, of which 63 million ha is irrigated. About half of the irrigated area in our country receives water through exploitation of groundwater. The number of countries experiencing water stress is expected to by 2050, including India by 2025 with a total population of three billion people. Among the developing countries, India is

projected to have the largest absolute increase in water withdrawals between 1995 and 2020. Total annual renewable freshwater available in India has been assessed as 2085 BCM. Per capita water availability in India is expected to go below the water scarce threshold level of 1700 cubic meter within the next two decades. Hence, the mismatch between the expanding demand for and supply of water emerging and spreading steadily over space and time will have serious implications for meeting the food production growth targets and food security in India. Efforts must be made to strike an optimum balance between the demand and supply of water resources for ensuring food security in India.

Production of High Yielding Varieties: Need for Higher Momentum

The challenge of food grain production is generation of sufficient number of new varieties of field crops with threshold potential in changing climate scenario. Several varieties of rice and wheat were released, but still exists a gap between the yield obtained through these genotypes and their field level performance. One of the main issues might be the genetic potential exploitation has attained saturation according to the climatic and geographic conditions that existed in India. For some crops like rice, the hybrid varieties developed resulted in yield jump but the magnitude has not been achieved like the scenario in China. The poor harvest index of pulses and oil seeds also remains a challenge to the plant breeding programmes. In some of the problematic soils, the varieties with full yield potential in normal situation cannot fit well resulting in poor crop productivity. This situation has to be corrected by employing modern biotechnology techniques. In several regions of India, farmers are not able to get information about the availability of new and improved varieties and some are not having access to quality seeds of these varieties, resulting in lesser yields. This situation has to be corrected by developing a national-level network to monitor and coordinate the activities with the various State Government and Central Government functionaries working in the area of crop production.

Agricultural Pricing and Crop Insurance Issues

The farmers in India face severe problem in marketing their crop produce after harvest due to lack of remunerative prices for the end-products. Several times, the farmers are forced to opt for distress sale leaving them in a vulnerable condition due to poor market prices. It is really unfortunate to find some section of farmers' vulnerability to higher cost of cultivation accompanied by the unreasonable market prices. The situation is alarming in case of pulses like black gram, green gram and red gram, and commercial crops like cotton, tobacco and chilli. Globalization has brought openness in trade, but it could not ensure better market prices. Hence there is a need to regulate the agricultural marketing policy for the welfare of the

farming community, which in turn would facilitate food security in India. The Commission for Agricultural Costs and Prices (CACP) may decide the policy related to market prices of crops in India, in a manner which would fetch better returns to the farmers.

CACP presently determines the level of minimum support prices of different agricultural crops by taking into consideration factors like cost of production, changes in input prices, input-output price parity, trends in market prices, demand and supply, inter-crop price parity, effect on industrial cost structure, effect on cost of living, effect on general price level, international price situation, parity between prices paid and prices received by the farmers and effect on issue prices and implications for subsidy. In this context, it is heartening to note that the minimum support price for cereals like rice and wheat, and pulses like black gram and green gram has been enhanced in the recent years. However, with the significant increase in cost of cultivation of food grains, the enhancement of minimum support prices at frequent intervals would be highly essential. Otherwise, the farmers may shift from cultivation of cereals and pulses to non food grain crops which certainly poses a severe threat to food security in India. Natural hazards like floods and droughts occur frequently in India challenging crop productivity and food security. Hence the farmers must be provided with comprehensive crop insurance policy so that in the event of unforeseen climatic aberrations like cyclones and floods, they would be provided with compensation. Though Government of India has initiated efforts for providing crop insurance to farmers since independence, a major

Boost was given in the form of Comprehensive Crop Insurance Scheme (CCIS) in 1985 during the Seventh Five Year Plan period, which covered the risk in cultivation of major crops against natural calamities and pests and diseases. The National Agricultural Insurance Scheme (NAIS) which is also known as the Rashtriya Krishi Bima Yojana replaced CCIS in 1999-2000. NAIS operates in all States and Union Territories of India. Insurance coverage and financial support to farmers would be given in the event of failure of any of the notified crops as a result of natural calamities, pests and diseases. NAIS is implemented by the Agriculture Insurance Company of India Ltd (AIC) and the scheme helps the farmers to adopt new and innovative farming practices and scientific modern technology. It is promoted by General Insurance Corporation of India, National Bank of Agriculture and Rural Development (NABARD), United India Insurance Company Limited, National Insurance Company Limited, Oriental Insurance Company Limited and The New India Assurance Company Limited and it is directly controlled by the Ministry of Finance, Government of India. The number of farmers covered under NAIS has increased from 9.08% in 2000 to 15.95% in

2007. Similarly, the percentage of gross cropped area covered under insurance has enhanced from 8.73 in 2000–2001 to 14.58 in 2007–2008, which is significant.

New Trends in Globalization

Though globalization undoubtedly brought several positive changes like technology development and transfer, faster communication and transport and higher growth in the services sector, it has also resulted in challenges like more volatility in the financial markets and severe competition among the entrepreneurs and growth inequity among various sections of the society. One of the consequences of globalization in India is the openness in trade. Thus, the rich have access to initiate global ventures where the poor would restrict themselves to localized works. As the protective policies are discouraged in post globalized world, the poor have little opportunity to compete with the rich leading to inequality and these concerns to food security in India. The implications of globalization for a national economy in India are quite remarkable. Globalization has certainly intensified interdependence and competition between economies in the world market, which is clearly reflected in new course of trading in goods and services. As a result, economic development in India is not determined exclusively by its domestic policies and market conditions. Moreover, they are influenced by both domestic and international policies and economic conditions. In other words, this would restrict the policy options available to the government and also results in loss of policy autonomy to some extent at the national level. The impact of globalization in India culminated in the establishment of special economic zones (SEZs) which also led to widening the gap between the rich and poor sections.

To provide food security, it is more important to make sure the availability of food. There are strong, direct relationships between agricultural productivity, hunger, poverty, and sustainability. Three-quarters of the world's poor live in rural areas and make their living from agriculture. Hunger and child malnutrition are greater in these areas than in urban areas. Moreover, the higher the proportion of the rural population that obtains its income solely from subsistence farming the higher the incidence of malnutrition. Therefore, improvements in agricultural productivity aimed at small-scale farmers will benefit the rural poor first. UN projections show a continued increase in population in the near future with the global population expected to reach between 8.3 and 10.9 billion by 2050. One out of every seven people on our planet goes to sleep hungry. People are suffering due to overpopulation. Everyday 25,000 people die with malnutrition and hunger related diseases. Water crises and land use are also some important issues to deal with food security. Government should frame proper policies to resolve the problems. There is also a need to check the implementation of the existing policies.

Public participation and co-operation to implement the policies and programmes is very important.

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