

PUNJAB PUBLIC POLICIES- FOCUSING ON AGRICULTURE

Dr. ITIKA SHARMA

ASSOCIATE PROFESSOR, POLITICAL SCIENCE

UNIVERSITY INSTITUTE OF LIBERAL ARTS AND HUMANITIES,

CHANDIGARH UNIVERSITY

Itika.e13125@cumail.in, itika.sharma13@gmail.com

Abstract

The present study seeks to critically analyse and evaluate the status of public policy in the state of Punjab, with particular emphasis on agricultural development. It aims to identify the strengths and limitations of existing public policies and examine their effectiveness in addressing the emerging challenges faced by the agricultural sector. The research also intends to assess the adequacy of policy interventions and explore opportunities for improving policy formulation and implementation.

Keywords: Agriculture, Policy.

The Green Revolution, introduced under the leadership of Norman Ernest Borlaug, transformed Punjab into one of India's leading agricultural states and significantly contributed to national food security. However, over the years, the excessive dependence on chemical fertilisers, pesticides, and commercial seed varieties has created several environmental and economic challenges. Agriculture has become increasingly dependent on agrochemical industries and seed companies, resulting in high production costs and declining ecological sustainability. Moreover, chemical-intensive farming requires enormous quantities of water and has adversely affected soil fertility, reducing its productive capacity over time.

Despite being an agricultural powerhouse, Punjab has yet to develop a comprehensive and integrated policy framework for sustainable agricultural and economic development. At the same time, global agricultural markets have undergone rapid transformation due to changing trade regulations, particularly following the implementation of the World Trade Organization (WTO) Agreement on Agriculture. These developments have created new opportunities as well as challenges, making policy reforms essential for maintaining the competitiveness and sustainability of Punjab's agricultural sector.

Agricultural growth in Punjab has slowed considerably in recent years, especially in the production of wheat, coarse cereals, pulses, and oilseeds. This declining trend has become a major concern for policymakers and agricultural experts. Therefore, enhancing agricultural productivity while ensuring long-term sustainability remains one of the foremost priorities for the state. Sustainable farming practices and efficient resource management have become increasingly important to secure future agricultural growth.

The rice-wheat cropping system continues to dominate agricultural production in Punjab and other parts of Asia because of its significant contribution to food security. Nevertheless, continuous cultivation using conventional farming methods has led to soil degradation, inefficient utilisation of water and fertilisers, and stagnation in crop yields. Future policy interventions should carefully consider regional ecological conditions, long-term environmental impacts, economic viability, technological feasibility, and the interaction between paddy and upland cropping systems before recommending alternative cultivation and management practices.

Public policy serves as a guiding framework that establishes governmental objectives and provides direction for administrative action. As the principal policymaking authority, the State has the responsibility to formulate and implement policies that address social, economic, and developmental challenges. In developing countries such as India, however, public policy has often been overshadowed by factors such as caste, religion, regional interests, and political considerations. Furthermore, inadequate political commitment and weak implementation mechanisms have frequently undermined the effectiveness of policymaking at both the national and state levels. Consequently, strengthening public policy requires not only sound policy design but also effective governance, administrative efficiency, and sustained political will.

Objective

The state government deals with the state list and enacts policies on issues enshrined in the List II of the Constitution yet. The State governments have not been able to go all about the making of just and needed policies. The State of Punjab being boarder state and state known for its agricultural potentials has seen many upheavals. Thus, the present topic has all the reasons to evaluate the issue of Public Policy.

Methodology

The present study has assessed to the agriculture policy of Punjab state. For the purpose of the study both primary and secondary data has been study. Swaminathan Commission, Kalikar report and various agriculture policies of Government of Punjab will be used for data purpose.

Future scope/ Limitations

Punjab which was a food deficit state became the 'food basket' of the country. Because of low production risk and assured marketing of wheat and rice, about 80 percent of the arable area has come under these crops. For a long period, this cropping system continued yielding a high growth in agricultural production and farm incomes. The production potential of the available technology of these crops has almost been fully exploited. There is now near stagnation in growth, decline in real farm incomes and over exploitation of natural resources i.e soil and water. The very sustainability of the wheat-rice production system is under threat. Climate change and urbanisation are posing a new challenge for agricultural growth. Bathinda region has become cancer belt due to increase use of pesticides.

Since, the topic is related to policies study, so primary data availability is limited which can be considered as limitation of the study.

Reform Areas in Punjab Agriculture

Punjab's agricultural policy requires comprehensive reforms to address the evolving challenges faced by the farming sector and to ensure sustainable economic growth. Greater emphasis should be placed on an effective price policy, rational input subsidies, and increased public investment in agriculture. Policy interventions should promote efficient irrigation systems and scientific water management practices that are suited to regional soil characteristics and climatic conditions. Simultaneously, strengthening agricultural research, extension services, technological innovation, crop diversification, and marketing infrastructure is essential for improving farm productivity and profitability.

Farmer welfare should remain at the centre of agricultural policy. Measures such as liberalising land lease markets, digitising land records, and implementing transparent land reforms can significantly enhance agricultural efficiency and improve farmers' livelihoods. In addition, the State should formulate a balanced land acquisition policy that safeguards farmers' livelihood security while facilitating industrialisation and economic development.

Technological advancement is a key driver of sustainable agricultural development. Research should focus on increasing productivity in both crop cultivation and livestock farming through the adoption of modern technologies and climate-resilient farming practices. Special attention should be given to promoting crops with lower water requirements, expanding horticulture, encouraging dairy farming, and supporting the cultivation of high-value crops such as fruits and vegetables. Likewise, oilseeds, soybean, and pulses should receive greater policy support because they offer significant potential for crop diversification, soil health improvement, and long-term sustainability.

Agricultural policies should also encourage the efficient use of natural resources by rationalising input subsidies and eliminating unnecessary restrictions on the storage, movement, and transportation of agricultural produce. Strengthening agricultural research institutions, increasing both public and private investment, and expanding development programmes are necessary to enhance the productivity and competitiveness of the agricultural sector.

The cultivation of high-value crops deserves greater policy attention. Existing constraints can be addressed by restructuring agricultural incentives, improving market linkages, strengthening institutional credit delivery systems, and promoting value addition at both village and industrial levels. Better coordination among various government departments will ensure the effective implementation of agricultural development programmes. Diversification towards horticultural crops such as fruits and vegetables can substantially improve farm incomes and reduce dependence on the traditional rice-wheat cropping system.

Protected cultivation technologies, including low-cost net houses, have demonstrated considerable potential for improving the quality, productivity, and profitability of vegetable cultivation. These technologies should be further refined and expanded, particularly among small and marginal farmers, to increase their adoption and enhance rural

incomes. Since many small farmers experience seasonal unemployment, vocational skill development and off-farm employment opportunities should also be promoted to diversify rural livelihoods and reduce income vulnerability.

Agricultural research institutions play a vital role in sustaining the growth of Punjab's agriculture. Therefore, increased financial support should be provided to institutions such as **Punjab Agricultural University (PAU)** and **Guru Angad Dev Veterinary and Animal Sciences University (GADVASU)**, along with programmes such as the **Rashtriya Krishi Vikas Yojana (RKVY)**. Enhanced investment in research and innovation will facilitate the development and dissemination of advanced agricultural technologies suited to the region's needs.

Future research efforts should prioritise the development of crop varieties that require less water, exhibit resistance to pests and diseases, possess greater tolerance to biotic and abiotic stresses, offer enhanced nutritional quality, and are suitable for processing industries. Considering the growing impact of climate change, greater emphasis should also be placed on developing forecasting systems and adaptive technologies to manage extreme weather events such as heavy rainfall, droughts, frost, and hailstorms. Furthermore, expanding **Public–Private Partnerships (PPP)** in agricultural research, extension services, and technology dissemination can accelerate innovation and improve the delivery of agricultural services, thereby contributing to the long-term sustainability and resilience of Punjab's agricultural sector.

Introduction

Agriculture, Green Revolution and the Need for Sustainable Public Policy in Punjab

Agriculture occupies a central position in India's economy and continues to be one of the most significant sectors contributing to employment, food security, rural livelihoods, and overall economic development. The progress of the agricultural sector has a direct bearing on national economic growth because improvements in agricultural productivity generate positive multiplier effects across industries, trade, employment, and rural development. Conversely, stagnation or decline in agriculture adversely affects the country's economic stability and social well-being. Besides ensuring food security, agriculture also contributes to national security by sustaining the livelihoods of millions of people. Therefore, balanced and sustainable development of agriculture and allied sectors is essential for maintaining ecological equilibrium and promoting inclusive economic growth. Recognising this importance, successive Five-Year Plans, particularly the Tenth Five-Year Plan, emphasised that agricultural development should remain at the core of India's development strategy. While the Central Government is primarily responsible for formulating national agricultural policies and providing financial assistance to the states, effective implementation depends upon state-level initiatives tailored to local agro-climatic conditions.

The Green Revolution marked a turning point in Indian agriculture and played a transformative role in achieving self-sufficiency in food grain production. Led by the pioneering work of Dr. Norman Ernest Borlaug, an American agronomist and Nobel Peace Prize laureate, the Green Revolution introduced high-yielding crop varieties, improved irrigation systems, chemical fertilisers, pesticides, and modern farming techniques. These innovations significantly increased wheat production in countries such as India and Pakistan, helping avert widespread food shortages during the 1960s and 1970s. In recognition of his outstanding contribution to global food security, Borlaug was awarded the Nobel Peace Prize in 1970 and is widely regarded as the "Father of the Green Revolution."

Although the Green Revolution successfully addressed food shortages and transformed Punjab into India's leading agricultural state, its long-term consequences have generated serious environmental and socio-economic concerns. The widespread adoption of chemical-intensive farming has resulted in excessive dependence on synthetic fertilisers, pesticides, and commercial seed varieties. Continuous cultivation of water-intensive crops, particularly rice and wheat, has led to severe depletion of groundwater resources and declining soil fertility. The indiscriminate use of agrochemicals has disrupted soil biodiversity by reducing beneficial microorganisms, earthworms, and mycorrhizal fungi that are essential for maintaining soil structure and nutrient cycling. Consequently, soil health has deteriorated significantly in many parts of Punjab, raising concerns regarding the long-term sustainability of agricultural production.

Rapid population growth, urbanisation, industrial expansion, and land degradation have further intensified pressure on the available agricultural land. As cultivable land continues to shrink, increasing cropping intensity through double or multiple cropping systems has become necessary to meet the growing demand for food. However, the continuous rice–wheat cropping system, which dominates Punjab's agriculture, has contributed to declining soil quality, inefficient

utilisation of water and fertilisers, and stagnating crop productivity. These challenges highlight the need for adopting sustainable agricultural practices that improve resource-use efficiency while preserving environmental quality.

Despite the remarkable achievements of the Green Revolution, the cost of agricultural production has increased substantially over time. Rising expenditure on seeds, fertilisers, pesticides, irrigation, machinery, and other agricultural inputs has significantly reduced farm profitability, particularly for small and marginal farmers. The growing financial burden has resulted in increasing indebtedness among farming households. In Punjab, rural indebtedness has emerged as a major socio-economic issue, compelling many farmers to mortgage or sell their land to repay loans. Financial distress has also been associated with the tragic incidence of farmer suicides, reflecting the urgent need for comprehensive policy interventions aimed at improving farm incomes, expanding institutional credit, strengthening crop insurance, and enhancing social security for farming communities.

Punjab's agricultural economy has gradually become increasingly dependent on private agrochemical and seed industries, resulting in greater commercialisation of farming. Excessive reliance on chemical-based agriculture has not only increased production costs but has also accelerated groundwater depletion and ecological degradation. Despite these challenges, Punjab has yet to formulate a comprehensive and integrated agricultural development policy capable of balancing economic growth with environmental sustainability. At the same time, the global agricultural environment has undergone substantial transformation following the implementation of the World Trade Organization (WTO) Agreement on Agriculture. These developments have increased competition, altered market dynamics, and highlighted the need for policy reforms that enhance competitiveness while protecting farmers' interests.

Recent trends indicate a slowdown in agricultural growth, particularly in the production of wheat, coarse cereals, pulses, and oilseeds. This deceleration has become a matter of serious concern for policymakers, researchers, and agricultural economists. Sustaining agricultural productivity while conserving natural resources has therefore become a major policy priority. Future agricultural strategies must promote crop diversification, efficient water management, climate-resilient farming practices, technological innovation, and improved market access to ensure long-term sustainability and rural prosperity.

The rice–wheat cropping system continues to play an important role in ensuring food security across South Asia. Nevertheless, conventional cultivation practices have contributed to soil degradation, declining water-use efficiency, nutrient imbalance, and stagnation in crop yields. Sustainable management of paddy–upland cropping systems requires region-specific interventions that consider ecological conditions, long-term environmental impacts, economic feasibility, and technological adaptability. Future agricultural policies should therefore encourage conservation agriculture, precision farming, integrated nutrient management, efficient irrigation technologies, and diversified cropping systems to improve productivity while safeguarding natural resources for future generations.

Bathinda: The "Cancer Belt" of Punjab

Bathinda district in Punjab has frequently been referred to as the "Cancer Belt" due to the comparatively high incidence of cancer reported in the region. Although the causes of cancer are complex and multifactorial, several environmental and lifestyle factors have been identified as potential contributors. The district's heavy dependence on intensive agriculture, particularly cotton cultivation, has resulted in extensive use of chemical pesticides and fertilisers, raising concerns regarding environmental pollution and its possible impact on public health.

Studies have reported contamination of surface water in Bathinda with heavy metals such as arsenic, cadmium, chromium, selenium, and mercury. In addition, untreated or partially treated industrial effluents are often discharged into local drainage systems, contributing to the deterioration of water quality. Residues of pesticides, including heptachlor, ethion, and chlorpyrifos, have also been detected in drinking water, agricultural produce, and biological samples collected from parts of the cotton-growing region, indicating widespread environmental exposure.

Within Bathinda district, the Talwandi Sabo region has received particular attention because of the relatively higher number of reported cancer cases. This area has a larger proportion of land devoted to cotton cultivation than rice cultivation, leading to greater dependence on pesticide-intensive farming practices. While agricultural chemicals are considered one of several possible risk factors, researchers have also highlighted groundwater contamination by naturally occurring uranium and other heavy metals, along with lifestyle-related factors such as tobacco and alcohol consumption. Scientific evidence suggests that cancer in the region is likely to result from the interaction of multiple environmental, occupational, genetic, and behavioural factors rather than from a single cause.

The increasing burden of cancer has significant social and economic consequences for affected families and communities. High treatment costs, loss of household income, reduced labour productivity, and psychological stress place considerable pressure on rural households. Since Punjab's economy is predominantly agriculture-based and has played a vital role in ensuring India's food security, safeguarding environmental quality and public health has become an important policy concern. These challenges highlight the need for stronger environmental regulation, sustainable agricultural practices, effective pollution control measures, safe drinking water initiatives, and regular health surveillance programmes to protect both agricultural sustainability and the well-being of the rural population.

Action plan for the State Governments

State Government should try to implement property rights, enforce contractual obligations to foster competition, and the provision of public goods such as agricultural research, technology, information and infrastructure. State Agricultural Universities will play an important role in better quality seeds to farmers will have to be prioritize to reduce yields gaps. Research based agriculture production which focuses on state agricultural extension system that includes universities and krishi gyan/ vigyan kendras. Notify amendments in Agricultural Produce Market Committee Act must be introduced to allow variety of market tools including contract and cooperative farming.¹

The Agriculture production in the state has reached a plateau. *The soil health in the state has been deteriorating with the continuation of rice-wheat rotation by farmers* due to assured profits rotation by farmers due to assured profits as compared to other crops. The higher yield realization per unit area is also responsible for reduction of nutrients in the soils. As irrigation facilities have been over used to increase agriculture production of the state mainly wheat and paddy, *the ground water has decreased drastically* since the last few decades.

Policy adviser and noted economist Sardara Singh Johal feels the 2017 assembly elections in Punjab are an opportunity for the political parties to come up with an integrated approach to deal with the three key problems of drugs, unemployment and farming crisis looming large over the state.

“As agriculture has become financially unviable, youth turning to drugs in Punjab villages. A way out of this vicious circle will be to encourage on location, off-farm employment, which allows families with small land holdings to take up an additional vocation to generate additional income. Youth today have no interest in small farm holdings and they don't have resources to buy more land” said Johal, Chancellor of Central University of Punjab (CUP), Bathinda.

Emphasizing on diversification, he said stress should be on high-value crops. “Then money will flow to the farmer and he can improve farming. This could rid us of rural indebtedness too. Besides, the government should set up service centres from where people can rent machinery and equipment on so that farmers don't need to make heavy investment by taking heavy loans”. Further, to channelize the energies of youth, he feels each village should have a play ground where they have a play ground where they can be involved with minimal investment. He said it was a matter of showing political will and vision and any party that translates such a plan on the ground will reap political dividends by creating a vote bank”.²

Agriculture Policy for Punjab 2013

The State Agriculture Policy aims to address various interlinked concerns of sustainability of the current cropping pattern and stagnating farm incomes through a simultaneous and multi-pronged action with an emphasis on improvement in production technology and infrastructure and pushing up capital formation.

The Punjab State Farmers Commission recently published a draft new agriculture policy for the State that envisages substantial crop diversification from paddy and wheat staples that the State has been growing since the sixties. Though wheat and paddy will remain top staples, with growth in productivity in other states the demand for these from Punjab is expected to decrease. The alternative crops suggested are basmati, maize, cotton, sugarcane, pulses, soyabean and vegetables for which the Commission wants the Centre to provide price support similar to that for wheat and rice.

¹ Hindustan Times, New Delhi, Wednesday, May 30, 2007.

² Solve drug issue, unemployment farm crisis, SS Johal, The Times of India, Chandigarh, 3 feb 2016

It's hard to see why the Centre will fund such an expensive policy when agriculture is a State subject and the problem is the result of government's mismanagement of resources. Although the Commission suggested that electricity and water should be metered and charged beyond a certain level of use, it stops short of recommending an end to free power.³

Wheat rice rotation implications

The strategy for increasing agricultural production followed in Punjab was based on putting large cultivated areas under wheat and rice; use of high yielding seeds, water and fertilizers; and efforts to improve input-use efficiency for reducing the cost of production, particularly wheat and rice. Both the crops are water-intensive, thus leading to large-scale depletion of groundwater in many areas. Both crops are heavy consumers of macro and micro nutrients, thus degrading the soil. The wheat rice rotation adversely affects physical characteristics of the soil as, due to puddling of paddy, an impervious layer is formed in the soil, which does not allow root penetration to deeper layers, thus restricting nutrient use. The wheat-rice rotation consumes heavy doses of fertilizers, pesticides and weedicides which create ecological problems of environmental pollution, fauna and flora imbalances and builds up residual toxicity in soil, water and air. The spread of monoculture of wheat and paddy has rendered these crops vulnerable to pest and weed attacks, thus making them more susceptible to pests and diseases.

The Challenges

The predominant rice-wheat system in Punjab, which provided good returns to the farmers till a few years back and contributed greatly towards food security of the country, has created a number of serious problems. The intensive land usage under these crops has resulted in rapid depletion of ground water mainly Central Punjab. Because of this farmers have to make increased investment in agriculture through replacement of shallow tubewells fitted with centrifugal pumps by deep tubewells fitted with submersible pumps. The consumption of energy for pumping water from deeper layers for the same irrigated area is also increasing continuously; electricity being free, the financial burden on the state exchequer is also increasing.

The plateauing of yields of principal crops and increased cost of inputs such as fertilizers, pesticides etc and higher labour wages have led to increase in the cost of production and thereby, a squeeze in farmer's income. Higher cropping intensity and monoculture of wheat and rice has led to depletion of both major micro nutrients, emergence of new insect pests, diseases and weeds. Evidently, diversification from mono cropping of wheat and rice to other crop rotations for conservation of both soil and water is essential.

One third of the farmers in the state cultivate about 8 percent land and operate on land holdings of less than five acres. Such holdings are economically unviable due to high fixed capital investment such as machinery and high price of market supplied inputs. The income from such holdings is very low and these farmers are unable to meet their essential demands, education, health and other needs of the family. With every new generation pressure on land increases and holdings are further fragmented. At the same time there are very few openings for such farmers to take up off-farm employment.

Since food security would continue to be the top agenda for the country and in view of the impending Food Security Bill, the annual requirement of grains for Central Pool is likely to increase. However, with the increase in food production in food deficit states of the country, the marketing of food grains produced in Punjab is likely to face serious challenge.

Currently large area grown under rice, with the prevalent production practice which is very intensive, is the main cause of depletion of ground water and causing problems of sustainability. For maintenance of water balance, the quantity of underground water pumped should be equal to the average annual recharge. According to estimates of Punjab Agricultural University, about 1.6 million hectares can be safely put under paddy as against the current area of about 2.8 million hectares. Evidently, 1.2 million hectares area under paddy needs to be diversified to other crops requiring less water. The issues blocking diversification have been economic returns from alternative crops; and adequate mechanisms to transfer the same to field. A significant investment is required in Research and Development (R&D) as well as marketing infrastructure, which at present is lacking for alternate crops.

³ *Crisis and Diversification in Punjab Agriculture: Role of State and Agribusiness*, Sukhpal Singh, *Economic and Political Weekly*, 2004

There are emerging uncertainties of weather, climate change and global warming. Though the impacts are yet to be quantified, rise in temperature will have a direct bearing on water availability and crop yields, thereby impacting the agricultural sector. The population growth will require higher production of food grains. At the same time demand for water and energy from other sectors will also increase. This is a very alarming scenario.

Unemployment and under-employment in rural areas is matter of serious concern. Industrial sector in the state has failed to create sizeable employment for wards of farmers and rural labour. There is an urgent need to increase the avenues of employment in rural areas through agro-based rural industrialization, secondary agriculture and diversification of crop system towards high value crops and on farm post-harvest value addition. The policy of empowerment of the rural poor through skill development, better health and education services, vocational training and a conducive industrial policy is urgently required which will encourage establishment of industry in rural areas and ensure employment for local people⁴.

SWAMINATHAN COMMISSION

The National Commission on Farmers (NCF) has recommended formulation of a comprehensive national policy for farmers to give an all-round boost to agriculture by providing them advisory, technical, farm credit and marketing services. Commission chairman M.S. Swaminathan presented fourth report to Union Agriculture Minister Sharad Pawar here. Nothing that the average farm size had become smaller and the cost-risk-return structure of army had become adverse, the commission detailed a Draft Mission Statement for Farmers.

The draft statement calls for main streaming the human dimension in all farm policies and giving explicit attention to issues relating to agriculture. It underscores the need to end the era of farmers' suicide and to restore pride and confidence in farmers and farming. It calls for completing the "unfinished agenda" in land reforms and to initiate comprehensive asset and Aquarian reforms in rural India. It stresses on increasing farmers incomes, livelihood, nutrition and health security of farm, fisher, tribal, and pastoral and agriculture labour families.

"So far there has been no well-defined policy for farmers .when finalised and adopted, the NCF-initiated Nation Policy for Farmers will be the first of its kind in the 10,000 years history of Indian farming" the report said⁵.

Reform Areas in Punjab Agriculture

However, reform is needed in agriculture policy of Punjab keeping in mind Price Policy. Subsidies and Investments in agriculture must be given prime importance. Irrigation and Water Management according to soil quality and weather conditions with Research, Extension and Technology and diversification to Hi-value Agriculture and Marketing. For farmers welfare freeing up of land lease markets and computerisation of land reforms should be prioritise for improving the economy of farmers. An appropriate land acquisition policy should be prepared keeping in view the livelihood security of the farmers and economic development of the State.

The technology developments are essential to achieve enhanced production potential both in the crop and livestock sector, encouraging crops/ varieties having low water requirements, high value crops i.e fruits and vegetables and dairy farming. As soybean and pulses offer a long term potential source for diversification and sustainability, there is need to focus on a breakthrough in their productivity.

Rationalizing of input subsidies and removal of all restrictions in terms of stock limits, movements, and levies in transporting food grains should be implemented by encouraging the optimal use of natural resources for long term sustainability of agriculture. Enhancing the productivity of crops and live-stock through strengthening research, public and private investments and development programmes

More encouragement to the cultivation and addressing the problems of high value crops. Addressing the constraints through restructuring of the incentives, market orientation, credit delivery system and value addition to produce both at industrial scale and at the village level by restructuring of various development departments for coordinated implementation of various activities. Inorder to improve farm economy, the farmers have to be assisted to adopt high value crops, namely vegetables and fruits.

⁴ Agriculture Policy for Punjab, Government of Punjab, Committee for Formulation of Agriculture Policy for Punjab State, March 2013.

⁵ www.swaminathancommission.com

The low cost net houses technology for cultivation of vegetables, which improves quality and productivity of vegetables and increases the income, needs to be further improved and extended on a large scale to cover as large a proportion of small farmers as possible. Small farmers remain under employed/ unemployed for most of the time and must be given some skill training to ensure off-farm employment. Research should be prioritise and mandates of PAU and Rashtriya Krishi Vikas Yojna (RKVY) and allocation of funds for research, to both PAU and GADVASU must be increased to give much needed thrust to the development of new technology.

The main focus should be on breeding of crop varieties requiring less water and which are resistant to pests and diseases with better quality, tolerance to biotic and abiotic stresses, high nutritional value and suitable for processing. In view of climatic change special efforts are needed to develop suitable technology for prediction of extreme weather events such as excessive rainfall in a short period, frost, hailstorms etc. with participation of Public Private Partnership in delivery of services should be promoted.

The Punjab State achieved an outstanding growth in agriculture, particularly rice and wheat that contributed extensively to the food security of the country. Of-late problems of over-exploitation of natural resources of soil and water have emerged which are a cause of serious concern. There is decline in real farm income and near stagnation in growth. The agriculture in the State is in a crisis and a policy framework which improves the productivity, profitability and sustainability of farming is the only way forward to accelerate the growth. The Government of Punjab constituted a “Committee for Formulation of State Agriculture Policy” so as to prepare a road map for future agricultural development in the State. The policy paper suggests the measures for encouraging the optimal use of natural resources and improvement in the economy of the farmers. A shift to high value agriculture and a more prominent role of livestock sector are a must but it will require increased investments in Research and Development and infrastructure. The State has to play a dynamic role in market development⁶.

Action plan to be initiated by the State Government

The State Government must provide better quality seeds to farmers will have to prioritize to reduce yields gaps. In this State Agricultural Universities will play an important role. The government must revamp state agricultural extension system that includes universities and krishi gyan/ vigan kendras. Amendments must be introduced in Agricultural Produce Market Committee Act to allow variety of market tools including contract and cooperative farming.

In the key note address Sarvesh Kaushal (Chief Secretary of Punjab) stated, that there is a deficiency of social science research which is of more contemporary relevance. He emphasized on setting up a task group of Academic and Research institutions, policy planners and state functionaries for Governance reforms. The main function of this group will be to generate knowledge for formulation of informed public policies on issues like enhancement of agriculture productivity, augmentation of state revenue, creation of employment and increase in employability of youth through skill development, improving quality of public services including education and health, environment sustainability, special issues relating to inclusive growth with special reference to Women, Dalits and poor. Above all, special focus shall be given to social issues like drug addiction, female foetocide, farmer's suicide, out-migration for comprehensive research based policy formulation. Evolving citizen centric implementation strategies. To formulate corresponding capacity development packages for government functionaries and other support institutions and developing networks for dissemination of government policies and programmes⁷. There are paradoxes in Punjab such as Punjabis are most

⁶⁶ Dr. G.S. Kalkat, Chairman, Committee for Formulation of State Agriculture Policy, March 22, 2013

⁷ Roundtable discussion held on 'Challenges to Social Policy; Agenda for Social Science Research' at the Institute for Development and Communication (IDC) and in association with the Mahatma Gandhi State Institute of Public Administration, Sector 26, Chandigarh.

globalised yet it has no linkage with industry, there is low poverty in general yet there is high poverty among Dalits. Our economy has evolved from a command economy to a liberal economy and our policies need to be adjusted.

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