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# Reviving the Punjab Economy

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# Reviving the Punjab Economy[1]


## Abstract

Punjab has been in the forefront of providing food security to the nation but now it needs help as the per capita income of Punjab, from the highest in the country in 2000 is now much below that of Maharashtra, Gujarat, Tamil Nadu, Kerala, Karnataka and Haryana. The high unemployment rate in Punjab is also a cause of concern with many youths increasingly resorting to drugs. Punjab economy is ailing as water level is rapidly falling and quality of soil is deteriorating. Consequently, Punjab, once very prosperous, is now the cancer capital of India. Probably, over-emphasis on rice and wheat cultivation since early 1970s has led to this grim state of socio-economic situation. Therefore, there is a need to examine the alternate models of growth from mono-emphasis on agriculture to a balanced approach where agriculture, industry and services have a role to play. Also, probably, as a policy, dependence on rice and wheat has to be reduced in a phased manner, and alternatives like floriculture and horticulture need to be explored. There is no country in the world or another state within India that can escape industrialization while nurturing the hope of high economic growth. Similarly, for a growing economy, role of services is very important.

The need is to identify the problem after thorough diagnostic tests and create a road map for reviving the Punjab economy.


**Keywords:** Punjab, Growth Strategies, Per-capita income, development policy

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Punjab has had a very dynamic history, full of challenges and experiments, especially in recent past. Punjab is unique in many ways with vast fertile lands and experience of series of invasions from advancing armies in early times from North to recent history of agonizing partition in 1947. In 1966, the division of Punjab in 3 parts again disrupted economic progress of the state. However, in a short time, thanks to green revolution, it became the granary of country and richest state of India. These good times were short lived.

***Socio-Economic Profile of Punjab and Select States***

Punjab has being slipping down in the ranking of Indian states in the last few decades as many other states are outpacing Punjab in economic growth (Table 1). The per capita income of Punjab which was the highest until mid-2000's is now lagging behind Gujarat, Haryana, Karnataka, Kerala, Maharashtra and Tamil Nadu. An analysis of the components of gross domestic product of Punjab reveals that agriculture continues to play a prominent role unlike many other states that are recording higher economic growth. The role of manufacturing sector and services has increased but is lower than that recorded in other competing states (Table 2). In case of agricultural sector, growth rate has been largely stubborn and stagnating. In the aggregate, agriculture accounts for nearly one fourth of gross state domestic product (GSDP) in Punjab which is in sharp contrast to that of Kerala, Maharashtra, and Tamil Nadu where agriculture accounts for less than 10 per cent of GSDP. Even in the case of Haryana, where agriculture has been more productive than Punjab, its share was around 13 per cent of GSDP. In contrast, in Haryana, services sector is nearly four times that of agriculture while in Kerala, Maharashtra and Tamil Nadu, it is more than 10 times.

**Table 1: State-wise Per Capita Net State Domestic Product (Constant Prices)** (In Rs.)

| Year | Base Year | Punjab | Gujarat | Haryana | Karnataka | Kerala | Maharashtra | Tamil Nadu |
|---|---|---|---|---|---|---|---|---|
| 1960-61 | 1970-71 | **790** | 687 | 650 | 526 | 509 | 745 | 558 |
| 1970-71 | 1970-71 | **1070** | 829 | 877 | 641 | 594 | 783 | 581 |
| 1980-81 | 1980-81 | **2674** | 1940 | 2370 | 1520 | 1508 | 2435 | 1498 |
| 1990-91 | 1980-81 | **3730** | 2641 | 3509 | 2039 | 1815 | 3483 | 2237 |
| 2000-01 | 1999-00 | **25986** | 17227 | 24423 | 17352 | 19809 | 21892 | 20319 |
| 2010-11 | 2004-05 | **44769** | 53813 | 57797 | 40699 | 50146 | 59587 | 53507 |
| 2014-15 | 2011-12 | **96638** | 109981 | 124092 | 106896 | 116006 | 113379 | 106034 |

Source: RBI.

**Table 2: Sectoral Share of GSDP of Select States**

(In % of GDP)

| States | 1990-91 | | | 2014-15 | | |
|---|---|---|---|---|---|---|
| | Agriculture | Industry | Services | Agriculture | Industry | Services |
| **Punjab** | **46** | **24** | **29** | **19** | **27** | **53** |
| Gujarat* | 23 | 38 | 37 | 12 | 38 | 49 |
| Haryana | 44 | 24 | 31 | 13 | 27 | 59 |
| Karnataka | 31 | 26 | 41 | 12 | 26 | 59 |
| Kerala* | 29 | 24 | 45 | 7 | 20 | 71 |
| Maharashtra | 19 | 36 | 42 | 5 | 29 | 65 |
| Tamil Nadu | 21 | 35 | 43 | 6 | 28 | 65 |

Note: * Select sectoral statistics for these states have been taken at 2013-14 values instead of 2014-15 due to non-availability of comparable data.
Source: RBI.

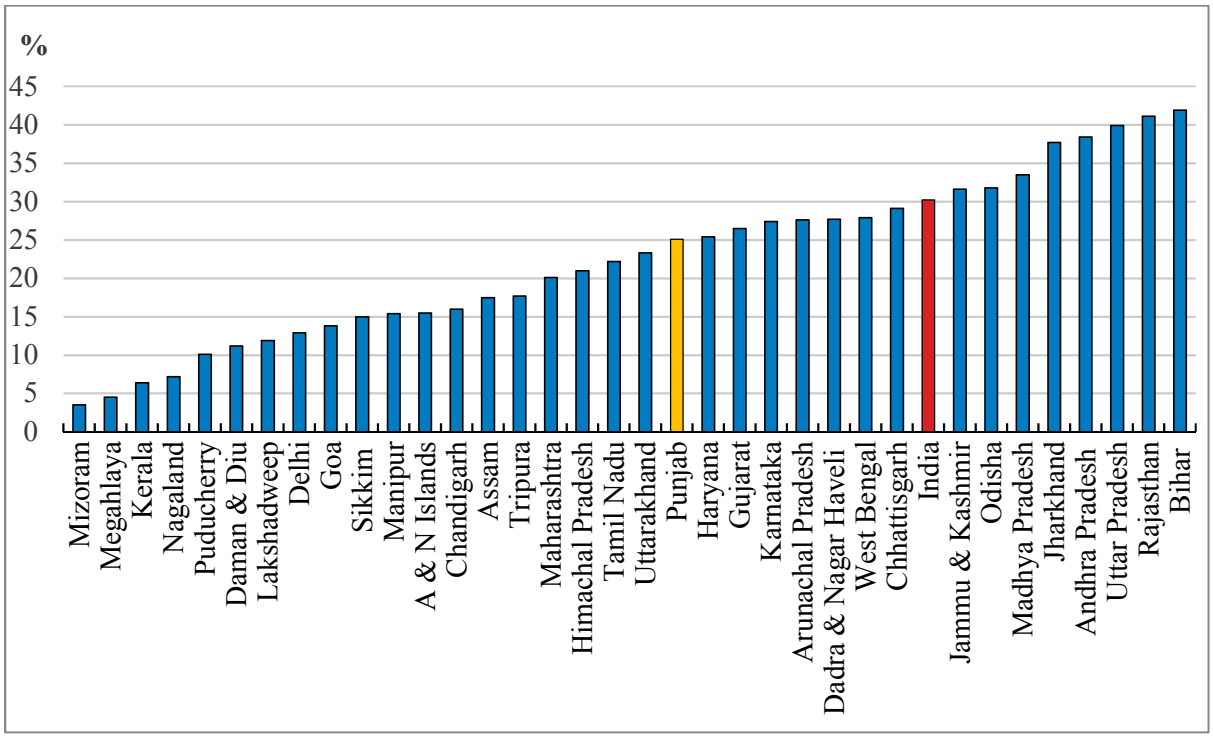
The socio-economic indicators, when compared with competing states, are also not very outstanding for Punjab (Table 3), especially literacy rate (Figure 1), and labour productivity (Figure 2). However, Punjab has been able to provide electricity to large number of households in rural areas (Figure 3), and also, rural poverty is very low (Figure 4).

**Table 3: Economic Profile of Select States**

| States | Population (Cr) 2011 | Birth Rate per 1,000 2013 | Death Rate per 1,000 2013 | Literacy Rate 2011(%) | Life Expectancy (Years) (2007-11) | No. of Colleges (2014-15) | No. of Universities (2014-15) |
|---|---|---|---|---|---|---|---|
| **Punjab** | **2.8** | **15.7** | **6.7** | **75.8** | **70** | **1079** | **23** |
| Gujarat | 6.1 | 20.8 | 6.5 | 78.0 | 67 | 2055 | 49 |
| Haryana | 2.5 | 21.3 | 6.3 | 75.6 | 67 | 1109 | 36 |
| Karnataka | 6.1 | 18.3 | 7.0 | 75.4 | 68 | 3416 | 51 |
| Kerala | 3.3 | 14.7 | 6.9 | 94.0 | 74 | 1240 | 18 |
| Maharashtra | 11.2 | 16.5 | 6.2 | 82.3 | 70 | 4714 | 45 |
| Tamil Nadu | 7.2 | 15.6 | 7.3 | 80.1 | 69 | 2531 | 58 |

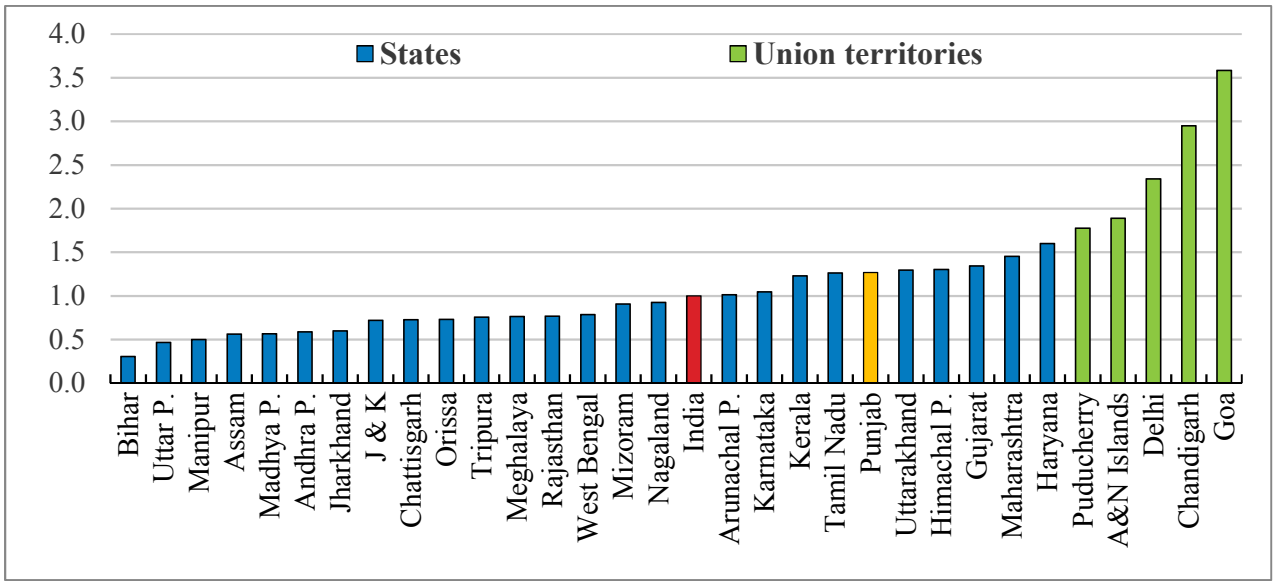
Note: * Per 1000
Source: Economic Survey, Government of India.

**Figure 1: Illiteracy Rate of persons of 15 years or above – 2011-12**



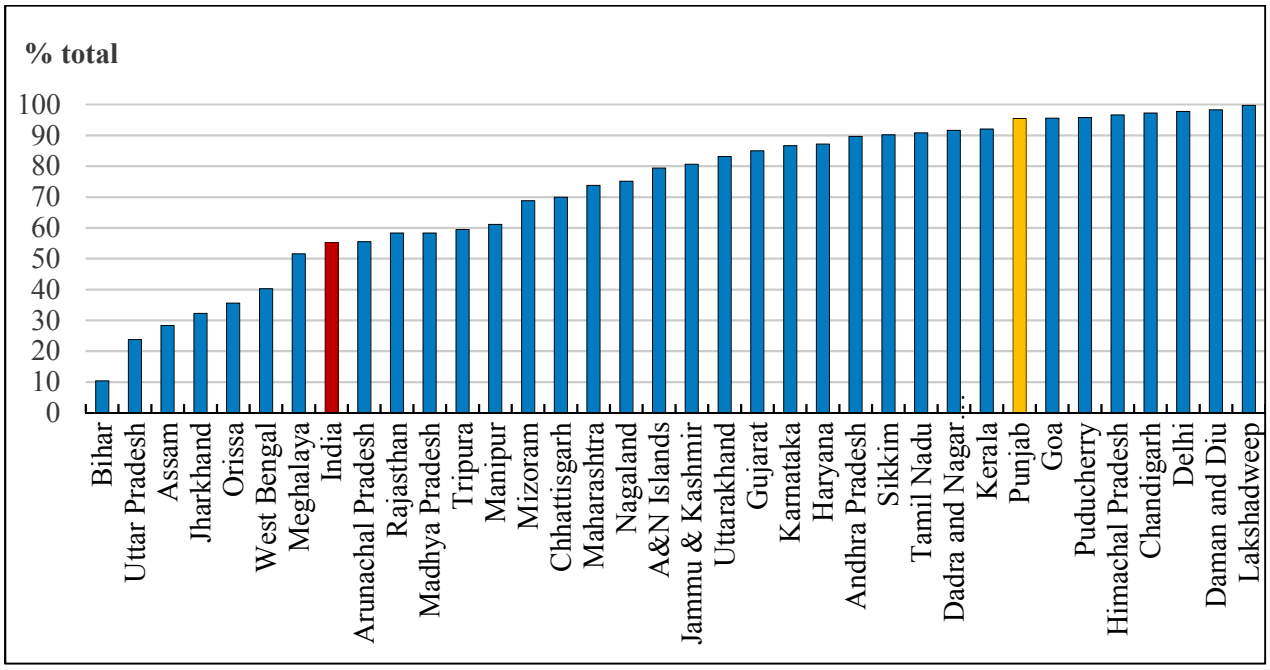

Source: NSS Report No. 566: Status of Education and Vocational Training in India; and Census, Government of India.

**Figure 2: Labor productivity**



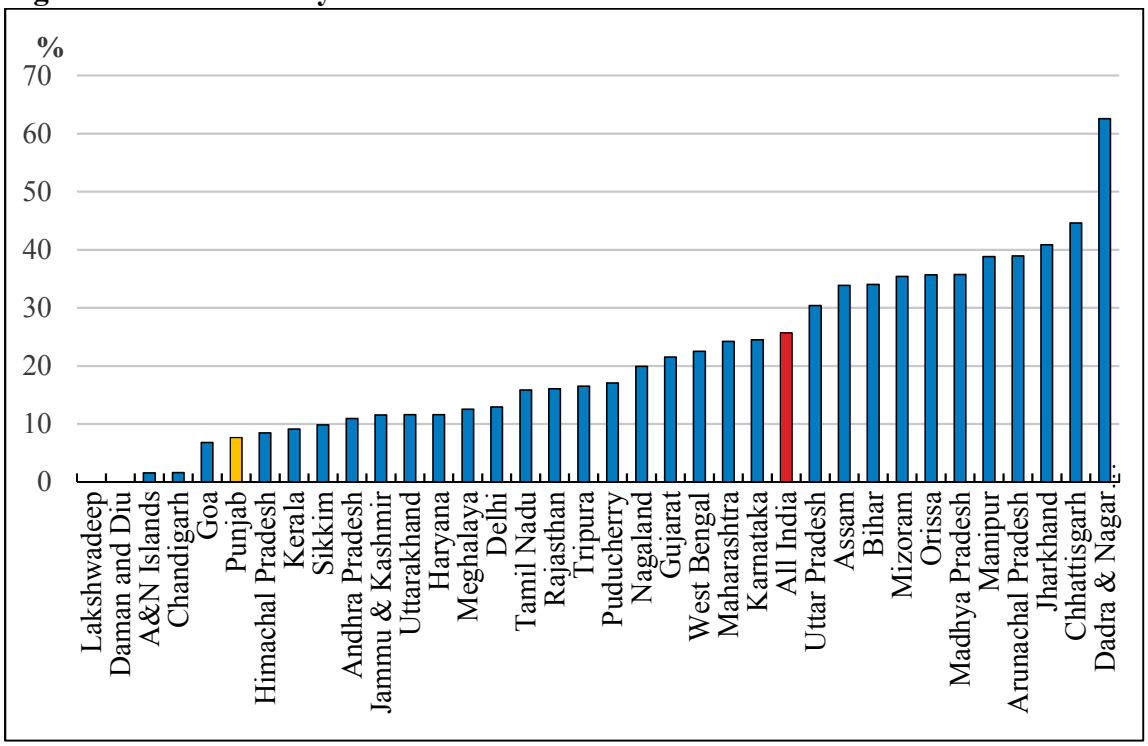

Note: Labour productivity is measured as the ratio of value added (GDP) per worker.
Source: CSO; and OECD Economic Outlook.

**Figure 3: Households whose main source of lighting is electricity**




Source: Census, 2011, Government of India.

**Figure 4: Rural Poverty Rate**




Note: Poverty is calculated by using the Tendulkar methodology, which expresses the poverty line in terms of monthly per capita consumption expenditure based on a mixed reference period.
Source: RBI.

To correct the economic malady, macroeconomic policy is generally used by policy makers. Macroeconomic objectives of achieving high income levels and increased employment are operationalized through monetary and fiscal policies. In view of the fact that monetary policy is enunciated by the RBI and uniformly fixed for the country, it is the fiscal policy which plays an important role in development process of any specific state. The fiscal situation in Punjab is dismal when compared with other States (Table 4). The constrained fiscal space implies that living standards of people cannot be maintained through subsidies. Thus, the impact is visible on the outstanding debt of Punjab which is 32 percent of GSDP compared to 21 percent for all states (Table 5). When the pressure on revenue account is high with revenue deficit at 1.8 per cent of GSDP, growth oriented capital expenditure is a casualty, which in Punjab is 1.4 percent of GSDP compared to 2.6 percent for all states.

**Table 4: Fiscal Indicators of Select States**

(% of GSDP)

| States | Gross Fiscal Deficit | | Revenue Deficit | |
|---|---|---|---|---|
| | 1990-91 | 2014-15 | 1990-91 | 2014-15 |
| **Punjab** | **6.6** | **3.0** | **2.9** | **1.8** |
| Gujarat | 4.7 | 2.1 | 1.1 | -0.7 |
| Haryana | 2.8 | 3.6 | 0.1 | 2.2 |
| Karnataka | 2.4 | 2.7 | 0.3 | 0.0 |
| Kerala | 5.7 | 3.2 | 3.0 | 2.1 |
| Maharashtra | 2.5 | 2.2 | 0.1 | 0.8 |
| Tamil Nadu | 1.8 | 2.8 | 1.8 | 0.4 |

Source: State Finances: A Study of Budgets of 2015-16, RBI.

**Table 5: Debt to GSDP Ratio Select States**

(% of GSDP)

| States | 1990-91 | 2014-15 |
|---|---|---|
| **Punjab** | **37.4** | **32.4** |
| Gujarat | 28.8 | 24.2 |
| Haryana | 22.6 | 21.5 |
| Karnataka | 25.3 | 22.5 |
| Kerala | 35.3 | 28.5 |
| Maharashtra | 20.0 | 20.5 |
| Tamil Nadu | 22.5 | 21.0 |

Source: State Finances: A Study of Budgets of 2015-16, RBI.

***Green Revolution in Punjab***

The Green revolution adopted in late 1960's changed the cropping pattern in Punjab. In 1971, 39 percent of land area was under wheat, 7 percent under rice, and 55 percent under other crops like gram, maize, cotton, bajra and ground-nut. And then, by 2015, 49 percent was under wheat, 41 percent under rice and 10 percent under others (Table 6). In terms of percent share of major crops in production, story was very similar (Table 7). Today, there is hardly any production of gram, bajra or ground-nut in Punjab. Punjab is amongst the three largest rice producing states in the country (Table 8). But it begs the question at what cost?

**Table 6: Percentage share of area under Major crops in Punjab**

| Year | Wheat | Rice | Others | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Total | Gram | Bajra | Maize | Ground-nut | Cotton |
| 1966-67 | 38.6 | 6.8 | 54.5 | 15.2 | 4.4 | 10.6 | 4.4 | 10.3 |
| 1970-71 | 49.0 | 8.3 | 42.7 | 7.6 | 4.4 | 11.8 | 3.7 | 8.5 |
| 1980-81 | 49.0 | 20.5 | 30.6 | 4.5 | 1.2 | 6.6 | 1.4 | 11.3 |
| 1990-91 | 50.2 | 31.0 | 18.8 | 0.9 | 0.2 | 2.9 | 0.2 | 10.7 |
| 2000-01 | 49.3 | 37.7 | 13.0 | 0.1 | 0.1 | 2.4 | 0.1 | 6.9 |
| 2010-11 | 49.1 | 39.6 | 11.3 | 0.0 | 0.0 | 1.9 | 0.0 | 7.4 |
| 2014-15 | 49.4 | 40.8 | 9.9 | 0.0 | 0.0 | 1.8 | 0.0 | 5.9 |

Source: Government of India.

**Table 7: Percentage share of Major crops in production in Punjab**

| Year | Wheat | Rice | Others | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Total | Gram | Bajra | Maize | Ground-nut | Cotton |
| 1966-67 | 27.9 | 3.8 | 68.4 | 5.7 | 1.7 | 6.9 | 2.2 | 1.5 |
| 1970-71 | 39.8 | 5.3 | 54.9 | 2.2 | 1.9 | 6.7 | 1.3 | 1.1 |
| 1980-81 | 47.5 | 19.9 | 32.6 | 0.9 | 0.6 | 3.7 | 0.6 | 1.2 |
| 1990-91 | 47.4 | 25.5 | 27.1 | 0.2 | 0.0 | 1.3 | 0.0 | 1.3 |
| 2000-01 | 46.6 | 27.4 | 25.9 | 0.0 | 0.0 | 1.4 | 0.0 | 0.6 |
| 2010-11 | 50.8 | 33.4 | 15.8 | 0.0 | 0.0 | 1.5 | 0.0 | 1.1 |
| 2014-15 | 44.2 | 32.6 | 23.1 | 0.0 | 0.0 | 1.4 | 0.0 | 0.8 |

Source: Government of India.

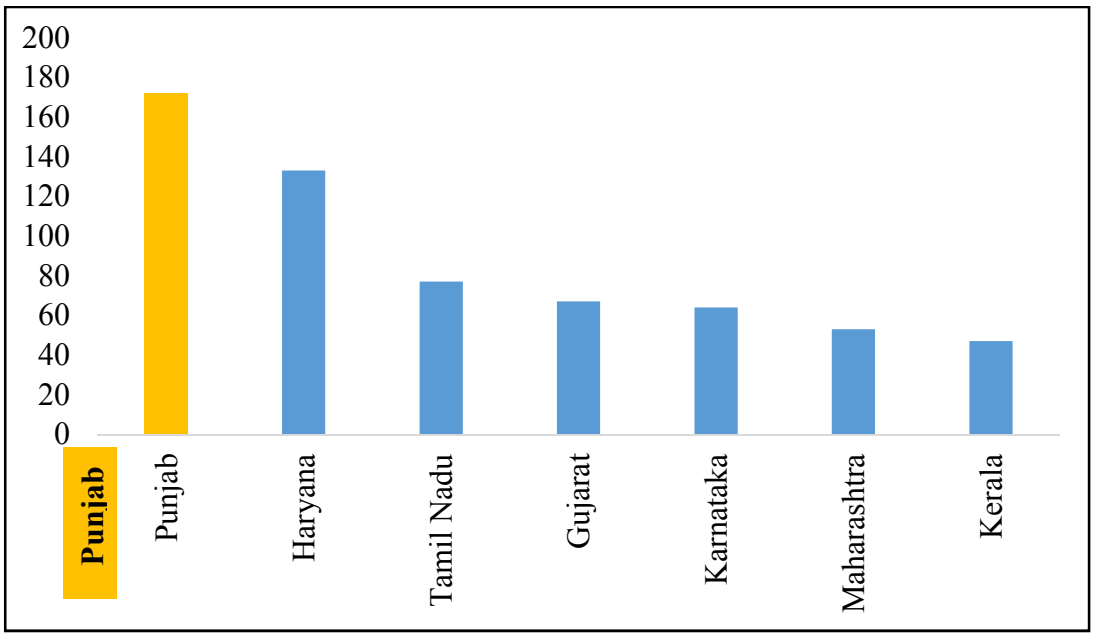
**Table 8: Three Largest Producing States of Wheat and Rice during 2012-13**

| Crops | States | Production (Million Tonnes) | % Share in All India Production |
|---|---|---|---|
| **Rice** | West Bengal | 14.96 | 14.33 |
| | Uttar Pradesh | 14.41 | 13.80 |
| | **Punjab** | **11.37** | **10.89** |
| **Wheat** | Uttar Pradesh | 30.30 | 32.77 |
| | **Punjab** | 16.11 | 17.42 |
| | Madhya Pradesh | **13.13** | **14.20** |

Source: Directorate of Economics and Statistics, Department of Agriculture and Cooperation

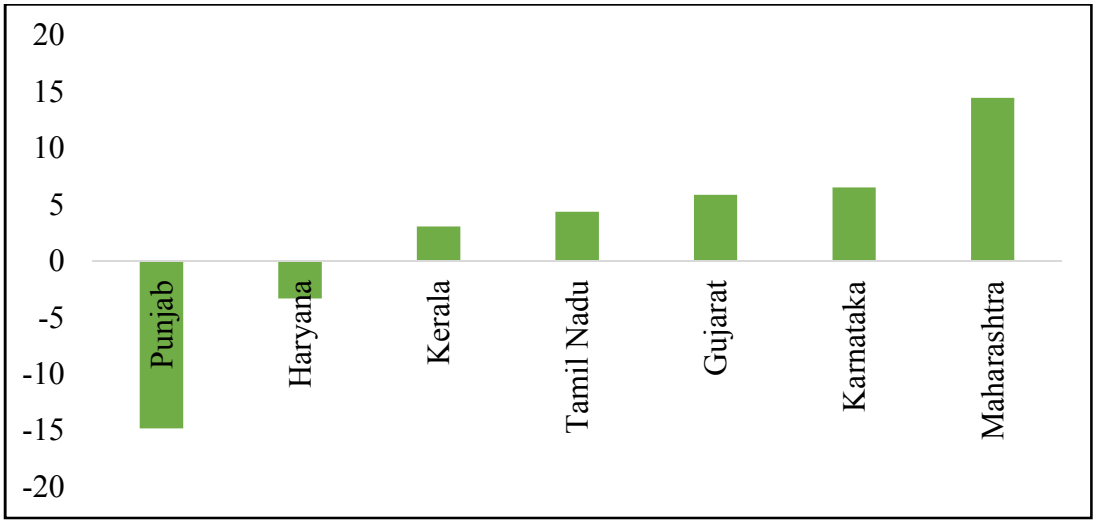
The adoption of Green revolution had an impact on water table. The status of ground water development in Punjab and Haryana is more than 100 percent while the average for India stands at 62 percent. The implication is that the annual ground water (GW) consumption of these states is more than annual ground water recharge (Figure 5). As consumption of GW is much higher than the rate of recharge, availability of GW for future consumption in irrigation is declining rapidly and was already negative by 2011 (Figure 6).

**Figure 5: Groundwater development in in Select States – 2011** (In Percentage)




Source: Ground Water Year Book, Government of India.

**Figure 6: GW Availability for Future Irrigation Use in Select States - 2011 (**in bcm**)**

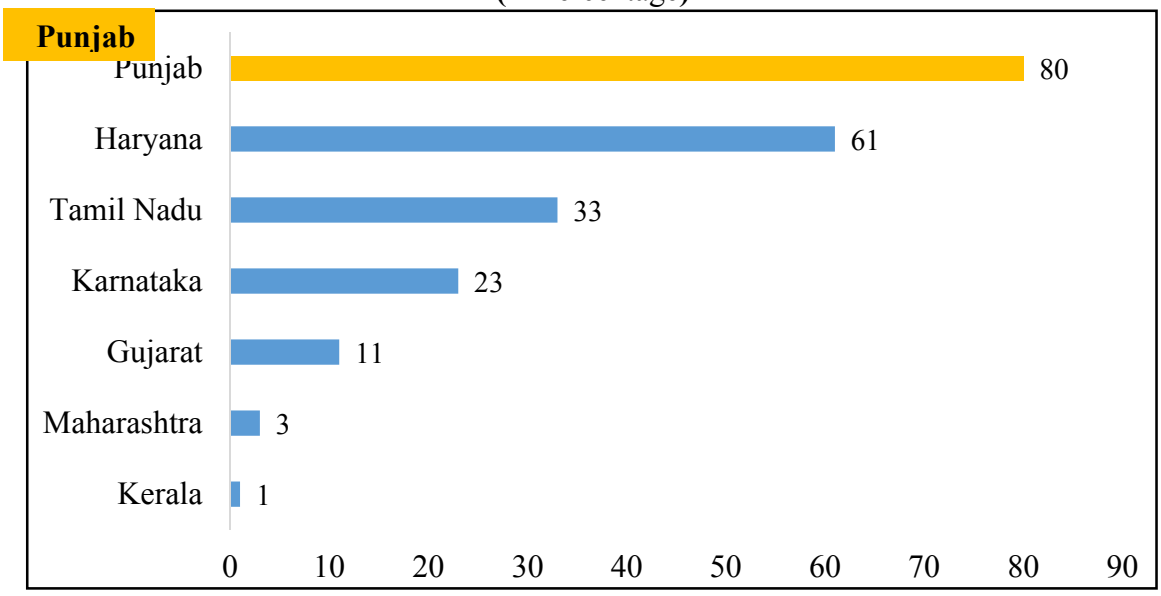



Note: Bcm refers to Billion Cubic metres
Source: Ground Water Year Book, Government of India.

The total number of over-exploited units (Blocks/Talukas/Mandals/Panchayat Samitis) in terms of water usage were significantly high in Punjab compared to other states (Figure 7).

**Figure 7: Proportion of Over-exploited Blocks/Talukas/Mandals/Panchayat Samitis of Select States - 2011**

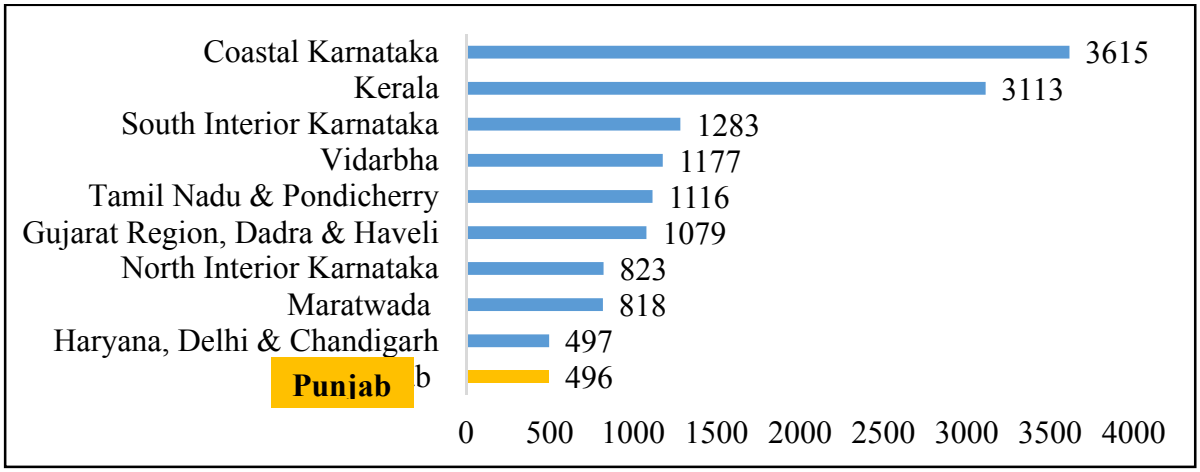
**(**in Percentage**)**




Note: "Over-exploited" refers to stage of ground water development that exceeds the annual replenishable limit
Source: Ground Water Year Book, Government of India.

Rainfall is the main source of recharge for GW. As per average decadal rainfall calculations, Punjab is not a rainfall abundant state (Figure 8 and Table 9). This compounds the GW problem even further.

**Figure 8: Decadal Average Rainfall in Select Regions - 2005-14** **(**in mm**)**




Note: mm refers to millimetres
Source: Table 9

**Table 9: Annual Average Rainfall in Select Regions** (in mm)

| State/Region | 2005 | 2010 | 2014 | Decadal Average (2005-2014) |
|---|---|---|---|---|
| **Punjab** | **604** | **501** | **383** | **496** |
| Gujarat Region, Dadra & Haveli | 1385 | 1060 | 792 | 1079 |
| Haryana, Delhi & Chandigarh | 587 | 598 | 306 | 497 |
| Coastal Karnataka | 3275 | 4008 | 3564 | 3615 |
| North Interior Karnataka | 856 | 857 | 757 | 823 |
| South Interior Karnataka | 1357 | 1309 | 1184 | 1283 |
| Kerala | 3151 | 262 | 254 | 3113 |
| Maratwada | 864 | 1039 | 549 | 818 |
| Vidarbha | 1258 | 1355 | 919 | 1177 |
| Tamil Nadu & Pondicherry | 1314 | 1122 | 913 | 1116 |

Note: mm refers to Millimetres
Source: Government of India.

As a result of over-exploitation of ground water, Punjab and Haryana have the highest potential for adoption of micro irrigation (MI) systems, both drip and sprinkler (Table 10). However, by

estimating the actual area brought under the MI system as a percentage of the total potential area, it was found that the schemes were least popular in Punjab at 0.7 percent (Table 11).

**Table 10: Potential Area for Micro Irrigation Area as % of Net Cultivated Area - 2014***

| States | Net Cultivated Area ('000 Ha) | Potential Area ('000 Ha) | Potential Area (%) |
|---|---|---|---|
| **Punjab** | **4,193** | **3,378** | **81** |
| Haryana | 3,685 | 2,390 | 65 |
| Gujarat | 10,685 | 3,278 | 31 |
| Karnataka | 11,697 | 1,442 | 12 |
| Maharashtra | 18,763 | 2,714 | 14 |

*Tamil Nadu and Kerala were not available
Note: Ha refers to Hectares
Source: Government of India.

**Table 11: Potential vs. Actual Area for Micro Irrigation - 2014 *** **(**Area in '000 Ha**)**

| State | % (drip) | % (sprinkler) | Potential Area (Total) | Actual Area (Total) | % (Total) |
|---|---|---|---|---|---|
| **Punjab** | **2.1** | **0.4** | **3,378** | **22.2** | **0.7** |
| Gujarat | 10.6 | 8.1 | 3,278 | 306.0 | 9.3 |
| Haryana | 1.8 | 26.0 | 2,390 | 525.5 | 22.0 |
| Karnataka | 23.8 | 32.8 | 1,442 | 405.9 | 28.2 |
| Maharashtra | 43.2 | 13.4 | 2,714 | 696.9 | 25.7 |

* Tamil Nadu and Kerala were not available
Note: Ha refers to Hectares
Source: Government of India.

There is another factor as to overuse of water in Punjab and non-adoption of micro irrigation. In general, in India, the tariffs on consumption of electricity for agriculture has been steadily increasing over the years but not in Punjab (Table 12).

**Table 12: State wise Agricultural Power Tariffs – 2013-14**

| States | Paise/Kwh |
|---|---|
| **Punjab** | **0** |
| Gujarat | 217.56 |
| Haryana | 46.48 |
| Karnataka | 306.73 |
| Kerala | 172.94 |
| Maharashtra | 258.33 |
| Tamil Nadu | 0 |

Source: Government of India.

Thus, the consequences of Green revolution have been many in Punjab. Green revolution has increased the production of cereals like wheat and rice but production of millets, pulses, oil seeds, vegetables and fruits have declined drastically. As a result, all these foods have become costly and some are out of reach of a common person. Because of the excessive use of chemical fertilizers instead of focusing on soil biology with infusion of bio-mass and other sustainable agricultural practices, soil has become deficient in essential nutrients. The foods available in Punjab after Green revolution are rich mainly in carbohydrates and also contain a cocktail of toxins causing a number of diseases. Indeed, Punjab has turned into a cancer capital of India, and also has large number of kidney failures.

The chemical fertilizer based agriculture needs more water. Farmers have resorted to using excessive groundwater, from deeper aquifers. Water from deeper aquifers is rich in salts and toxic metals. The salinity of the soil increases and soil becomes hard killing living microbes and other living beings in the soil. The life and richness of the soil is directly proportional to the population of living species in it.

Punjab has only 1.5 per cent geographical area of country but has the highest intensity of pesticide usage (per unit of land) – about 6000 metric tonnes of technical grade material gets used annually, on an average, on only 79 lakh hectares of cropped land in Punjab, as compared to 54,532 metric tonnes on 1950 lakh hectares at the national level. The same applies to chemical fertilizers' as at the national level, the per hectare fertilizer consumption is 125-130 kgs/ha, while in Punjab, it is about 220-250 kg/ha.

The quick richness attained due to green revolution, over emphasis on agriculture too long and neglect of industrialization has led to lack of modern employment opportunities for youth of Punjab. The unemployment rate amongst youth is higher than the national average of about 30 percent, and according to some experts on Punjab, is above 50 percent. Though mainly disguised. Also, the youth in Punjab, are getting disoriented and do not seem to be interested in development of or even employment in agriculture sector. This could be for various reasons but mainly because of declining productivity and problems associated with agriculture especially those related to labor supply, depleting water table and soil degradation. Further, in view of increasing urbanization, vast tracts of land in Punjab are being used for non-agricultural purposes. Therefore, given the composition of GSDP and that Punjab is sliding down in economic growth relative to the other states, it would be the right strategy to consider alternatives to existing model of agriculture dominated growth in Punjab. And once the drugged youth of Punjab wake up, they would seek jobs. Hence, alternative strategies that create employment opportunities are necessary to consider on an urgent basis.

***Lessons from Other States***

Haryana

Haryana, carved out in 1966, was once considered as a poorer sibling of Punjab owing to relatively less fertile land, underdeveloped industry and infrastructure, and severe doubts about its viability. However, structural changes adopted by Haryana since then have resulted in high rate of economic growth coupled with reduction in poverty. The state's policy shift to industry from agriculture, reflected in the new industrial policy of 2005 had also sought to create employment opportunities and promote industries. By developing infrastructure, providing incentives and concessions to industry to setup factories in backward and rural areas, and by simplifying rules and regulations, Haryana has turned into an investment-friendly state with hassle free procedures. Cluster developments such as Panipat for textiles, Faridabad for light engineering and Gurgaon for automobiles are part of a key strategy of the state. Today, Haryana is home to more than a 100 'Fortune 500' companies, 50 percent of India's automobile production, and it is the second largest contributor to the national food basket.

Tamil Nadu

The key features for the success of Tamil Nadu can be attributed to the growing share of services and rapid urbanisation. The shift away from agriculture and towards diversification into animal husbandry, non-food crops, horticulture, floriculture, and sericulture has aided the state's development. Tamil Nadu is one of the most industrialised states in the country. The creation of 'growth clusters' has been the key contributing factor for the state's rapid industrialization. For example, Chennai's automobile hub that is often termed as the "Detroit of India" is home to six foreign original equipment manufacturers (OEM) of vehicles, two domestic manufacturers and over 1000 suppliers. Hyundai, BMW, Daimler, Renault-Nissan, Mitsubishi and Yamaha are amongst the many OEMs in this region. Special Economic Zones that house information and communication technology companies and automobile enterprises have further boosted the state's industrial contribution. Some of other important clusters like foundries in Coimbatore, sericulture and sago in Salem and Dharmapuri, and wind mills in Tirunelveli, Palladam, and Udumalpet are also playing an important role in development of Tamil Nadu.

Kerala

Kerala's success is defined by a unique pattern of development that aimed at achieving a high quality of life without specific focus on economic growth. Strong human development, gender equality and female participation in the informal sector have contributed to Kerala's development. Kerala's Department of Tourism has implemented 'Responsible Tourism' in Kerala along with the launch of the 'Green Farms Kerala' initiative that aims to revamp agricultural land in the state to tourism destinations. Decentralization of power has also been termed as one of the major reasons for Kerala's growth story. The State has moved ahead on the agenda of transferring functions and responsibilities to the local governments by enacting the Kerala Panchayat Act, 1994 and the Kerala Municipalities Act, 1994. The decentralisation of state powers and strong planning board, have helped make the state a plan-oriented economy.

Karnataka

The Karnataka model of development can be described as a technology-led growth. Several initiatives to improve quality of higher education and emphasis on technology/sciences have produced highly trained engineers and scientists. This has resulted in the creation of an

environment that is conducive for innovation. Creation of biotech park clusters in Bangalore, Mysore, Dharwad and Bidar have also contributed to the state's economy. Bangalore is also known as the Startup Capital of India. The policy incentives and infrastructure in the state favour investments in IT/ITeS, biotechnology, engineering, electronics, automotive, textiles, agriculture and food-processing sectors. The New Industrial Policy of 2009-14 for business contained sector-specific policies for growth and promotion of these industries. Karnataka is the IT hub of India and is India's largest software exporter. More than 60 per cent of biotechnology companies in India have a base in Bangalore. Bangalore was the first city in India to get a satellite earth station to facilitate high speed communication services to facilitate software exports in 1992. In addition, there are several infrastructural facilities in Mysore, Hubli, Manipal and Mangalore where MNC's have set up company offices. Karnataka also happens to be manufacturing hub for aerospace and defense with established government organisations such as Defence Research and Development Organisation and Indian Space Research Organisation. Karnataka is the first state which announced the aerospace policy in the country and it also houses India's first aerospace SEZ. The state also attributes its growth to the tourism industry which has focused on promotion of world heritage sites, medical and wellness tourism, and religious tourism.

Maharashtra

Maharashtra is amongst the richest states in the country. A shift in cropping pattern to add more non-cereal crops has resulted in a highly productive primary sector. Even manufacturing has shifted towards a more capital-intensive industry. Communication, transport and public administration has contributed largely towards the growth of the service sector. Maharashtra is the largest contributor in India's industrial output. The major industries include chemical, textile, oil and gas, automobile, engineering, and pharmaceutical. Various software campuses have been established in Nagpur, Aurangabad, Navi Mumbai, Pune and Nasik. Maharashtra's coastal cities such as Mumbai and Thane have become a recognized place for building ships. The rise of educational institutions and experimental projects such as sugar factories and milk-cooperative dairies have accelerated the state's development. The state also has abundant eco-tourism, agri-tourism and religious tourism locations. And a world famous entertainment industry has also contributed to its success.

Gujarat

The state has accelerated its overall economic development during last four decades and has witnessed a significant structural change in economic development. The state made a clear choice of encouraging the secondary sector and gave high priority to physical capital. Tax and cost-related incentives, granting of approvals and clearances to MSMEs, infrastructure and input supplies, and making the land market more competitive are credited as the reasons for Gujarat's success. To make the industries of the state globally competitive, Gujarat increased subsidies in various forms for private sector through the Industrial and Agro Industries Policies 2000. Gujarat has introduced a system for 'Monitoring of Industrial Approvals' in order to know status of all these approvals and provide assistance for expeditious implementation of the project. As a result of this, the industrial sector has witnessed impressive development in small, medium and large factory sectors. Accelerating development of infrastructure, supporting technology up-gradation and R&D, support to service sector enterprises, focused approach on 'Make in India' program, and projects like GIFT City and other large infrastructure projects have helped strengthen the image of Gujarat. Gujarat's tourism corporation has successfully developed rural tourism in the state under the 'Rural Tourism Infrastructure Development' (RTID) scheme.

***Alternative Strategies for Growth in Punjab***

Having analysed the state of economic affairs in Punjab and briefly examining the strategies adopted by other states, let us examine some alternate strategies for growth in Punjab.

Agriculture

a. *Floriculture and Horticulture* – Punjab is known for producing rice and wheat in large quantities to meet the requirement of consumption in India but in future, with improving levels of income, consumption of rice and wheat is expected to be substituted with protein-rich food and millets. Punjab has poor track record in producing millets as the diversified cropping pattern of Punjab has suffered since late 1960s. Given the soil quality and lack of crops, probably, Punjab needs to strategize differently now.

   In agriculture, there is scope for exploring possibilities of floriculture and horticulture. There have been challenges, some documented too, but as agricultural universities in the past have

focused on research to find new varieties of seeds and plants, similarly, extensive research would be required to ensure development and success of floriculture and horticulture in Punjab. It is a well-known fact that initial experiments done in the past to promote horticulture and floriculture have not been successful due to problems of labor, technology, and storage. The government will, perhaps need to consider providing extensive facilities to stake holders, including subsidies in distribution of plants and seeds for horticulture and floriculture, and building of special warehouses.

b. *Agro-processing* – Paradoxically, in India and especially in Punjab, most of agricultural output is sold in raw form by producers which does not fetch high returns. Thus, there is an urgent need to go in for processing and manufacturing of agricultural produce and that too by farmers' collectives. Such an exercise shall give additional income and employment, especially to the marginal and small farmers, and agricultural laborers.

   Punjab's location, geographically, on the foothills of Jammu and Kashmir and Himachal Pradesh can be an advantage. Both the states are rich in agricultural production, fruits and floriculture. Punjab can serve as a hub for agro-processing units for these states in the region. Flowers can be used for seeds, natural dyes, essential oil and pot pourri. Flowers in the region like gladiolus, marigold and rose can be exported. Jammu and Kashmir, and Himachal Pradesh are also known for fruit production of apples, peaches, pears, plums, cherries, apricots and almonds. The international airport in Amritsar can play a pivotal role in exports of horticulture and floriculture produce from North India, provided there are state-of-the-art processing units, and suitable infrastructure like cold storages and adequate warehouses.

c. *Water Conservation* - Punjab has also to examine related issues like rapidly depleting water table, and deteriorating water and soil quality because of excessive use of fertilizers, pesticides and insecticides. Intensive cultivation of rice has also lead to water shortage resulting in water-table falling by a meter annually. The micro-irrigation techniques are not popular in Punjab. Reversing the process of soil degradation and low water table would take a few decades, and therefore in the meantime, Punjab could consider maintaining the canal system in a more modern manner as has been experimented in Gujarat, to conserve water and provide space for

generating solar energy. Also Punjab needs to reconsider the cropping pattern, and given that paddy consumes large quantities of water, should paddy cultivation be substituted with other crops? Probably, this question needs to be taken seriously by policy makers and academicians alike.

d. *Environmental concerns* –The amount of smoke (seasonal burning of agro waste) and dust pollution is also very high in Punjab. There are studies which show that polluted air can be a cause of health hazards and even death. WHO, in a report released recently, provides empirical evidence that the deadly effect of air pollution extends beyond respiratory problems to heart attacks, strokes, and cancer. Punjab, along with Haryana, Uttar Pradesh and Delhi account for the highest levels of PM10 (particulate matter 10 micrometres or less in diameter). Ludhiana, Khanna and Amritsar featured in the top 10 ranks of a list of cities that had the highest average mean of PM10 and PM2.5 (particulate matter 2.5 micrometres or less in diameter) according to WHO's 2016 Ambient Air Pollution Database. Punjab is amongst the eight states in India that record most number of deaths due to acute respiratory infection. A 2007 analysis had revealed that five cities (Ludhiana, Jalandhar, Gobindgarh, Naya Nangal and Khanna) in Punjab had critical levels of air pollution and had violated the standard level of air quality by 100 percent on an average.

Industry

There is no escape from industrialization for any country or state in India which is aiming to grow faster. Punjab has to decide as to which are new industries that can be attracted and then provide suitable incentives while taking advantage of the successful "Make in India" campaign of the Union Government.

a. *New opportunities in industry* – in India, aerospace industry has been booming in the last few years, especially, in South India. Punjab can, given its flourishing MSMEs sector, play an important role in supply chain of such industry. Illustratively, Punjab is planning to have more airports but seems oblivious to opportunities that aerospace industries provide. According to projections, nearly 37,000 new commercial planes need to be manufactured in the next 20 years in addition to helicopters, and defense and cargo planes with an investment

of a trillion US dollars and capacity to create 2 million jobs. Presently, there are only few assembly facilities in places like Bangalore. Punjab could attract aviation industry to open units by providing tax incentives for producing goods, approximately, million components that go inside the aircraft. Similarly, many other industries, domestic and international, are exploring venues for setting up ancillary units, and service centers, and scouting for helpful local governments. Punjab could consider being proactive with new opportunities being offered by modern India.

b. *MSMEs* - In the absence of large and heavy industry in Punjab, role of MSMEs needs to be further encouraged. At the national level, MSMEs account for nearly half of manufacturing output and two-fifth of exports and generate extensive employment opportunities. To encourage MSMEs in Punjab, especially in phulkari and traditional items of automobile parts, the government could consider compensating entrepreneurs for losses that are made on freight equalization of coal and iron. Similarly sports goods industry, which exports goods to various parts of world could also be encouraged by the government. Preliminary research by our IIMB students on sports goods industry in Jalandhar shows that labor, finance, infrastructure, marketing and availability of raw material are major challenges. To encourage MSMEs and supporting infrastructure for enhanced exports, government could consider tax incentives, facilitate financing, provide interest subsidy and address issues related to technology absorption and labor laws.

c. *Crafts* - Punjab is known for its crafts and skills in jewelry, carved furniture, embroidery, phulkari, soft toys for children, specialized food items like Amritsari papad and wadian, and leather products. Crafts are labor intensive and create employment. The government could ensure branding and marketing of such products. And how about R&D in these crafts as individuals artisans cannot afford the cost of developing new products? Illustratively, Punjab is known for local foot wear, called tilley-ki-jhuti. This footwear style and pattern has remained same since centuries. But to address competition from modern foot-wear manufacturers like Nike and Reebok, R&D would need special attention, and government should consider this aspect of competition.

Services

If Punjab has to progress fast, then the services sector has to play a larger role. And there is sufficient scope in this sector.

(a) *Medical tourism* – In many states, as discussed earlier, medical tourism has been extensively encouraged by the government. In small towns like Vishakhapatnam, clusters of hospitals, similar to export processing zones or industry clusters, have been opened to encourage medical tourism. Similarly, given the proximity of Punjab to Delhi and with good connectivity in terms of air and road travel, medical tourism can provide employment opportunity to the youth of Punjab. On medical tourism, Punjab has an advantage in terms of its location and clearly marked seasons. The climate zone of Punjab is similar to most of the advanced western countries, with Himalayan range of mountains on one side and Delhi, with good air connectivity, on other. There is opportunity and scope for international collaboration on medical tourism given that medical services are expensive in advanced countries, and that advanced countries are suffering from fiscal constraints on account of medical and health benefits, especially after retirement, given shrinking working population and rising pension and health bills. Foreign collaboration with insurance companies, especially that of the US, UK, and Europe; respective hospitals in those countries, and leading global pharmaceutical companies could ensure high quality service to medical tourists. Punjab can position itself as the medical hub for not only international tourists but also within the country with air ambulance services from Delhi, Jammu and Shimla. This could provide impetus to the service industry in Punjab. In view of the fact that many people from Punjab have migrated abroad, including to advanced countries, such collaborative and modern medical facilities would also benefit the aged parents of emigrants.

In India, the number of medical tourists are increasing in recent years. According to different estimates, about 2 lakh tourists arrive in India for medical purposes. The country from where medical tourists come are Bangladesh, Afghanistan, Nigeria, Maldives, Oman, Tanzania, Kenya, Uzbekistan, and Iraq. Most of the medical tourists come to Maharashtra, West Bengal, Delhi, Andhra Pradesh and Kerala. The medical treatment that are sought are

heart related, hip replacement, knee replacement, eyes, dental related, and gastric issues. Some medical tourists also look for Ayurveda, Yoga, Unani, Siddha and Homeopathic treatments available in India. The government of India and Ministry of Tourism are actively promoting medical tourism, and Punjab needs to explore this opportunity too.

*(b) Religious tourism* – The Government of India is promoting religious or pilgrimage tourism. In this type of tourism, spirituality and religion are common motivation for travel and therefore are connected to sacred places, persons and events. As these are not destinations for a holiday or leisure, there is need for careful planning of budget hotels, cleanliness, solid waste management, and developing a code of religious etiquettes to be observed of such tourists. Religious tourism can have multiple effect on employment generation and economic development. It also promotes local culture, handicrafts and cuisine, and generates large employment opportunities in identified destinations. Punjab is a land of sages and saints since time immemorial. The Sikh Gurus in $15^{th}$ and $16^{th}$ century have also extensively travelled in Punjab. Religious tourism of different faiths can be encouraged in Punjab. Punjab can also serve as a model for religious tolerance and interfaith harmony. Punjab has traditionally been the gateway through which invading armies would come into India and rule Indian states for centuries. Despite such a history, Punjab continues to be tolerant to different faiths while adopting and adapting art and customs from each of the invading cultures but maintaining peace and harmony over the years, and still retaining its core fabric of values. Punjab, a land of sages and gurus from different faiths with a large number of historical and pilgrim venues can pursue religious tourism emphasizing intra-faith unity. In view of the fact that Guru Granth Sahib was composed and installed in 1604 in Amritsar, with compositions from practicing spiritualists from different faiths and professions, Punjab could claim natural heritage to becoming an intellectual hub of inter-religion and inter-faith research studies on spirituality.

(c) *Rural and Farm Tourism* – Punjab has enjoyed limited success in the operation and performance of rural tourism projects. The success rate is significantly lower than Karnataka which is powered by the Rural and Agri-Tourism projects started in the Government's Tourism Policy, Maharashtra where Agri Tourism Development

Corporation coordinates with trained farmers, and Kerala where the successful Responsible Tourism' program and 'Green Farms Kerala' initiative are an integral part of eco-tourism (Table 13). Most of Punjab's projects in farm tourism languished because of lack of interest of locals, and delay in fund dispersals.

**Table 13: State-wise Performance of Rural Tourism projects - 2011**

| State | Total Projects covered | No. of Successful Projects | No. of Average Projects | No. of Unsuccessful Projects |
|---|---|---|---|---|
| **Punjab** | **5** | **1** | **3** | **1** |
| Gujarat | 4 | | 2 | 2 |
| Haryana | 1 | | 1 | |
| Karnataka | 5 | 3 | 2 | |
| Kerala | 5 | 5 | | |
| Maharashtra | 2 | 2 | | |
| Tamil Nadu | 8 | 4 | 2 | 2 |

Source: GOI.

*d) Education and literacy* - It is surprising that Punjab did not have any elite educational institution and only recently was granted an IIT and IIM. But, earlier, Punjab could have considered institutional arrangement and collaboration with private foreign universities which have had offices in India. Even now it is not too late. To illustrate, some universities from Australia and the US already have an office in Delhi and are exploring campus areas in India. Stanford has been exploring possibility of establishing a campus in India for nearly a decade. Once presence of elite educational institutions improve, Punjab can seek to develop into an IT hub. While Bangalore, Hyderabad and Chennai serve as an excellent IT corridor in South India, there is an available opportunity in North India.

In view of the protectionist policy being pursued by advanced countries of world, especially USA and some countries in Europe, Punjab will have to reexamine its migration policy. The Government of India under the ministry of skill development is actively engaged with several countries with the purpose of technology transfer in skill training, training of trainers and setting-up of centers for excellence. The government has signed MOUs with countries like United Kingdom, Germany, Australia, USA, Canada, Singapore, European Union, France and similar other countries. The Pravasi Kaushal Vikas Yojana

of the government aims to train and certify Indian workforce keen on overseas employment in select sectors and job roles in line with international standards to facilitate overseas employment opportunity. The Central Government also supports pre-departure orientation training which includes language and soft skill training.

*e) Culture and entertainment industry* – In Punjab, culture and entertainment industry has potential but is grossly neglected. In many parts of India special studios and areas are earmarked for entertainment industry by the government. The success of Kapil Sharma and Navjot Singh Sidhu, Punjab's Honorable Minister of Culture on a popular national television channel is a clear indicator that Punjab needs to encash on its artists and encourage entertainment and culture industry. Illustratively, Maharashtra and Tamil Nadu are especially active in entertainment industry.

Exploring New Opportunities and Markets

Punjab can consider creating a trading hub for goods and services for Central Asian countries like Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan, Tajikistan, and Afghanistan. The major exports from India to Central Asian Countries are coffee, tea and spices; pharmaceutical products; electrical machinery and equipment; apparel; vehicles; tyres; ceramic products; and mineral oils. The central Asian countries export pearls, stones and jewelry; chemicals and rare earth metals; iron and steel; and copper goods to India. There is an opportunity for India to develop its trade relations and increase its exports to the region. The areas in which trade can flourish are Indian medicines, optical equipment and vaccines, textiles; automobiles and apparels. There is also scope in developing cultural relations with these countries, including drama, theatre groups, yoga, Indian films, TV serials and different dance forms from India.

To facilitate exploring new trade opportunities, opening the gates of the Attari-Wagah border could drive trade and commerce through Punjab and turn it into a land port state. Countries in Central Asian Republics can be connected to India. Rail and road networks can be operationalised immediately, given the existing road and rail link between Northwest Punjab and Zahedan in Iran. An all-weather road connects Attari to Zahedan in Iran and a 1,676-km broad gauge railway line also runs from Amritsar to Zahedan. This route allows more economical trips for 80 percent of

container traffic from Asia's largest container freight station at Tughlaqabad, Delhi. Rather than travelling to Mumbai and taking the sea route, the Attari-Wagah border can be promoted.

Planning Board

Finally, there is also a need to have a strong state planning board (PB). The successful Kerala growth model would not have been possible without the significant role played by the PB which was headed by academic luminaries like Prof. I S Gulati. PB can help tap resources from the World Bank and Asian Development Bank as well as attract development experts working on India from Universities like Harvard and Stanford, to advise on developmental plans. A strong and professionally managed PB, irrespective of the political party in power, serves as an anchor and provides continuity to the growth process, steadily steering the economy, especially in transition period.

***Conclusion***

The economic analysis of Punjab reveals that 10 year average of growth rate of per capita income of Punjab is slower than that of Andhra Pradesh, Bihar, Haryana, Karnataka, Maharashtra, Orissa, Rajasthan and Tamil Nadu. Consequently, the per capita income of Punjab which was at number one position in 1999-2000 and third position in 2004-05 has sharply declined to seventh position now revealing a downward trend in relative position of the state. Therefore, policy makers in Punjab have to examine reasons for such slippage and then ensure recovery through appropriate policies in years to come.

Punjab needs a dramatic economic transformation to regain its glory of the past. Punjab economy flourished after Green revolution when modern production methods supported agriculture with effective research and extension system while Government assured markets for both, inputs and outputs. Agriculture sector, initially served as engine of growth and dominated in terms of income and employment generation. Consequently, agricultural production increased manifold leading to development in agro-based industries resulting in high employment, equity in distribution of income, and low levels of poverty. Unfortunately, the emphasis on agriculture continued too long, secular stagnation followed in agriculture, and overall rate of growth suffered in Punjab relatively to other states in the country. Therefore, now Punjab has to look beyond agriculture. This is a

sensitive issue because for nearly 40 years, or nearly two generations, agriculture was the main thrust of Punjab policy making. Now the thrust, probably, has to move from agriculture to either industries or services or both.

What actually happened to Punjab? A brief comparison with Haryana is very revealing. Despite being powered by the Green revolution, the building of the Bhakra Dam and consolidation of land, Punjab's growth rate dropped during the late 1980s and early 1990s. The 1991 economic reforms boosted growth rate in many states such as Haryana which adopted the wave of manufacturing, information technology, automobile sector, biotech and retail that revolutionized the Indian economy. Punjab however, missed the opportunity to diversify and stuck to agriculture. On the industrial front, probably, the special tax exemptions offered by the GOI to Himachal Pradesh and Uttarakhand have affected Punjab's bid for industrialization. Another key factor for the strikingly different tales of two states is because of the difference in quality of governance. Punjab has come under President's Rule six times since 1966, whereas Haryana has only had three such occasions. Fiscally, Haryana has strictly adhered to the FRBM 2005 targets and managed a revenue surplus in many years since 2005. On the other hand, Punjab has been in deficit for the past 12 years.

Punjab has now to consider some critical issues before charting a course of correction to revive the economy. Should the current strategy of assigning exclusive priority to agriculture, including free power supply, be continued or alternatives considered? On agriculture, given the depleting water table and deteriorating soil quality, should diversification of cropping pattern be aggressively followed or passive alternatives like giving compensation to farmers for not cultivating rice be considered? Can cultivation of another crop, probably maize or millets be incentivized by negotiating with Union Government to consider announcing attractive minimum support price for maize or millets or even other crops?

In Punjab, academia, political leaders and policy makers continue to emphasize that agriculture is the sole savior and only course of future progress of Punjab. Therefore, instead of trying alternatives, focus of all strategies and policies has been on reviving agriculture. This approach, propelled by vote bank needs a reconsideration, as it has neither yielded results in Punjab nor historically, in other countries, in the past. The share of agriculture will continue to shrink and

therefore dependency on agro-related products needs to be minimized through strategies offering diversification. As is well known in development economic literature, and historically demonstrated empirically, a revolutionary turning point only occurs when the crisis hits the economy. The costs are massive but acceptability from masses about futility of the existing course occurs and then, political forces unite to chart a new course. The reforms in India, unthinkable before Balance of Payments crisis of 1991 is an illustration of the compelling phenomena. Similarly, degraded soil, depleting water table, misery to health caused by overuse of fertilizers/pesticides, and climate change will compel policy makers in Punjab to abandon mono-culture focus on agriculture and seek diversification to other economic activities. It is inevitable, though it will be too late.

The approach of tinkering, band-aid and patch work, would not be able to correct the declining spiral of Punjab economy but an extensive analytical research would. The need is to set up a committee to study the economic problems of Punjab and revive the Punjab economy. Further, it would be necessary to transparently and honestly identify specific reasons for slippage in economic position of Punjab. On completing the 'identification' exercise, the government needs to prepare a vision document with milestones for Punjab's recovery, based on wider consultations, and determine a strategy which can be implemented on 'mission' mode to achieve that vision. In this context, India's reforms of 1990-91 have an important lesson for Punjab. The reforms had been crafted after extensive consultations, and developing a consensus. The reforms were implemented very carefully and were cautious, sensitive to circumstances, and diligently sequenced so that they do not affect sentiments of people and do not disrupt normal economic activity. The transition of India to modern economy is for all to see.

A number of alternative strategies can be considered for reviving the Punjab economy. Should industrialization be preferred or development of services sector be considered? These are some of the issues that I have attempted to share in my talk today and offered some suggestions for you to ponder upon.

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