

Agricultural Development in Himachal Pradesh: With Reference To Selected Indicators

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 Agrarian Structure

Land is a basic asset of an agrarian economy, is a pre-requisite for cultivation, the major source of income and an index of household status. It is associated with control over and access to other resources. The agrarian structure of a region describes the relative position of different category of farmers with respect to ownership and operation of land. Since land constitutes the most important income-generating asset of the rural people, a change in the agrarian structure due to land holding pattern reflects relative prosperity or destitution of different sections of rural population. In a situation when land area is more or less fixed but population is growing and the development process does not lead to a proportionate transfer of growing population from agriculture to non-agriculture, then the absolute number of persons and household dependent on agriculture will inevitably increase. This will lead to an increase in the number of marginal farmers and landless agricultural labourers more than proportionately during the course of development. The rate of adoption of technological innovations is remarkably influenced by the existing structure of land holding. In turn, the structure itself gets transformed under the effect of technology.

In rural Himachal Pradesh, the land ownership distribution presents a typical character, in that a vast majority of farmers are marginal and a very few can be regarded big by any standard. The distribution follows a skew pattern. Such a pattern gives a picture of uneven distribution of land holdings among different strata and indicates a high degree of inequality. An important feature of Himachal Pradesh's agrarian structure is the continuing predominance of the small level peasantry, both in number and area. More than nine lakh farmers of Himachal Pradesh cultivate about 9.55 lakh hectares of land with an average operational land holding of 0.99 hectares (Agricultural Census 2010-11).

TABLE 1.1
DISTRIBUTION OF OPERATIONAL HOLDINGS AND OPERATED AREA IN HIMACHAL PRADESH: 1990-91 TO 2010-11

| Operational farm size (in hectare) | 1990-91 | | | 2000-01 | | | 2010-11 | | |
|------------------------------------|---------------------------|--------|-------------------------------------|---------------------------|--------|-------------------------------------|---------------------------|--------|-------------------------------------|
| | Percentage of operational | | Average operational Area (Hectares) | Percentage of operational | | Average operational Area (Hectares) | Percentage of operational | | Average operational Area (Hectares) |
| | Holdings | Area | | Holdings | Area | | Holdings | Area | |
| Marginal (Below 1.0) | 63.82 | 21.26 | 0.40 | 67.28 | 25.72 | 0.40 | 69.78 | 28.63 | 0.41 |
| Small (1.01-2.00) | 19.96 | 23.29 | 1.41 | 19.06 | 24.99 | 1.40 | 18.17 | 25.55 | 1.40 |
| Semi-medium (2.01-4.00) | 12.26 | 25.51 | 2.74 | 9.83 | 24.86 | 2.70 | 8.83 | 24.14 | 2.71 |
| Medium (4.01-10.00) | 4.29 | 20.32 | 5.73 | 3.38 | 17.97 | 5.69 | 2.87 | 16.39 | 5.67 |
| Large (10.01 and above) | 0.67 | 9.61 | 17.65 | 0.43 | 6.45 | 15.90 | 0.34 | 5.29 | 15.45 |
| All sizes | 100.00 | 100.00 | 1.21 | 100.00 | 100.00 | 1.07 | 100.00 | 100.00 | 0.99 |

Sources:

1. Government of Himachal Pradesh, Report on Agricultural Census for relevant years, Directorate of Agricultural Census, Department of Revenue,
2. Economic Survey of Himachal Pradesh 2017-18, Department of Economics and Statistics Government of Himachal Pradesh.

TABLE 1.2
CHANGES IN THE NUMBER AND AREA OF OPERATIONAL HOLDINGS DURING 2000-01 TO 2010-11

(per cent)

| District | Marginal | | Small | | Semi-Medium | | Medium | | Large | | All sizes | |
|------------------|----------|-------|--------|-------|-------------|--------|--------|--------|---------|--------|-----------|-------|
| | H | A | H | A | H | A | H | A | H | A | H | A |
| Bilaspur | 5.92 | 16.28 | -7.11 | 3.79 | -17.52 | -11.28 | -26.31 | -24.76 | -100.00 | -41.66 | 5.15 | -0.57 |
| Chamba | 1.65 | 8.24 | -2.00 | 0.59 | -8.82 | -4.65 | -14.28 | -28.00 | -100.00 | -83.33 | 3.68 | -2.35 |
| Hamirpur | 2.82 | 6.81 | -3.55 | 1.83 | -7.00 | -0.77 | -13.79 | -10.83 | 0.00 | -19.35 | 0.35 | -1.27 |
| Kangra | 1.73 | 7.85 | -2.79 | 0.89 | -5.48 | -0.90 | -10.34 | -8.06 | -25.00 | -10.52 | 2.71 | -2.29 |
| Kinnaur | 3.19 | 6.36 | -0.43 | 3.33 | -7.84 | -2.64 | -8.33 | -5.79 | -20.00 | 0.00 | 7.17 | 2.86 |
| Kullu | 6.09 | 16.37 | -21.58 | -7.64 | -31.25 | -18.75 | -37.5 | -23.43 | -100.00 | -25.00 | 18.87 | -1.78 |
| Lahaul-Spiti | -4.65 | -3.87 | 6.81 | 4.58 | -0.46 | -3.05 | 4.00 | 2.42 | 50.00 | 4.00 | 4.32 | 5.52 |
| Mandi | 4.32 | 12.98 | -10.50 | -1.20 | -6.09 | -9.35 | -23.07 | -19.48 | -100.00 | -20.00 | 5.51 | -1.11 |
| Shimla | 7.58 | 14.85 | -7.59 | 2.25 | -16.66 | -7.02 | -17.50 | -12.10 | -33.33 | 10.00 | 8.34 | -3.34 |
| Sirmaur | 5.79 | 12.87 | -0.94 | 8.45 | -5.05 | 3.42 | -8.54 | 0.30 | -22.22 | -17.76 | 5.52 | -3.37 |
| Solan | 6.63 | 15.87 | 2.64 | 12.56 | -6.96 | 3.57 | -20.45 | -13.31 | -44.44 | -28.76 | 5.69 | -3.91 |
| Una | -0.46 | 5.29 | 1.11 | 2.00 | 2.78 | 5.21 | 2.00 | 2.15 | -18.18 | -24.61 | -4.15 | -5.12 |
| Himachal Pradesh | 3.71 | 10.85 | -4.21 | 2.40 | -11.11 | -2.82 | -14.70 | -8.89 | -25.00 | -17.18 | 5.13 | -2.46 |

Note: H = Operational Holdings; A = Operated Area.

Source: Government of Himachal Pradesh, Reports on Agricultural Census 1990-91, 2000-01, 2010-11, Directorate of Agricultural Census, Department of Revenue.

In 1990-91 holding less than two hectares constituted 83.78 per cent of the total holdings and shared 44.55 per cent of the area operated in Himachal Pradesh. These percentages increased further to 86.34 per cent and 50.71 per cent in 2000-01 and 87.95 per cent and 54.18 per cent in 2010-11 respectively. Over time shares of marginal holdings are increasing in all the districts except for Lahaul-Spiti and Una, where marginal holdings declined to the magnitude of 4.65 per cent and 0.46 per cent respectively. For state as a whole marginal holding registered increase of 3.71 percent in 2010-11, while those of small, semi-medium, medium and large holdings are declining (Table 4.10). In 2010-11 holdings with more than ten hectares accounted for about only 0.34 per cent and controlled about 5.29 per cent of operated area. Thus farmers with 2 to 10 hectares of holding accounted for 11.17 per cent and operated

40.53 per cent in 2010-11. The change in operational land holding distribution was facilitated by among other factors, land reforms that emphasized tenancy law of „land to the tiller“ and to an extent land distribution. Agriculture is small-scale and becoming smaller scale over time mainly due to population pressure and inadequate growth of off-farm employment and income opportunities.

In Himachal Pradesh due to sub-division and fragmentation, land holdings are becoming uneconomic which pose an insurmountable problem. Besides, that lack of land consolidation, the holdings are scattered and unmanageable and which are limiting factor for crop output. Tenancy regulations and land lease do not allow farming on large scales. The district-wise agricultural census data presented in Table

4.11 reveals growing marginalisation of the peasantry during 1990-91 to 2010-11 in Himachal Pradesh. It can be seen that whereas the number as well as proportion of the semi-medium, medium and large holding have declined, the number of operational holdings in the marginal-size group the area operated by them have increased tremendously in all districts. The growth is remarkable particularly in Shimla, Solan Kullu, Bilaspur, Sirmaur and Mandi. Lahaul-Spiti remained exception in this case where both holding and operated area in marginal and semi-medium category has shown decline. In Himachal Pradesh operational holdings in the marginal group has increased 10.85 per cent in 2010-11.

4.9 Infrastructural Development

Agricultural growth of a region highly depends upon degree of availability of rural infrastructure. Research has proved that agriculturally advanced regions generally possess a higher degree of availability of rural infrastructure such as the spread of rural road networks, extent of rural electrification, land development, quality irrigation, transport and communication. In contrast to this, agriculturally backward regions lack in all

these developments and the rural people suffers from a vicious circle of poverty and miseries in the absence of basic infrastructure and fail to initiate and accelerate the pace of agricultural development in these regions (Rao, 1977). As with the level of good infrastructure and human skills not only productivity increases of the existing resources but also helps in growth of economy. It also helpsto attract more investment which can be expected to increase growth further. The inter-relationship between rural infrastructure and agricultural development can be summarized in the following words: the functions of rural infrastructure is to release unused agricultural productivity in the factors of production which largely brings about not only an increase in the output of individual factors but also a mutually additive effect through co-ordination in inputs, outputs, space and time which maximize the overall rate of agricultural growth (Rao, 1983).

However all districts of Himachal Pradesh suffer from infrastructural development deficiencies, the poorer performing districts definitely lag behind in this area. Institutional and Physical infrastructure is pre-requisite for sustained development of economy and is needed everywhere. The focus of this section is on physical infrastructure like cash deposit ratio, electrification, roads length per *sq km*, irrigation and number of educational institution per *sq km*. An attempt has been made at developing some composite index of district-wise infrastructure development after giving scores to five commonly used representative indicators of physical infrastructure. These are not widely accepted indicators of regional development, rather there may be many more. The selection and relative weightage to economic indicators is a much-debated issue. Regression analysis is sometime used for a more sophisticated evaluation of the data. A rough sketch of regional development can be drawn by a simple index in which the indicators are given equal weight. A five-point scale is constructed so as to arrive at index numbers. Five economic indicators have been taken to measure regional development in 12 districts of Himachal Pradesh and aranking scale has been constructed. The following indicators are selected: (a) road length per *sq km* of area, (b) percentage of villages electrified, (c) number of educational institutions per *sq km* of area, (d) irrigated area as percentage of gross cropped area and (e) credit-deposit ratio.

TABLE 1.3
AGRICULTURAL INDICATORS FOR COMPOSITE INFRASTRUCTURAL INDEX FOR VARIOUS DISTRICTS OF HIMACHAL PRADESH

| District | Road length per sq km of area (km) | | Number of educational institutes per sq km of area | | Villages electrified (%) | | Net Irrigated area as % to GCA | | Credit-Deposit ratio | |
|------------------|------------------------------------|---------|--|---------|--------------------------|---------|--------------------------------|----------|----------------------|---------|
| | 1990-91 | 2013-14 | 1990-91 | 2013-14 | 1990-91 | 2013-14 | 1990-91 | 2013-14* | 1990-91 | 2013-14 |
| Bilaspur | 83.59 | 142.50 | 41.64 | 72.00 | 98.78 | 100.00 | 7.21 | 6.71 | 28.91 | 23.00 |
| Chamba | 15.64 | 49 | 14.59 | 24.00 | 90.42 | 100.00 | 5.15 | 5.23 | 25.82 | 27.94 |
| Hamirpur | 91.31 | 165.92 | 47.04 | 70.00 | 99.73 | 100.00 | 2.23 | 2.70 | 15.23 | 16.48 |
| Kangra | 61.23 | 101.92 | 36.67 | 44.00 | 96.41 | 100.00 | 15.13 | 16.74 | 20.61 | 20.45 |
| Kinnaur | 8.47 | 15.87 | 3.34 | 4.00 | 82.24 | 100.00 | 46.76 | 51.04 | 41.60 | 36.54 |
| Kullu | 13.98 | 32.80 | 9.41 | 18.00 | 98.97 | 98.28 | 3.69 | 4.28 | 36.32 | 39.13 |
| Lahaul-Spiti | 5.89 | 9.01 | 1.61 | 2.00 | 90.40 | 100.00 | 98.19 | 102.17 | 19.51 | 19.05 |
| Mandi | 64.81 | 140.13 | 36.98 | 62.00 | 94.59 | 100.00 | 8.55 | 7.88 | 36.22 | 26.80 |
| Shimla | 50.94 | 102.16 | 27.42 | 44.00 | 96.98 | 100.00 | 4.20 | 2.40 | 35.34 | 29.66 |
| Sirmaur | 56.57 | 106.44 | 28.14 | 49.00 | 97.49 | 100.00 | 17.78 | 18.75 | 67.36 | 77.67 |
| Solan | 82.84 | 148.55 | 36.67 | 56.00 | 98.79 | 100.00 | 14.05 | 19.66 | 93.21 | 74.40 |
| Una | 80.89 | 120.26 | 35.58 | 50.00 | 99.78 | 100.00 | 7.62 | 15.82 | 30.74 | 27.48 |
| Himachal Pradesh | 31.22 | 63.12 | 17.35 | 27.00 | 97.49 | 99.99 | 10.09 | 11.63 | 34.92 | 32.69 |

Note: GCA = Gross Cropped Area.

Sources:

1. Government of Himachal Pradesh, Statistical Outline of Himachal Pradesh, various issues, Directorate of Economics and Statistics,
2. Government of Himachal Pradesh, Annual Season and Crop Reports of Himachal Pradesh, various years, Directorate of Land Records,

3. Government of Himachal Pradesh, Statistical abstract of Directorate of Economics and Statistics. „**“ indicate to data on net irrigated area of the year 2010-11.

In the next step, the data, in order to facilitate comparison, have been reduced to a five point score (i.e. low percentage =1, high percentage =5). Then all the districts are given rankings according to their five-point scores. The resulting index provides only a rough estimate of the economic position of these districts. It is evident from

Table 4.12 that considerable progress in extending road network has been made since 1990-91 and road density between 1990-91 to 2013-14 has increased by 102.17 per annum cent for the state as a whole. This has promoted direct links and reduced commutable distances between various regions of the Himachal Pradesh. It is clear from Table 4.12 that Hamirpur district possesses the highest road density in the state. Solan takes second position followed by Bilaspur, Mandi, Una, Sirmaur. Lahaul-Spiti occupied the last rank with road density of 9.01 kms per sq km of the geographic area. Chamba, Kinnaur and Kullu were among the districts having far below density of road than the state, because of difficult hilly terrain, prevalence of villages, scattered settlement and low density of population are probable reasons.

All inhabited villages and towns in the state have been provided with electricity supply by 31st March 2014. Table 4.11 clearly shows the tremendous progress made in providing electricity in the Himachal Pradesh. The 99.99 per cent of the inhabited villages were covered under the facility of electricity.

Irrigation plays a decisive role in the development of agricultural output and modernizes the traditional agriculture, particularly in the areas having insufficient and unpredictable rain. However the statistics available on area under irrigation in the state provides a bad picture of the districts as well as of Himachal Pradesh. The area under irrigation in the state as a whole has shown a marginal increase from 16.38 per cent in 1990-91 to 21.46 per cent in 2013-14. Irrigated area as percentage of gross cropped area has shown some increase in all the districts, except for Bilaspur, Mandi, and Shimla. In tribal district, Lahaul-Spiti and Kinnaur exhibits that 99.97 per cent and 51.04 per cent area is under irrigation. Bilaspur, Chamba, Hamirpur, Kullu, Mandi and Shimla are at the bottom with less than ten per cent of area under irrigation. Between the two periods, the credit deposit ratio has decreased significantly in the state as well in all the districts barring Chamba, Hamirpur, Kullu and Sirmaur where it has shown a marginal increase.

In addition to the infrastructural development highlighted in foregoing discourse, other areas where state has achieved a lot are increase in area under forest, hydroelectric power generation, tourism and tremendous increased production of fruits and vegetables over the period of time.

**TABLE 1.4
ECONOMIC RANKING SCHEME: THE SCORE**

| Grade | Road length per sq km of area (km) | Number of educational institutes per sq km of area | Villages electrified (%) | Irrigated area as % to GCA | Credit- Deposit ratio |
|-----------|------------------------------------|--|--------------------------|----------------------------|-----------------------|
| High | 70.01 above | 50.01 above | 95.00 above | 80.01 above | 80.01 above |
| Moderate | 55.01 to 70.00 | 40.01 to 50.00 | 90.01 to 95.00 | 60.01 to 80.00 | 65.01 to 80.00 |
| Average | 40.01 to 55.00 | 30.01 to 40.00 | 85.01 to 90.00 | 40.01 to 60.00 | 85.01 to 65.00 |
| Deficient | 25.01 to 40.00 | 20.01 to 30.00 | 80.01 to 85.00 | 20.01 to 40.00 | 35.01 to 50.00 |
| Low | 25.00 below | 20.00 below | 80.00 below | 20.00 below | 35.01 below |

Notes:

1. For the immediate stage between „High“ and „Low“ the terms „Moderate“ „Average“ and „Deficient“ have been used.
2. GCA = Gross Cropped Area.

**TABLE 1.5
RANKING ORDER IN TERMS OF FIVE ECONOMIC INDICATORS**

| District/ Rank | Roads I | | Number of Institutes II | | Electricity III | | Net irrigated area IV | | Credit-Deposit Ratio V | | Change overtime | |
|-------------------|---------|---------|-------------------------|---------|-----------------|---------|-----------------------|---------|------------------------|---------|-----------------|---------|
| | 1990-91 | 2013-14 | 1990-91 | 2013-14 | 1990-91 | 2013-14 | 1990-91 | 2013-14 | 1990-91 | 2013-14 | 1990-91 | 2013-14 |
| Bilaspur | 1 | 1 | 2 | 1 | 1 | 1 | 5 | 5 | 5 | 5 | 14 | 13 |
| Chamba | 5 | 3 | 5 | 4 | 2 | 1 | 5 | 5 | 5 | 5 | 22 | 18 |
| Hamirpur | 1 | 1 | 2 | 1 | 1 | 1 | 5 | 5 | 5 | 5 | 14 | 13 |

| | | | | | | | | | | | | |
|------------------|---|---|---|---|---|---|---|---|---|---|----|----|
| Kangra | 2 | 1 | 3 | 2 | 1 | 1 | 5 | 5 | 5 | 5 | 16 | 14 |
| Kinnaur | 5 | 5 | 5 | 5 | 4 | 1 | 3 | 3 | 4 | 4 | 21 | 18 |
| Kullu | 5 | 4 | 5 | 5 | 1 | 1 | 5 | 5 | 4 | 4 | 20 | 19 |
| Lahaul-Spiti | 5 | 5 | 5 | 5 | 2 | 1 | 1 | 1 | 5 | 5 | 18 | 17 |
| Mandi | 2 | 1 | 3 | 1 | 2 | 1 | 5 | 5 | 4 | 5 | 16 | 13 |
| Shimla | 3 | 1 | 4 | 2 | 1 | 1 | 5 | 5 | 5 | 5 | 18 | 14 |
| Sirmaur | 2 | 1 | 4 | 2 | 1 | 1 | 5 | 5 | 2 | 2 | 14 | 11 |
| Solan | 1 | 1 | 3 | 1 | 1 | 1 | 5 | 5 | 1 | 2 | 11 | 10 |
| Una | 1 | 1 | 3 | 2 | 1 | 1 | 5 | 5 | 5 | 5 | 15 | 14 |
| Himachal Pradesh | 4 | 2 | 5 | 4 | 1 | 1 | 5 | 4 | 5 | 5 | 20 | 16 |

A cursory look at Table 4.13 makes it clear that all the districts and state of Himachal Pradesh have made headway toward development and improved their position in Composite Index between 1990-91 and 2013-14. Moreover, districts like Chamba, Kinnaur, Mandi, Shimla and Sirmaur represented low rank during 1990-91, have improved their rankings in the corresponding period 2013-14.

The Composite Index reveals that Solan and Sirmaur ranks first and second in terms of best infrastructure and Kullu ranks the last and has poorest infrastructure in terms of above mentioned indicators. Bilaspur, Hamirpur and Mandi ranked third. District Kangra, Shimla and Una shared fourth position according to Composite Infrastructural Index, whereas district Chamba and Kinnaur shared fifth position in Composite Index.

4.10 Progress of Selected Agricultural Development Indicators in Himachal Pradesh

Table 4.14 represents change in selected agricultural development indicators in different districts of Himachal Pradesh during triennium ending 1980-1983 over triennium ending 2010-13.

Gross Cropped Area

Gross cropped area in the state has decreased marginally from 979034 hectares in triennium ending 1990-93 to 941751 hectares in triennium ending 2010-13, registering a decrease of 3.80 per cent, over the base year. District, Kinnaur, Chamba, Una, and Lahaul-Spiti have recorded an increase of 10.37 per cent, 3.71 per cent, 3.13 per cent and 2.60 per cent respectively; contrary to these there is a decrease in gross cropped area of Bilaspur, Hamirpur, Kangra, Kullu, Shimla and Sirmaur. Highest fall in GCA is registered in Shimla and followed by Kullu, Hamirpur and Bilaspur. Rest of them has shown a nominal increase in gross cropped area during the period.

Himachal Pradesh, with its peculiar hilly topography offers very limited possibilities for extensive cultivation. In fact, the margin of cultivation seems to have reached at optimum level.

**TABLE 1.6
PROGRESS OF SELECTED AGRICULTURAL DEVELOPMENT INDICATORS IN HIMACHAL PRADESH**

| District | Gross cropped area (hectare) | | | | | Per hectare fertilizer consumption (kg) | | | | | % irrigated area to GCA | | | | |
|----------|------------------------------|---------|----------------------------------|---------|----------------------------------|---|---------|---------------------------------|---------|---------------------------------|-------------------------|---------|---------------------------------|---------|---------------------------------|
| | Triennium ending | | | | | Triennium ending | | | | | Triennium ending | | | | |
| | 1990-93 | 2000-03 | % change over 1990-93 to 2000-03 | 2010-13 | % change over 2000-03 to 2010-13 | 1990-93 | 2000-03 | %change over 1990-93 to 2000-03 | 2010-13 | %change over 2000-03 to 2010-13 | 1990-93 | 2000-03 | %change over 1990-93 to 2000-03 | 2010-13 | %change over 2000-03 to 2010-13 |
| Bilaspur | 60428 | 57679 | -4.55 | 56473 | -2.09 | 35.11 | 31.50 | -10.29 | 37.41 | 18.78 | 7.21 | 10.17 | 41.05 | 11.65 | 14.55 |
| Chamba | 61870 | 65487 | 5.84 | 67918 | 3.71 | 12.15 | 13.85 | 13.99 | 20.00 | 44.40 | 5.15 | 11.72 | 127.57 | 10.22 | -12.80 |
| Hamirpur | 75454 | 69742 | -7.57 | 68189 | -2.23 | 33.17 | 32.44 | -2.20 | 38.26 | 17.94 | 2.23 | 5.44 | 143.94 | 5.03 | -7.53 |
| Kangra | 216810 | 218456 | 0.76 | 217555 | -0.41 | 30.42 | 34.69 | 14.04 | 44.89 | 29.41 | 15.13 | 30.12 | 99.07 | 28.09 | -6.74 |
| Kinnaur | 9007 | 9003 | -0.04 | 9937 | 10.37 | 16.54 | 12.92 | -21.87 | 28.11 | 117.54 | 46.76 | 61.29 | 31.07 | 62.97 | 2.74 |
| Kullu | 62913 | 62927 | 0.02 | 60798 | -3.38 | 24.81 | 36.29 | 46.27 | 77.33 | 113.08 | 3.69 | 4.48 | 21.40 | 4.84 | 8.03 |
| Lahaul- | 3299 | 3462 | 4.94 | 3552 | 2.60 | 97.30 | 87.34 | -10.24 | 117.88 | 34.97 | 98.19 | 100.00 | 1.84 | 99.97 | -0.03 |

| | | | | | | | | | | | | | | | |
|------------------|--------|--------|--------|--------|-------|-------|-------|-------|--------|-------|-------|-------|--------|-------|--------|
| Spiti | | | | | | | | | | | | | | | |
| Mandi | 164021 | 158994 | -3.06 | 159162 | 0.10 | 27.99 | 34.23 | 22.28 | 39.45 | 15.26 | 8.55 | 16.40 | 91.81 | 15.64 | -4.63 |
| Shimla | 106731 | 94977 | -11.01 | 86469 | -8.96 | 48.17 | 75.59 | 56.92 | 143.06 | 89.26 | 4.20 | 5.30 | 26.19 | 4.13 | -22.07 |
| Sirmaur | 78781 | 75434 | -4.24 | 74876 | -0.74 | 23.69 | 40.06 | 69.08 | 49.58 | 23.79 | 17.78 | 34.85 | 96.00 | 36.46 | 4.62 |
| Solan | 68709 | 63146 | -8.096 | 63483 | 0.53 | 36.72 | 38.24 | 4.15 | 62.84 | 64.30 | 14.05 | 28.05 | 99.64 | 30.70 | 9.44 |
| Una | 71010 | 71113 | 0.14 | 73341 | 3.13 | 51.52 | 72.89 | 41.48 | 103.92 | 42.57 | 7.62 | 18.15 | 138.18 | 25.03 | 37.90 |
| Himachal Pradesh | 979034 | 949496 | -3.01 | 941751 | -0.81 | 33.41 | 40.52 | 21.29 | 58.69 | 44.84 | 10.09 | 19.26 | 90.88 | 20.18 | 4.77 |

(Table 4.14 continued)

| Districts | % area under HYVs to gross cropped area | | | | | Per hectare yield of foodgrains (kg) | | | | |
|------------------|---|---------|----------------------------------|---------|----------------------------------|--------------------------------------|---------|----------------------------------|---------|----------------------------------|
| | Triennium ending | | | | | Triennium ending | | | | |
| | 1990-93 | 2000-03 | % change over 1990-93 to 2000-03 | 2010-13 | % change over 2000-03 to 2010-13 | 1990-93 | 2000-03 | % change over 1990-93 to 2000-03 | 2010-13 | % change over 2000-03 to 2010-13 |
| Bilaspur | 65.53 | 92.17 | 40.65 | 92.58 | 0.45 | 1451 | 1698 | 17.02 | 1776 | 4.59 |
| Chamba | 45.58 | 27.15 | -40.44 | 13.60 | -49.90 | 1502 | 1955 | 30.16 | 1761 | -9.92 |
| Hamirpur | 59.77 | 95.23 | 59.32 | 86.30 | -9.37 | 1481 | 1540 | 3.98 | 1622 | 5.32 |
| Kangra | 57.78 | 46.96 | -18.72 | 39.33 | -16.26 | 1556 | 1491 | -4.18 | 1488 | -0.20 |
| Kinnaur | 16.74 | 0.00 | -100.00 | 0.00 | 0.00 | 881 | 903 | 2.50 | 934 | 3.43 |
| Kullu | 51.84 | 48.86 | -5.75 | 51.53 | 5.48 | 1720 | 1967 | 14.36 | 1874 | -4.73 |
| Lahaul-Spiti | 23.06 | 14.79 | -35.87 | 14.58 | -1.39 | 802 | 4426 | 451.87 | 1307 | -70.47 |
| Mandi | 68.63 | 74.28 | 8.24 | 86.48 | 16.42 | 1529 | 1860 | 21.65 | 1997 | 7.37 |
| Shimla | 37.57 | 15.40 | -59.00 | 9.02 | -41.44 | 1387 | 1331 | -4.04 | 1391 | 4.51 |
| Sirmaur | 52.42 | 56.13 | 7.07 | 63.14 | 12.50 | 1629 | 1827 | 12.15 | 1868 | 2.24 |
| Solan | 58.39 | 77.80 | 33.24 | 80.56 | 3.55 | 1367 | 1517 | 10.97 | 1727 | 13.84 |
| Una | 59.43 | 90.14 | 51.68 | 89.75 | -0.44 | 1573 | 1664 | 5.79 | 1801 | 8.23 |
| Himachal Pradesh | 53.91 | 59.08 | 9.58 | 58.98 | -0.17 | 1502 | 1667 | 10.99 | 1713 | 2.76 |

Note : GCA = Gross Cropped Area, HYVs = High Yielding Varieties

Sources :

1. Government of Himachal Pradesh, *Statistical Outline of Himachal Pradesh, various issues*, Directorate of Economics and Statistics .
2. Government of Himachal Pradesh, *Annual Season and crop Reports of Himachal Pradesh, various years*, Directorate of Land Records.
3. Economic Survey Himachal Pradesh, 2017-18, Economics and Statistics Department.

Fertilizer Consumption

Fertilizer being a key input which directly effects agricultural production and development of rural areas. 57.49 kg of fertilizer (Nitrogen, Phosphate and Potash) are applied per hectare of cropped area in Himachal Pradesh for 2016-17, which is less than one third of the average of the country which is 123.41kg per hectare (Table 1.1). Table 4.15 clearly shows an increase of 44.84 per cent in the consumption of fertilizer in the state during triennium ending 2010-13. Kinnaur district shows the highest growth in fertilizer consumption (117.54 per cent) followed by Kullu (113.08per cent) and Shimla (89.26 per cent). On the other hand Mandi, Hamirpur, and Chamba recorded marginal increase of the magnitude of 15.26 per cent, 17.94 percent and 18.78 per cent respectively. There is still scope for, to increase the use of fertilizer in thestate. The constraining factor has been lack of complementary input irrigation in Himachal Pradesh. Punjab ranks first in per hectare consumption of fertilizer in the country where it is 243 kg per hectare in 2017 (GOI, 2017).

Irrigated Area

Without proper use of irrigation it is not possible to get good returns on high yielding seeds and higher doses of fertilizer in agriculture. In traditional agriculture, irrigation wasrecognized only for its protective role, as an insurance against drought but with the new strategy of adopting high yield varieties of seeds and multiple

cropping, controlled irrigation has become a basic necessity for garnering high yields. While there is huge amount of water available in the state of Himachal Pradesh, yet water use for irrigation of agriculture is limited only 20.46 per cent in 2010-11 (Table 1.1).

Table 4.14 clearly shows that there has been hardly any growth in the percentage of irrigated area to gross cropped area. The figures (refer Table 4.15) indicate an uneven growth of irrigated area among the different districts over twenty three years. District Una has shown an increase of 37.90 percentage points. The state as a whole records a marginal increase of 4.77 percentage points in the triennium ending 2010-13. The paradox of scarcity amid sufficient can easily be seen in the stark form in the state of Himachal Pradesh. There is no shortage of water in the five rivers and numerous streams of the state. Need is to harness the water potentials of the state. The water of these rivers indeed irrigates the parched fields of Punjab, Haryana and even Rajasthan. Yet it cannot be used for irrigation much in Himachal Pradesh because of problems of topography and terrain.

Area under High-Yielding Varieties

The era of green revolution was primarily based on high-yielding variety of seeds. With the breakthrough of new crop production technology during late sixties, high-yielding varieties of seeds have been introduced in the state. The percentage of area under HYVs to gross cropped area was 59.08 per cent during triennium ending 2000-03, which decreased marginally to 58.98 per cent triennium ending 2010-13 due to the optimality of these seeds. District Bilaspur registered the maximum of percentage area under high-yielding varieties followed by Una, Mandi, and Hamirpur districts. It may be seen from the Table 4.15 that area under irrigation and HYVs are negatively correlated. Over the period of four decade, there has been considerable increase in percentage of area under HYVs to gross cropped area in almost all the districts of the state except Kinnaur where it is either constant or recorded a decline.

Per Hectare Yield of Foodgrains

Trends in productivity of foodgrains in the state are examined for the triennium average 1990-93 and 2010-13. The percentage increase in per hectare yield of foodgrains is found to be maximum (13.84 per cent) in Solan district followed by Una (8.23 per cent) and Hamirpur (5.32 per cent). In Sirmaur district percentage change in per hectare yield was below the state's average. The percentage change in per hectare yield in Chamba, Kangra, Kullu and Lahaul-Spiti districts was negative. Average yield of foodgrains in the state recorded a 2.76 per annum cent increase. There is a great variation in food grain production and productivity in different districts of the state. Productivity in general has shown an increasing trend in majority of districts except Chamba, Kangra, Kullu and Lahaul-Spiti. Nevertheless, the variation of productivity between different districts is wide. The increase in productivity is due to increase in higher doses of fertilizer, extended area under HYVs along with the increased use of irrigation potential over the period of time.

4.11 Production Structure of the Economy

The production structure of the state is highly unbalanced, even more than what it was at the national level during early 1950s. Agriculture, industry and services contributed 69.4 per cent, 17.3 per cent and 13.2 per cent respectively to the state domestic product. The corresponding figures at the national level were 51.3 per cent, 33.1 per cent and 15.8 per cent respectively (Himachal Pradesh Development Report, 2005). The production structure of the state has since changed. The share of the primary sector in SDP declined sharply from 50.80 per cent in 1980-81 to 14.67 per cent in 2015-16 at constant prices of 2004-05, a decrease of 71.12 percentage points. The share of secondary sector in SDP increased from 20.98 per cent in 1980-81 to 36.40 per cent in 2015-16, an increase of 73.49 percentage points. The share of tertiary sector registered an increase of 69.77 percentage points during the same period.

TABLE 1.7
CHANGES IN STRUCTURE OF NET STATE DOMESTIC PRODUCT IN HIMACHAL PRADESH
1980-81 TO 2015-16

| Sector | Percentage Share of Each Sector | | | | | | | | | |
|--------------------|---------------------------------|---------|---------|---------|---------|--------------------|---------|---------|---------|---------|
| | At current prices | | | | | At constant prices | | | | |
| | 1980-81 | 1990-91 | 2000-01 | 2010-11 | 2015-16 | 1980-81 | 1990-91 | 2000-01 | 2010-11 | 2015-16 |
| Primary Sector | 47.47 | 36.20 | 30.17 | 19.98 | 17.14 | 50.80 | 43.12 | 28.63 | 20.01 | 14.67 |
| Secondary Sector | 15.30 | 22.59 | 29.32 | 38.09 | 34.87 | 20.98 | 22.62 | 34.14 | 37.19 | 36.40 |
| Tertiary Sector | 37.23 | 41.20 | 40.51 | 41.93 | 47.99 | 28.82 | 34.25 | 37.23 | 42.79 | 48.93 |
| Net State Domestic | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

| | | | | | | | | | | |
|------------------------------|------|------|-------|-------|--------|-------|-------|-------|-------|-------|
| Product(Total) | | | | | | | | | | |
| Per annum capita Income (Rs) | 2335 | 6404 | 21640 | 68297 | 114371 | 16982 | 20121 | 26785 | 46682 | 62976 |

Sources:

1. Government of Himachal Pradesh, State Domestic Product of Himachal Pradesh, various issues, Directorate of Economics and Statistics, Himachal Pradesh, Shimla.
2. State Statistical Abstract of Himachal Pradesh, Department of Economics and Statistics.

Table 4.15 clearly illustrates that the share of primary sector at current prices was 47.47 per cent during 1980-81 which came down to 30.17 per cent during 2000-01 and further declined to 17.14 per cent during 2015-16. On the other hand the share of secondary and tertiary sector has increased from 52.53 per cent in 1980-81 to 82.86 per cent during 2015-16. Per annum capita net state domestic product in Himachal Pradesh has shown substantial growth from Rs. 2335 to Rs. 114371 in 2015-16. This declining share of agriculture tells that the state economy is underway to structural transformation.

The declining share of agriculture did not affect the importance of this sector as the state's economic growth still is being determined by the trend in agricultural production. It is the major contributor to the total domestic product and has an overall impact on the economy via input linkages, trade and employment. The state has made outstanding progress in the development of horticulture. The topographical variations and altitudinal differences, along with fertile, deep and well-drained soils, favoured the cultivation of temperate as well as sub-tropical fruits in the state of Himachal Pradesh. The state is suitable for the cultivation of ancillary horticultural product like flowers, mushroom and honey.

TABLE 1.7
SHARE OF AGRICULTURE SECTOR IN STATE INCOME/NATIONAL INCOME AT CURRENT PRICES AND TOTAL WORKFORCE IN HIMACHAL PRADESH AND INDIA

| Year | Percentage share of agriculture in GSDP | | Percentage share of agriculture in total workforce | |
|---------|---|-----------|--|-----------|
| | Himachal Pradesh | All-India | Himachal Pradesh | All-India |
| 1980-81 | 43.72 | 39.7 | 70.81 | 60.51 |
| 1990-91 | 26.5 | 32.2 | 66.55 | 59.0 |
| 2000-01 | 19.00 | 24.6 | 63.7 | 58.4 |
| 2010-11 | 15.81 | 14.59 | 62.00 | 48.88 |
| 2017-18 | 8.8 | 14.39 | 62.00 | 49 |

Sources:

1. Government of Himachal Pradesh, Reports on Agricultural Census, 1990-91, 2000-01, 2010-11, Directorate Land Records.
2. Government of Himachal Pradesh, *Statistical Outline of Himachal Pradesh for relevant years*, Directorate of Economics and Statistics.
3. Government of Himachal Pradesh, Economic Survey of Himachal Pradesh 2017-18, Directorate of Economic and Statistics.
4. Economic Political Weekly 2002 National Accounts Statistics 1950-51 to 2005-06.

The state's gross domestic product (GDP) at factor cost and at constant prices (2004-05) in 2015-16 is estimated to Rs. 54901.2 crore, as against Rs. 39054.4 crore (2010-11) registering a growth of 40.57 per cent. At constant prices in 2004-05 GDP is estimated at Rs. 24076.59 crore as against Rs. 11327.69 crore in 1990-91, showing an increase of 112.54 per cent during the period.

The „absolute size“ of State Domestic Product (SDP i.e., value added) from agriculture (at 2004-05 prices) in 2015-16 is Rs. 8803.01 crore as against Rs. 3353.58 crore in 2000-01. The economy has shown a shift from agriculture to industries and services as the percentage contribution of agriculture and allied sectors in total state domestic product declined from 43.72 per cent in 1980-81 to 26.5 per cent in 1990-91 and further 8.8 per cent in the year 2017-18 and workforce engaged with the agriculture is 62.00 per cent in 2017-18. Over the period „relative size“ of agriculture has declined on the other hand that of industry and services sector has increased. This indicates that the economy of Himachal is undergoing a structural transformation from reducing its „relative dependence“ on agriculture for its income as well as employment- generation is concerned. This transformation seems to be much more rapid in the state compared to other states of India. The decline in agriculture's „relative share“ in the state income is much faster than that of India and as far as workforce engaged with agriculture is concerned, converse is the situation in Himachal Pradesh (Table 4.16).

4.12 Conclusion

From the preceding discussion it can be concluded that Himachal Pradesh is a hilly state with varied regional differences in agro-climatic environment, resource endowment and population density is concerned. The undulating topography of state, rough and rugged terrain, mostly inaccessible villages, sparse population, harsh climate, small landholdings of steep gradient and rocky fields, makes it difficult to tap the traditional sources of irrigation. Because of these typical agro-climatic and geographical features of the state, there is the added problem of unsuitability or inapplicability of technological research in the fields of agricultural and horticulture. Consequently, there is little use of contemporary and improved inputs which keeps the productivity low throughout the Himachal Pradesh. The state generally lacks in infrastructural facilities of power use in agriculture, markets access, irrigation, institutional finance and industrial climate.

The state has about two-third of the reporting area under forests, and only 17 per cent land is available for cultivation, because of which average size of holding in the state is quite small at 0.99 hectares (Table 1.1). The agriculture census 2010-11 has shown a decline of cultivators and increase in other-services and the shift of cultivators to other economic activities. The share of agricultural workers in main workers in the state decreased steadily from 70.80 per cent during 1980-81 to 62 per cent during 2017-18.

Over a period, there are additions to small and marginal farmers from semi-medium groups. The percentage of area under small and marginal farmers is substantial and has been growing. The net-sown area (NSA) is only about 11.90 per cent of the total reported area. The net-sown area started declining in the nineties, which is different from All-India position where there was a positive growth rate of NSA in the period (*Agriculture in Brief 26th ed.*). Cereals dominates crop pattern in all districts barring Lahaul-Spiti. Wheat and maize are replacing coarse cereals, pulses and oilseeds. The area under fruits and vegetables has increased by 13.61 per cent during triennium ending 2010-13.

The share of primary sector in Net State Domestic Product is decreasing at a fast rate. Primary sector contributed 50.80 per cent of the total NSDP during 1980-81 which declined to

14.67 per cent during 2015-16 at 2004-05 constant prices. The secondary sector of the state economy witnessed a very high growth during the period 1980-81 to 2015-16. The contribution of secondary sector rose from 20.98 per cent to 36.40 per cent during the same period. The percentage share of tertiary sector has also gone up from 28.22 per cent to 48.93 per cent during the above mentioned period.

Even though the Primary sector's contribution to total state domestic product at 2004-05 current prices has fallen from 47.47 per cent in 1980-81 to 36.20 per cent in 1990-91 and further to 17.14 per cent in 2015-16 in the state economy, the labour force dependent on agriculture as a proportion of total labour force has shown only a marginal decline. It declined from 70.81 per cent in 1980-81 to 62 per cent in 2017-18. This cannot be termed as healthy structural transformation as the decline in the share of primary sector is much faster than the corresponding decline in labour force depending upon agriculture. The sectoral distribution in terms of shares of employment is even more unequal, with agriculture accounting for about 62 per cent, manufacturing industry and service sector accounting for about 38 per cent in 2017-18. In other words, even after seven decades of planned development with emphasis on industry, agriculture continues to be the single largest sector in terms of employment generation in the state of Himachal Pradesh is concerned. The performance of the agriculture sector would then have important implications for the overall growth of the economy.

Agriculture in the state suffers from certain limitations. Because, most of the farming in the state is rain-fed as only about 20.46 per cent area of gross cropped area assured irrigation. The climate, rainfall, soil, and temperature in different areas of Himachal Pradesh is quite different resulting in varying agro-climate practices, cropping pattern, time of sowing, harvesting etc. The state is further handicapped by the inadequacy of irrigational facilities and therefore the success of agriculture by and large is dependent upon rain which is sometimes erratic and not well-spread. Operational land holdings are small and scattered. Awareness level of farmers is low and technologies are out of date. Such factors have hindered the adoption of new farm technology resulting in lower yield rates as compared to other states.

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