CHAPTER IX

POWER AND INDUSTRY

(A) POWER

The two major objectives that the planners have set to accomplish are: (i) removal of poverty, and (ii) attainment of economic self-reliance. The strategy for the attainment of these two goals underlines boosting up the programmes of development along socialistic lines, i.e., rapid economic growth and expansion of employment opportunities, reduction of inter-regional and inter-personal disparities in income and wealth, and prevention of concentration of economic power. Recent energy crisis, shortages and scarcities have shown that the energy power has a significant role to play as an effective catalyst and driving force for economic growth. Power provides the basic infrastructure for economic development; it is a vital input for agriculture and industry thereby helping both in achieving a higher national production.

Sources: There are various sources from which energy can be obtained, viz., burning coal, oil, gas, wood waste, etc. It can also be obtained in substantial quantities from nuclear materials. However, the most important source of energy, which man found, is the power of water when it falls from a height. This hydro-power has been utilised by man in the form of water mills for grinding wheat and other food stuffs.

There are many advantages of hydro-power. First and foremost is that hydro-power is the cheapest of all the other sources of producing power. The additional advantage of many of the hydel projects is their irrigation potential, which is so important for the economy of the rural areas.

The benefits accruing from the usage of energy in agriculture are two-fold: (i) change in the area irrigated through lift irrigation, and (ii) change in the cropping


pattern and intensity of cropping. Some of the case studies conducted in different parts of the country to assess and analyse the benefits of energy whether electricity or diesel oil, show a positive trend.

**Power Potential in Himachal Pradesh**: The total estimated hydro-power potential in India is 41 million KW at 60 per cent load factor. Power potential in the Himalayas is 24 million KW and in the Western Ghats 6 million KW. Thus three-fourth of the hydro-potential in India is in these mountain ranges. The hydro-power potential in the Himalayan mountains is far more than the Western Ghats because of the height of the mountains and the large perennial flow of the snow-fed river.

Himachal Pradesh abounds in substantial power from the upper reaches of Indus and Ganges systems. The estimated power potential of Himachal Pradesh is as follows:

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5. Ibid.
PATTERN OF GENERATION & PURCHASE OF ELECTRIC POWER FOR HIMACHAL PRADESH 1975-76

44.7% 55.3%
GENERATION PURCHASED
TABLE NO.2.1

Power Potential of Himachal Pradesh

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Name of River</th>
<th>Potential Capacity in MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Yamuna</td>
<td>489.00</td>
</tr>
<tr>
<td>2.</td>
<td>Sutlej</td>
<td>4078.00</td>
</tr>
<tr>
<td>3.</td>
<td>Beas</td>
<td>2345.00</td>
</tr>
<tr>
<td>4.</td>
<td>Ravi</td>
<td>1005.55</td>
</tr>
<tr>
<td>5.</td>
<td>Chenab</td>
<td>1504.70</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>9422.25</strong></td>
</tr>
</tbody>
</table>

Thus, the total potential of power in Himachal Pradesh is 9.4 million KW of which only one third has been harnessed or under construction. The greatest advantage of hydro-power in Himachal Pradesh is: (i) easy accessibility of the site (ii) the area is well served by roads as there is already


development in Sutlej and Beas valleys. Therefore, the development of hydro-power in Himachal Pradesh is the easiest. Also, Himachal Pradesh is the closest area to the load centres in northern India. In fact, a careful analysis of the power planning in northern India leads to the conclusion that hydro-power can be harnessed immediately in Himachal Pradesh and the neighbouring Himalayan State of Jammu and Kashmir. At present, there is a deficit of 7 million KW hrs. per day in northern region which causes (i) loss in economic production, (ii) inconvenience to community, and (iii) problem of lay offs.

Power Potential in Tribal Areas of Himachal Pradesh

The tribal areas of Himachal Pradesh have a large potential for power generation through Micro-Hydel schemes. Though the laying of transmission lines to these areas are fraught with exorbitant investment and energy losses on the way, but the tribal areas of the Pradesh provide an ideal

10.  Ibid.
setting for establishment of a network of hydroelectric projects. These are nestling in the lap of the snow-clad Himalayan ranges. The rivers and their tributaries criss-crossing the area have, therefore, perennial source of water supply. With plentiful supply of water, the rivers and their feeders which flow through gorges and valleys provide innumerable sites for the location of hydro-electric projects of all types. The table below gives at a glance the assessed hydel potential of the tribal areas of Himachal Pradesh:

### Table No. 9.2

**Power Potential in Tribal Areas**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Area</th>
<th>Power in MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sutlej Basin</td>
<td>2325</td>
</tr>
<tr>
<td>2</td>
<td>Chenab Basin</td>
<td>1002</td>
</tr>
<tr>
<td>3</td>
<td>Ravi Basin</td>
<td>550</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>3877</strong></td>
</tr>
</tbody>
</table>

The following projects in the tribal areas have been identified:

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Area</th>
<th>Power in MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shongtong-Wangtoo Hydel Project</td>
<td>140</td>
</tr>
<tr>
<td>2</td>
<td>Thopan-Powari Hydel Project</td>
<td>200</td>
</tr>
<tr>
<td>3</td>
<td>Jangi-Thopan Hydel Project</td>
<td>175</td>
</tr>
<tr>
<td>4</td>
<td>Baspa Hydel Project</td>
<td>455</td>
</tr>
<tr>
<td>5</td>
<td>Bhaba Hydel Project</td>
<td>120</td>
</tr>
<tr>
<td>6</td>
<td>Nathpa Jhakri Hydel Project</td>
<td>1020</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>2110 MW</strong></td>
</tr>
</tbody>
</table>

2) The Chenab Basin:

<table>
<thead>
<tr>
<th>District</th>
<th>Project</th>
<th>Power in MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lahaul-Spiti District</td>
<td>Gyspa Dam Project</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>Bordang Hydel Scheme</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>Thirot Nullah Hydel Scheme</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Pangi Sub-division</strong></td>
<td><strong>339</strong></td>
</tr>
<tr>
<td></td>
<td>1 Seli Hydel Scheme</td>
<td>165</td>
</tr>
<tr>
<td></td>
<td>2 Roali Hydel Scheme</td>
<td>500</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>665</strong></td>
</tr>
</tbody>
</table>

3) The Ravi Basin:

<table>
<thead>
<tr>
<th>Sub-division</th>
<th>Project</th>
<th>Power in MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bharmour</td>
<td>Chamera Hydel Project</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>Hibra Hydel Project</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Mechhetri Hydel Project</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>550</strong></td>
</tr>
</tbody>
</table>
In addition to these, following projects are also to be taken up:

I. **Continuing:**

1. Rukti (Kinnaur) 1500 KW
2. Sissu (Lahaul-Spiti) 100 KW

II. **New:**

3. Kilar (Pangi) 200 KW
4. Holi (Bhamour) 4500 KW
5. Rongtang (Lahaul-Spiti) 2500 KW

During the Fourth Five Year Plan, small projects, like Gharola in Bhamour Sub-division and Pangi in Kinnaur District were commissioned. Slightly bigger projects of Rukti (Kinnaur) and Sissu (Lahaul-Spiti) are likely to be completed within a couple of years.

The tribal areas of the Pradesh, being more mountainous and closer to the snow range, provide better promises for development of hydro electric power. In addition to this in these areas irrigation is necessary.

for production of food grains. In many a place lift irrigation and sprinkling irrigation schemes are required. These can be undertaken only with the development of power. Moreover, for industries including village and small scale industries power is required. Thus, the power potential in the tribal areas of the Pradesh should be harnessed for the betterment of the socio-economic condition of the tribal people.

**Micro Hydel Schemes:** People in plains live in small scattered villages. Therefore, in our country, we have more than half-a-million villages with population ranging from less than 500 to 10,000. In the mountains, village population is even smaller. So, supply of electric power to thousands of small communities involves costly transmission facilities. In India, the general average is about 4 Km. to transmit one MW of power, while it is less than one third of a KW, on an average, in Europe. In mountain regions, the transmission lengths will be even greater. Therefore, for several small communities, Micro Hydel Projects will have to be considered in places where water with flow falls from steep heights.
At present, there are some nine Micro Hydel stations in the Pradesh with total generating capacity of 3250 KW. Six such small projects are under construction in the State. These are Neogal (6000 KW), Holl (4500 KW), Thisit (3000 KW), Andhral (1500 KW), Baner (6000 KW), and Binwal (6000 KW). Average estimated cost of these is Rs.4500 per KW.14

**Organisation:** The Himachal Pradesh State Electricity Board, which was set up on September 1, 1971, consists of seven members, including the Chairman. The Board is entrusted with the general duty of prompting the coordinated development of generation, transmission and distribution of power, rural electrification and construction of power projects in the Pradesh in the most efficient and economic manner.15 The head office of the Board is in Simla. Except some of the field offices, which are located in Simla, other field offices are located throughout the state.


The Pradesh. The Head Office consists of four main wings, each under a Member. These are Project Wing, under Member (Projects), Operation Wing, under the Technical Member (Electrical); Finance and Accounts Wing, under Member (P & A), and the Secretariat and Purchase Organisation under Member (Administration). The field organisation consists of Chief Engineer (Operation) and Chief Engineer (Projects) and various Circles, Divisions and Sub-divisions under them. The organisational set up of the Board has been depicted in the Organisational Chart (Chart No.9.4). Director of Industries and Secretary (Finance) to Government of Himachal Pradesh are the ex-officio Members of the Board.

The operation wing is headed by a Chief Engineer. There are a number of Superintending Engineers, below him. The Pradesh is divided into a number of Electrical Divisions, each headed by an Executive Engineer. The Divisions are further divided into a number of Sub-divisions. The revenue Sub-division of Bharmour and Pangi fall within the Electrical Division with headquarter at Dalhousie. There is one Assistant Engineer at Gehra who looks after Bharmour Sub-division. There are number of Junior Engineers, Line-men, Beldars, etc. under him, whereas in Pangi Sub-division there is none. The Executive Engineer at Dalhousie who looks
after both Kharmour and Pangi Sub-divisions is under the
Superintending Engineer stationed at Dharamshala.

The Projects wing is headed by a Chief Engineer.
There are a number of Superintending Engineers, Executive
Engineers and Assistant Engineers below him. The
investigation work of Kharmour and Pangi Sub-divisions is
being looked after by Executive Engineer (Investigation)
at Chamba. He is under the Superintending Engineer
(Investigation) at Dharamshala. There is one Assistant
Engineer at Holi. There are a number of Junior Engineers
and Line-men, under him.

The Board Secretariat is headed by Secretary. There
is one Officer on Special Duty, Assistant Secretary, O & M
Officer, Law Officer, Chief Purchase Officer, etc.

The organizational structure of the Board has been shown
in Chart Nos. 9.4 and 9.5.
CHART NO. 9.5

State Electricity Board

Respective Chief Engineers

Superintending Engineer (Investigation)

Executive Engineer (Chamba)

Superintending Engineer (Operation)

Executive Engineer (Dalhousie)

Pangi

Bharmour

Assistant Engineer (Gehra)

Assistant Engineer (Holi)

Line man

Line man

Beldar

Beldar

Junior Engineer

Junior Engineer

Line man

Line man
Programmes: The programmes for development of power in Bharmour and Pangi Sub-division can be divided into two parts. These are; (a) generation; and (b) rural electrification. The programmes under the generation schemes are augmentation of the existing micro-hydel schemes in Bharmour Sub-division. At present, there are two micro-hydel schemes, one at Bharmour (20 KW) and the other at Gharola (50 KW). The proposal is to augment the power generation to 50 and 200 MW respectively. However, up to now the augmentation of the generation capacity has not been made. The second programme is the electrification of villages in Bharmour Sub-division.

Rural Electrification: Electricity plays an important role in the agricultural production and the development of rural economy. Electricity also changes the entire outlook of the rural population and makes them progressive. A number of studies made in recent years have shown that electricity makes a significant contribution in the development of agriculture.16

Electrification of rural areas has great importance for Himachal Pradesh where as much as 93 per cent of its population lives in villages. Electricity is no longer an item of luxury for the villagers but it has become an important ingredient as well as a measure of the standard of living of the people in the region. The purpose of rural electrification is not only to light up every home in the Pradesh but also to supply power to agricultural pumpsets, lift irrigation schemes, small scale and cottage industries for increasing agricultural production and creating more employment potential in rural areas. An important purpose is also to reduce pressure on forests by providing electricity as an alternative fuel for domestic needs and thus help in making a success of the three dimensional forest farming adopted by the State Government.

There are 16,916 villages in Himachal Pradesh. During the year 1975-76, 445 villages were electrified, raising the total number of electrified villages in the State to 6721. A level of 39.7 percent in electrification of villages covering 54.7 percent of rural population of the Pradesh was achieved by the end of the year 1975-76.

17. Administration Report 1975-76, op.cit, p.16
The Rural Electrification Corporation (REC) is the main source for financing the rural electrification scheme. Funds under normal development programmes (State Plan) for rural electrification are inadequate to provide new electric connections, and agricultural augmentation of sub-stations and lines in already electrified areas of the Pradesh. At the same time, due to long distance of transmission and distribution lines and sparse population of villages, some of the rural electrification schemes do not fulfil the viability criteria fixed by R.E.C. for advancing loans.

The Rural Electrification Corporation also finances schemes under 'Minimum Needs Programme' for such areas in which the percentage of population benefitted by electricity is less than 40.\textsuperscript{18}

The following table indicates the villages electrified in Bharmour and Pangi Sub-divisions during the years (ending March 31) 1974, 1975 and 1976.

\textsuperscript{18} Administration Report 1975-76, op.cit., p.17.
ENERGY GENERATED
AND PURCHASED

(MILLION KWH)

FIG. No. 11

ENERGY GENERATED
AND PURCHASED

(MILLION KWH)
TABLE NO. 9.6
Villages Electrified

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Area</th>
<th>Villages electrified as on</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>31.3.74</td>
</tr>
<tr>
<td>1</td>
<td>a) Bharmour Sub-division</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>b) Percentage of villages electrified to total no. of villages.</td>
<td>9%</td>
</tr>
<tr>
<td>2</td>
<td>a) Pangi Sub-division</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>b) Percentage of villages electrified to total no. of villages.</td>
<td>-</td>
</tr>
</tbody>
</table>

Power Generated and Consumed: The electricity generated in Himachal Pradesh in 1950 was 0.36 million KWH mainly through hydel/diesel sets at Chamba, Solan, Jubbal, Mandi, Nahan and Sundernagar. The generation increased to 0.87 million KWH in 1955 and 0.95 million KWH in 1960-61. The progress during the next decade (1962-71) was 52.8 million KWH which works out to 55 times of the electric generation in 1960-61. The consumption of electricity is also rising in the Pradesh. It increased from 1.0 million KWH in 1950 to 3 million KWH in 1960-61. With the extension of electricity to more and more rural and urban areas and its diversified use, consumption increased to 13.9

19. Figures collected from District Statistical Officer, Chamba.
million KWH in 1965-66 and 112 million KWH in 1970-71. An all round increase has been witnessed in the case of electricity for various purposes. Though the overall consumption has increased but the per capita consumption of electricity for the Pradesh is much below the level of the country. The per capita consumption in 1970-71 was 33 KWH in the Pradesh as against the national average consumption of 87 KWH.

The following table indicates power generated in Bharmour Sub-division during the years (ending March 31) 1974, 1975 and 1976.

TABLE NO.9.7

Power Generated in Bharmour Sub division

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Hydro Stations</th>
<th>Installed capacity(MW)</th>
<th>Electricity generated during</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1973-74</td>
</tr>
<tr>
<td>1</td>
<td>Gharola</td>
<td>0.05 MW</td>
<td>Break up not</td>
</tr>
<tr>
<td>2</td>
<td>Bharmour</td>
<td>0.02 MW</td>
<td>available</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>0.07 MW</td>
<td>52109 KWH</td>
</tr>
</tbody>
</table>


21. Figures collected from District Statistical Officer, Chamba.
The following table indicates the consumption of electricity during these periods in Harmour Sub-division.

**TABLE NO. 9.8**

**Consumption of Electricity**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Item</th>
<th>1973-74 (KWH)</th>
<th>1974-75 (KWH)</th>
<th>1975-76 (KWH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Domestic Consumption</td>
<td>21709</td>
<td>27801</td>
<td>40980</td>
</tr>
<tr>
<td>2</td>
<td>Commercial Light</td>
<td>2898</td>
<td>5714</td>
<td>10591</td>
</tr>
<tr>
<td>3</td>
<td>Industrial Power</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Street Light</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>Irrigation &amp; Agriculture</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>Public Works &amp; Sewage</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Other Small Power</td>
<td>2487</td>
<td>2905</td>
<td>6935</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>27094</strong></td>
<td><strong>36420</strong></td>
<td><strong>56506</strong></td>
</tr>
</tbody>
</table>

22. Figures collected from District Statistical Officer, Chamba and Asstt. Engineer (Electricity) at Gehra.
From this table, it is evident that the major part of electricity generated in Bharmour Sub-division is being consumed for domestic purposes followed by commercial light and other small power. Electricity is not being consumed for industrial power, irrigation agriculture etc. in this Sub-division.

From Table No. 9.9 it would appear that up to March 31, 1974 there were 309 electric connections in Bharmour Sub-division. It gradually increased to 512 and 588 during the subsequent years. Most of the connections are taken for domestic purposes followed by commercial and industrial purposes. The per capita consumption of electricity on March 31, 1974 was about 1 KWH. It gradually increased to 1.3 KWH and 2.1 KWH respectively during the subsequent years.

Performance: Among all the States in India, only in Haryana all the villages are electrified. In Himachal, 39 per cent of the inhabited villages have been electrified. The percentage of villages electrified in Himachal Pradesh is more than Assam (6.9), Bihar (20.3), Jammu & Kashmir (28.1), Madhya Pradesh (16.8), Manipur (11.9), Meghalaya (4.3), Nagaland (18.3), Orissa (22.0), Rajasthan (20.1), Sikkim (2.8), Tripura (3.6) and West Bengal (25.8).
ENERGY SOLD
(MILLION KWH)

WITHIN THE STATE

OUTSIDE THE STATE

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Sold</td>
<td>137.8</td>
<td>131.6</td>
<td>151.6</td>
<td>114.5</td>
<td>94.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>195.9</td>
<td>209.2</td>
<td>220.5</td>
</tr>
</tbody>
</table>

Fig. No. 12.
<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Item</th>
<th>As on 31.3.74</th>
<th>As on 31.3.75</th>
<th>As on 31.3.76</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No. of villages electrified</td>
<td>10</td>
<td>17</td>
<td>21</td>
</tr>
<tr>
<td>2</td>
<td>Percentage of villages electrified to total no. of villages</td>
<td>9%</td>
<td>15%</td>
<td>18%</td>
</tr>
<tr>
<td>3</td>
<td>No. of electric connections</td>
<td>(a) Domestic</td>
<td>283</td>
<td>474</td>
</tr>
<tr>
<td></td>
<td>(b) Industrial excluding agriculture</td>
<td>1</td>
<td>309</td>
<td>512</td>
</tr>
<tr>
<td></td>
<td>(c) Commercial</td>
<td>25</td>
<td>36</td>
<td>42</td>
</tr>
<tr>
<td>4</td>
<td>Electricity Generated (KWh)</td>
<td>52109</td>
<td>68597</td>
<td>54754</td>
</tr>
<tr>
<td>5</td>
<td>Electricity Consumed:</td>
<td>(a) Domestic consumption (KWh)</td>
<td>21709</td>
<td>27801</td>
</tr>
<tr>
<td></td>
<td>(b) Commercial Light (KWh)</td>
<td>2896</td>
<td>5714</td>
<td>10591</td>
</tr>
<tr>
<td></td>
<td>(c) Industrial Power (KWh)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(d) Street Light (KWh)</td>
<td>-</td>
<td>27094</td>
<td>35424</td>
</tr>
<tr>
<td></td>
<td>(e) Irrigation &amp; Agriculture (KWh)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(f) Public Works &amp; Sewage pumping (KWh)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>(g) Others Small Power (KWh)</td>
<td>3487</td>
<td>2509</td>
<td>6935</td>
</tr>
<tr>
<td>6</td>
<td>Per Capita Consumption</td>
<td>1 KWh</td>
<td>1.3 KWh</td>
<td>2.1 KWh</td>
</tr>
</tbody>
</table>

23. Figures collected from District Statistical Officer, Chamba and Assistant Engineer (Electricity) at Oehrta.
Among the Districts of Himachal Pradesh, the percentage of electrified villages is highest in Bilaspur District (60.9) and lowest in Lahaul-Spiti District (25.8). The tribal District of Kinnaur ranks second with 55.8 percent of its villages electrified.

Up to 1976, only 19.7 percent of the inhabited villages in Kinnaur Sub-division were electrified as compared to 25 percent in Lahaul-Spiti and 56 percent in Kinnaur. If Kinnaur is compared to other non-tribal Districts of the Pradesh, then also the percentage of villages electrified in Kinnaur Sub-division is less than any other Districts of the Pradesh. However, the percentage of inhabited villages electrified in Kinnaur Sub-division is more than Assam (4.9), Manipur (11.9), Meghalaya (4.3), Sikkim (2.8) and Tripura (3.6).

In Himachal Pradesh, 54 percent of rural population has been covered by electricity which is more than similar figures obtained for Assam (14.4), Bihar (41.7), Madhya Pradesh (32.0), Manipur (36.8), Meghalaya (12.3), Nagaland (34.9), Orissa (39.3), Rajasthan (36.0), Sikkim (1.6), Tripura (15.2), Uttar Pradesh (39.7) and West Bengal (42.0).
The per capita consumption of electricity in Himachal Pradesh during 1973-74 was 57 kWh which is more than Assam (26 kWh), Jammu & Kashmir (43 kWh), Manipur (8 kWh), Nagaland (35 kWh) and Tripura etc. The per capita consumption of electricity in Bhamour Sub-division is about 2 kWh. In Pangi Sub-division there is no electricity and hence per capita consumption is nil. The per capita consumption in Lahaul-Spiti District comes to about 11 kWh which is more than Manipur and Tripura. The per capita consumption in Kinnaur District comes to about 8.5 kWh. Thus the per capita consumption of electricity among the tribal areas in Himachal Pradesh is the lowest in Bhamour Sub-division (excluding Pangi Sub-division).

The total electricity generated in Bhamour Sub-division during 1975-76 was 54,754 kWh which was less than that in Lahaul-Spiti (328,047 kWh) and Kinnaur (424,753 kWh). The total electricity consumed in Bhamour during 1975-76 was 56,506 kWh against the total local generation of 54,754 kWh. The additional demand was met from Chamba. The consumption pattern of electricity in Bhamour Sub-division reveals that maximum consumption is for domestic purpose and electricity was not used for agricultural purposes.
Among the sample villages in Bharmour and Pangi Sub-divisions, only in Bharmour village there is electricity.

Assessment: The development of power in any area requires certain basic infrastructure. One of the basic infrastructure linked with power development is construction of roads. Without an infrastructure of roads, the creation of hydro-electric plants in the far flung mountainous area of Bharmour and Pangi Sub-divisions would prove both difficult and costly. Without good roads, the cost of construction of a power plant would also soar considerably.

The cost of transmission of power and its maintenance from the major hydro-electric projects located at far off places from these two sub-divisions is likely to be very high, besides losses and frequent break downs in transmission system due to climatological and topographical conditions of these areas. It would, therefore, be advisable to augment the generation capacity of existing micro-projects at Bharmour (20 KW) and Gharola (50 KW). At present, there is no electricity in Pangi Sub-division. It is, therefore, suggested that either a diesel generating set may be started at Kilar as has been done in Kaza.
Sub-division or a new project may be started at Kilar. The project at Holi may also be finalised and completed immediately.

The number of villages electrified in Bharmour Sub-division is very small as compared to the other tribal areas of Himachal Pradesh. Thus the rural electrification programme in these areas needs improvement. The rural electrification in these areas as in any other tribal areas has to be planned carefully as the first result of rural electrification is likely to provide more congenial condition to the stronger groups which in a way, may help the process of exploitation. Once this character of rural electrification is appreciated, it will be possible to harness this force for the benefit of the poorer sections by suitably adopting the relevant programme. In these areas, first priority may be given to electricity for irrigation and industrial purposes.

At present, the entire Chamba District is a part of the same Electrical Division with headquarter at Dalhousie. The Electric Sub-division with headquarter at Gehra looks after the tribal Sub-division of Bharmour in addition to some non-tribal areas. It may be advisable to shift the
headquarter within the Sub-division and it may be entrusted to look after Bharmour Sub-division only. The Electricity Department has no activity in Pang Sub-division. It would be better if power generation is also started here. At the first instance, the Sub-divisional headquarter may be provided with electricity through the diesel generating sets. Investigation of power potential in the Sub-division may be carried out in the meantime. Thus an Electric Sub-division may be set up at Kilar and for the time being one Assistant Engineer can possibly look after both the operation and investigation work.

Development of hydro-power in these regions may be entrusted to a Himalayan Hydro Authority specially created for the purpose. This authority would be, by and large, an executive organisation concerned with the projects. Moreover, it would be better to instal at reasonable cost small hydro-electric units. These projects are estimated to take less than three years to complete and power from them could be distributed locally without requiring complicated transmission system.
Power being a crucial source for hill area development, the existing norms for allocation of funds in the Five Year Plans need to be recast. Instead of money being made available sector-wise within a plan ceiling and on the basis of other criteria, finances may be made available on the basis of requirements for executing identified projects in the shortest possible time. A revolving fund may be constituted for construction of power project roads in Bharmour and Pangí Sub-division. Preparation of plans for proper utilisation should proceed almost alongside with plans for power production. No occasion should arise for declaring the areas surplus with unutilised power. Cultivable land in a mountain area like Pangí and Bharmour is an asset built up assiduously over decades. In launching irrigation and power projects, the size of the dams and the corresponding reach of the reservoirs should be such that the minimum acreage of fertile land goes under water.

The traditional approach of giving compensation for rehabilitation of tribals uprooted by major projects is not very satisfactory. The project must take care of the total problem of rehabilitation of the tribals so affected. The land in the common area of the new project
will immensely benefit from the irrigation scheme and the effective acreage under agriculture would increase. A part of land being benefitted could be compulsorily acquired for rehabilitating the uprooted people. In the more backward tribal areas, this should not pose any problem because the people are used to such adjustments. Since the acquired land will be in the vicinity of the affected villages their migration will also not pose any psychological problems. All these aspects have to be built into the power project programme. The tribal development project, should, however, take note of these problems and the possible solutions. The role of tribal development agency may also be defined in this regard.  

Research activity in utilising other sources of energy such as geo-thermal energy, solar energy and wind power should be further strengthened. Practical applications of these energy resources, adapted to hill situations, should be worked out early to bring in much needed benefits. The tempo of rural electrification in Bhamour and Pangi Sub-division should also be stepped up so as to make

electricity available for agriculture and rural industries in practically all villages. The State Electricity Board may prepare a well considered and co-ordinated programme of rural electrification in Bhamour and Pangi Sub-divisions in consultation with other development departments of the Pradesh. 26

Advance planning for the future programme of electrification is essential and the State Electricity Board may take early action on the following aspects:
(a) assessment of requirement of power and making arrangements to meet the same (b) assessment of requirement of Extra High Tension (EHT) and High Tension (HT) networks and appropriate action to meet it, (c) assessment of requirement of materials and arrangements for their indigenous procurement (d) assessment of requirement of personnel and arrangements for their training; and (e) carrying out of connected resources and development work.

The Centre/State Government may subsidise part of the capital cost of the schemes for transmission and sub-transmission lines to be installed by State Electricity Board.

Board in these two Sub-divisions so as to satisfy the norms prescribed by the Rural Electrification Corporation (REC).

Similarly, where villages are far away from each other and the inclusion of the cost of 11 KV lines makes the schemes for electrifying them unremunerative, the REC may consider giving special loans for the 11 KV lines by treating them as loans transmission lines. 27

It is hoped that with the development of power on the lines suggested above, the economy of the tribals in these Sub-divisions will improve.

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27. For further details refer Draft Five Year Plan and Draft Tribal Sub-Plan 1978-83 Himachal Pradesh (Simla, 1978) and Approach to Tribal Development in the Sixth Plan: A Preliminary Perspective, Occasional Papers on Tribal Development, No. 17 (New Delhi, 1978).
(b) Industry

Industrial Potential in Chamba District, Himachal Pradesh has set out on the road of industrial development in the recent past. As such there is no detailed assessment of the resources of the State and the industries which could be based on these resources. A techno-economic survey of the State was conducted in 1956. Another survey was conducted by the Industrial Development Bank of India along with some financial institutions in 1972. This was the first survey which highlighted the industrial potential of the Pradesh. However, in spite of identification of some projects, the survey only touched the fringe of the potential. The need of micro-level study of the industrial potential and identification of projects particularly in the small scale sector cannot be over emphasized.

Being far off from the nearest railway station, Pathankot, rapid industrialisation has not been possible in Chamba District. Adequate means of transport and communication technical know-how, power and marketing

2. Ibid.
3. Ibid.
facilities are not available here. Moreover, the District is surrounded by mountains and there is only one passage via Pathankot which is at a distance of about 122 km. from the District headquarters. To overcome these difficulties in the path of industrialisation, Chamba District was declared as Rural Industrial Project area during the year 1974-75.

Industry in the Tribal Areas: Large and medium scale industries do not suit the tribal belt of this Pradesh located in the hinter-land of the Himalayas. The scope for coming up of such industries in near future in the region is still an open question. However, as in other parts of the country, tribals of this Pradesh are also known for their handicrafts and also for producing goods of their daily requirements. Thus one finds in these areas artisans like blacksmiths, silversmiths, carpenters, etc. Village industries, handicrafts and small scale industries are being practised in the tribal areas of the Pradesh. The coming up of small scale industries is a result of expanding infrastructure facilities and also on account of the extension work being
carried out by the Department of Industries under previous plans. Village industries and handicrafts are deep rooted in the socio-economic matrix of the tribals.

The tribals of this Pradesh are well known within and outside the Pradesh for the fabrication of woollen clothes of several kinds like "gardus", "patoos" and "pattis", wood carving, making of metal sculpture, artistic metal works, musical instruments and paintings besides products of traditional village and cottage industries.

The Government of India introduced a scheme of assistance from financial institutions during the Fourth Plan under the programme of "Removal of Regional Imbalances" in the selected backward Districts. The whole of the tribal belt, spreading over the Districts of Kinnaur, Lahaul-Spiti and the tribal Sub-divisions of Bharmour and Pangi of the Chamba District, is covered by this scheme. However, no progress has been recorded for the obvious reasons that the basic inputs required are not available, besides there is also lack of appropriate infra-structural facilities.

5. Ibid.
The development of industries in the tribal areas of Sharmour and Pangi Sub-divisions suffers a severe handicap because of the remoteness of these areas, lack of adequate and all-weather communications, scattered population and expensive transportation. It is, therefore, imperative that development of industries in these areas has to be made to cater to the local needs. Only such industries may be encouraged for development as are labour intensive and are based on local handicrafts for which the consumer can pay a reasonable amount. Thus at present, it seems that no large and medium scale industries are possible in these areas. Even the development of small scale industries is difficult due to shortage of power. So the only possible alternative is to develop cottage industries in these areas in the near future.

**Organisation:** The Department of Industry is headed by a full time Director who is a member of the Indian Administrative Service. There are two Joint Directors of Industries, one is normally from the I.A.S. cadre and the other post had been occupied sometimes by the departmental officer or a member of the Himachal Pradesh
Administrative Service. The Joint Director who is an I.A.S. Officer is also designated as the Additional Controller of Store Purchases. The other Joint Director looks after the Rural Industries Projects, etc. There are four Deputy Directors of Industries, and eleven District Industries Officers in all the Districts except Lahaul-Spiti where there is one Assistant District Industries Officer. Besides them, there are several other officers at the headquarters, such as, Research Officer, Tehsildar and Store-Inspection Officer. There are Project Officers (Industries) at Simla, Palampur and Chamba. Besides them, there are Planning and Survey Officer, Technical Officer, Industrial Promotion Officer, Economic Investigator, etc., under him at the District level. In Chamba District, there is one Mining Officer also. Under him there are two Mining Inspectors. One is posted at Gehra, who looks after the Bharmour and Mehla Blocks. The other one is posted at Chamba who looks after the remaining area of the District. Under each Mining Inspector, there are four Mining Guards. The Mining Officer is under the control of State Geologist who is directly under the Director of Industries. The organisational set up has been shown in Chart No.9.10 to Chart No.9.13.
CHART NO.9.10
Organisational Set up of Industries Department

Minister

Secretary

Deputy Secretary

Joint Director
(Addl Controller
of Stores)

Director

State Geologist

Joint Director (R.I.P.)

Under Secretary

Staff

Store

Sect-Assis-Rese-Teh-Dist-
Inspe-
tor-D.I.O.-Offi-
ters

Project Officer

Project Officer

Project Officer

Planning & Survey Officer

Technical Officer

Industrial Officer

Economic Officer

Investigator
**CHART NO. 9.11**

**Organisational set up of Rural Industries Project**

Director of Industries

Joint Director

Project Officer (Industries)

Planning cum Survey Officer

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Industries Promotion Officer

Technical Officer

Economic Investigator

**CHART NO. 9.12**

**Organisational set up of Industries Department in Chamba District**

Director

Deputy Director

District Industries Officer (Chamba)

Extension Officers

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Bhamour Block

Mahla Block

Saloni Block

Chamba Block

Bhatial Block

**CHART NO. 9.13**

**Organisation set up of Mining Branch**

Director of Industries

State Geologist

Mining Officer

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Mining Inspector (Chamba)

Mining Inspector (Gehra)

Mining Guards

Mining Guards
Programs: The programs for industrial development include:
(a) setting up of industrial estates,
(b) grant of industrial loans,
(c) grant of subsidies,
(d) grant of subsidy on interest and,
(e) revival of extinct or dying handicrafts and the development of the existing ones.

The work done by the department in the Bharmour and Pangi Sub-divisions is given below:

**Bharmour Sub-Division**

1. **Weaving Training Centre**: A weaving training centre at Bharmour was started in the year 1960. The main object of the centre was to impart training to the local people of this area in spinning and weaving trades. The centre is training ten trainees every year. It was transferred to the H.P. Khadi and Village Industries Board in 1968 and thereafter it was closed by the Board.

2. **Government Tailoring Centre, Ulanse**: The centre was started in the year 1960 in Bharmour. At present, it is functioning at Ulanse. This centre has imparted training in cutting and tailoring trade to about 20 trainees since its inception.
During first four Five Year Plans about 136 sewing machines were distributed in Bhamour Sub-division through the Block. The Department has registered seven small scale industrial units in Bhamour Sub-division and a sum of Rs.14,000 had been given as industrial loans during 1974-75, Rs.10,000/- during 1975-76, and Rs.11,000/- during the year 1976-77. There is one wood centre at Jagti being run by H.P. Handicrafts and Handloom Corporation with an annual production of Rs.65,000/- approximately. 6

Pangi Sub-division

(1) Weaving Training Centre, Kilari. A weaving training centre was started in Kilari during the year 1957 and it was transferred to the Khadi and Village Industries Board of the State in July 1965. The main object of the centre was to impart training to the local people of Pangi valley in spinning and weaving trade till this centre was converted into industrial extension centre (Weaving) in 1966.

(2) Wood Working Centre, Kilari. This centre was initially started by the Development Department and was handed over

6. Figures collected from District Industries Officer, Chamba.
to the Industries Department in the year 1963. The main object of the centre was to impart training to the local people in carpentry and furniture making and also to introduce improved techniques of carpentry. Subsequently, the centre was converted into Production-cum-Training Centre and thereafter in 1966, it was converted into Industrial Extension Centre. Before its conversion it was training ten persons every year.

(3) Government Tailoring Centre, Kilar. In the year 1973, the decision of setting up one tailoring centre in each Block was taken. Accordingly, the Tailoring Centre functioning at Kiani of Chamba Block was shifted to Kilar or Pangi Block. About 10 to 12 trainees are being trained in this centre annually.

There are 692 pit-loom weavers in Pangi Sub-division. There are six blacksmiths in this Sub-division, two each in Sach and Kilar panchayats and one each in Karyas and Bharwas panchayat. As per recent survey there are 995 pit-loom weavers in Bharapur Sub-division. There are five band saw units in Bharapur Sub-division; one in Khami, one in Lehali, two in Bharapur and one in Sirdi.

7. Figures collected from Tehsildar, Pangi.
8. Figures collected from Naib-Tehsildar, Bharapur.
Another industrial activity of the local people is to set up water mills for grinding flour, etc. At present there are 335 "Gharats" (Water mills) in Bharmour Sub-division, 323 "Gharats" have one "chakki" and 12 have two "chakkis". In Pangi Sub-division there are 191 "Gharats", 189 of them have one "chakki" and 2 of them have two "Chakkis" each.

**Mining Activity:** There are five slate quarries in Bharmour Sub-division, namely: (i) Kai slate quarry near Garola, (ii) Baswaraga slate quarry, (iii) Bakarnamun slate quarry (iv) Ganguardes Chho slate quarry and (v) Baharun-godkar all near Holi. Though slate strata is also available on Bharmour Hadsar road, due to lack of communication, only the first one has been put to auction upto now. There is some magnesite and dolomite deposits near Garola. A licence has been granted to M/s Orissa Cements Ltd. Ragangpur. Quartz crystals are also available in this Sub-division.

9. Figures collected from District Industries Officer, Chamba.

10. Figures collected from respective panchayats.

11. Information provided by Mining Officer, Chamba.
A mining lease has been granted to one firm in Chamba. There is however, no mining activity in Pangi Sub-division at present.

**Industrial Cooperative Societies:** There had been the following two industrial co-operative societies at Bhamour Sub-division: (i) The Mahamaya Industrial Co-operative Society Ltd., and (ii) The Prabha Weaver Industrial Co-operative Society Ltd.;

However both the societies proved unsuccessful and were closed.

**Performance:** In Bhamour Sub-division agriculture forms the main occupation of the people. Industries are usually run during slack agricultural seasons at the residence of the artisans as their secondary occupation only. In these industries, mostly family labour is employed and work carried on manually in the absence of power. The industrial goods are predominantly manufactured for use of the households engaged and in view of the difficult means of communication neither these goods have been standardised nor outside markets tapped for sale. These industries are local in nature and form an integral part of the economy.
of the area, these form a major source of augmenting the otherwise meagre income of the people.\textsuperscript{12}

An evaluation study of Bharmour sub-division revealed that the spinning and weaving of the locally available wool is the most important household industry. 81.07 per cent of the households having any industrial occupation are engaged in this industry.\textsuperscript{13} The household industries have not been developed on modern lines and, therefore, are not attractive as a whole-time occupation. The industrial units are small in size and in most cases only cater to the domestic needs of the households engaged in these industries. The common household industries are spinning and weaving of wool, carpentry, flour grinding, tailoring, etc. Normally manual labour is used by the households engaged in these industries. However, in case of flour grinding and oil crushing industries, water power and bullocks are also used. The raw materials used are locally available and tools are mostly indigenously prepared. The working season of the households, who do not migrate, extends from October to March. The migrating households, on the other hand, spin

\textsuperscript{12} Refer Sub-Plan for Tribal Belt, \textit{op.cit}, p.105.

\textsuperscript{13} An Evaluation Study of Bharmour (Simla, 1964), p.20.
during the period of migration and the weaving is done during the summer and the rainy season from May to September when they are partly free from agricultural operations. Flour grinding is done during the slack rainy season from May to September when sufficient quantities of water is available in the mullahs to run the 'Gharats' (Water Mills). Since the construction and repair of houses and sewing of new clothes for the fairs are got done by the farmers during slack agricultural seasons, the peak working period of carpentry and tailoring also falls in these seasons.

The gross value of annual output of household industries varies considerably from one industry to the other. On an average, it varies from Rs.150.55 for spinning and weaving industry to Rs.530 for carpentry. It appeared that out of the selected households, 7.7 per cent were rendering services only 8.9 per cent were both producing woollen articles for their own use and rendering services to others and the remaining 83.4 per cent were only producing woollen goods for their own use by utilising wool available from sheep reared by them. The households engaged in

carpentry, flour grinding, tailoring and other industries (oil seed crushing and blacksmithy) did servicing only.
The spinning and weaving of wool, which is the most common industry in the area contributes only Rs. 45.14 worth of gross output to the already meagre income from agriculture. All the industrial units surveyed except those engaged in spinning and weaving of wool, were found to be doing job and service work against cash/barter payments on behalf of households supplying raw materials. Out of the 78 spinning and weaving units surveyed, six units were doing only servicing and remaining 72 units produced blankets and patties worth Rs. 14,063. Only products worth about 18.72 per cent of the total production were, however, marketed by these units. Thus, the spinning and weaving industry had only a meagre marketable surplus mainly due to idle capacity. The predominant practice of sale prevalent in the area was that of direct sales to consumers. It was found that bulk of the sales is effected in the same or neighbouring villages. Only a small portion of the total marketable surplus is sold in other markets, especially during the migration period. All the 18 spinning and weaving units surveyed in Bharmour village were found depending on their own financial resources.15 The people in this area,

15. An Evaluation Study of Bharmour, op.cit.,p.34.
because of procedural difficulties and strict recovery of loans, are shy of utilising assistance from the Government. 16

In Pangi valley, where agriculture is only a way of life, cottage and rural industries play an important role in augmenting the otherwise low income of the people. The main household industries practised are spinning and weaving, blacksmithy, carpentry, tailoring and bee-keeping. In these industries, mostly family labour is employed and work carried on manually in the absence of power. These industries are generally carried on during winter months when, due to heavy snowfall, agricultural operations are almost at a standstill. Among the main items manufactured are pattooos, pattis, chaddars, etc. These items are manufactured generally for household consumption and very little quantities are offered for sale locally.

According to an industrial survey conducted by the Block, the total number of artisans engaged in Pangi Subdivision were 1260 weavers, 64 tailors, 3 oilmen, 26 blacksmiths, 4 tin and brass-smiths, 72 carpenters, and 3 goldsmiths. Thus, it is clear that the most important

16. Refer Pangi Valley, An Evaluation and A Socio-
Economic Study (Simla, 1956).
industry—weaving and spinning of wool—provides employment to the largest number of workers. It was further revealed that all the industries use manual power and full capacity of the primitive machines and tools is utilized except in spinning and weaving industry in the sub-valley of Sajja where it ranges between 30-33 per cent of the capacity. The main reason for such a low capacity is the shortage of wool and other raw materials.

The gross value of the annual output of household industries varies considerably between the industries, i.e. Rs.19429.00 for spinning and weaving, Rs.380.00 for blacksmithy Rs.200.00 for flour grinding, and Rs.1736.00 for bee-keeping. The main sources of finance to run these industries are own funds, relatives or friends and village money-lenders. Very little is obtained from the co-operative societies.

18. Ibid., p. 78.
19. Ibid., p. 79.
20. Ibid.
Assessment: For any region, including the hill areas, to go forward industrially, an industrial "tempo", evenly spread, has to be built up. Industrial tempo can be generated only by building up the average level of skills in the region, giving a push to both local demand and local supply and by running industry efficiently with the available management skills. While industrialisation of these areas, at best, is a gradual process, it could be accelerated if the local persons are trained in processing the raw materials locally available. With a little training, the local artisan could add to his earnings by manufacturing finished or semi-finished products. At present, locally available raw materials are being sold to large-scale manufacturing units or factories, which, while making use of local resources, were themselves generally not located in these areas.

The goods produced by the industrial units in Bhamour and Pangi Sub-divisions are generally sub-standard and therefore, do not fetch reasonable prices in the open market. Therefore, the supply of improved equipment and machinery, e.g., spindles, looms, etc., by the Government on attractive terms which may be within the reach of average
working household is an essential prerequisite for raising the productivity of these industrial units to enable them to face outside competition.

There is, thus, a need for long and short term financial assistance on easy terms of repayment for the adequate and timely purchase of raw materials, maintenance of the family in the initial stages and slack season, marketing of finished goods and saving of the workers from the clutches of the money lenders. The desired assistance could be preferably provided by the Government through the cooperative societies. The problem of idle capacity is due, beside the lack of finances, to the difficulties of procuring timely and adequate supplies of the right type of raw materials at reasonable rates. The Government may procure the raw materials of the desired specifications and supply these to the industrial cooperatives formed for the purpose.

At present, there is hardly any marketing facility for the industrial products of Bharmour and Pangi Sub-divisions. Arrangements for the production of standardised goods of modern design need, therefore, be made for proper tapping of local and outside markets. Cooperative marketing societies may be started for the collection of finished goods while the sales could be effected
through Government emporia. Besides, a system of sale, rebate etc. could be introduced for providing necessary incentive to the workers.

The training facilities in the preparation of standardised goods of new design catering to modern taste should be made available to the workers in the vicinity of their village homes in these areas. Possibilities for the provision of storing sheds for fodder for use during winter could be explored so that the people of Bharmour do not migrate with their flocks to the plains in winter. Thus, the people could be usefully employed in the production of industrial goods during their agriculturally slack winter season.

The wool produced in these areas, particularly in Bharmour sub-division is generally sold outside. All possible efforts should be made to ensure its spinning, weaving, etc., right in the areas. Dhoop is also available in sizeable quantities in Bharmour and Pangi sub-divisions. Slate is also available in Bharmour sub-division. Units should be set up to exploit these raw materials.

The local weavers may be trained in wool processing, carding, spinning and weaving, calendering, pattern
making etc. Blankets, pattoo and patties prepared in these sub-divisions are quite good. Organised on co-operative basis or with the help of Handicrafts Corporation, this industry can provide better employment facilities. Other handicrafts, such as metal works, embroidery works, grass shoes, etc. may also be encouraged. Necessary financial assistance may be provided to the Wood Centre at Ramukothi.

With power being made available in increasing measure, number of power based industrial units could be set up and existing units expanded. Among the power based units, whose network can be rapidly expanded, are power-looms for producing cotton and silk handloom cloth, flour mills, fruit and vegetable processing and canning centres. Yet others, which can be established over a period, are small cold storage units, sports goods industries, handicrafts, electrical and precision light engineering units. Larger units, which can be set up, may include, for example, cement plants and paper factories.

In these areas, particularly in Bharmour Sub-division, apples grow in plenty. A fruit processing unit may be set up to process apples which are not suitable for marketing. This unit can be developed on the cooperative basis and can be made a part of the District unit at Chamba.
The industrial finance policy of the Reserve Bank of India may be made flexible enough to allow it to take special cognizance of the backwardness of these areas. Recognising that the resources of the State Government are limited, these All India Financial Institutions and Nationalised Banks may be directed by Government to pay special attention to the financing and organising of industries in backward areas.21

Handicrafts products have a special sales appeal to Indians as well as to visitors from abroad. Sales emporia may be set up at important places of the District and the State headquarters. Establishment of organisations, such as credit-cum-marketing societies, is important for promotion and sale of handicrafts. Credit availability and elimination of intermediaries in the trade are objectives which would be of immediate benefit to the artisans. Standardisation of the handicrafts of these areas is necessary both for highlighting their characteristic qualities and for

making them saleable even in the face of competition with machine made products. If need be, a handicrafts standardisation agency may be set up at Chamba.

To promote the development of small scale industries, a survey should be undertaken of the existing local industries with the help of the Khadi Commission and selection made of industries which could be encouraged for the benefit of the tribals of these two Sub-divisions. Thus, at the first instance, village industries, cottage industries and small scale industries may be encouraged and developed in these areas so that the inhabitants can remain engaged during the slack agricultural season. Among these industries, the demands of the inhabitants may be met to help them augment their otherwise meagre income from agriculture. Thus, with the development of these industries there would be a cash flow in the economy of the inhabitants of these areas.

Some arrangements should be made for setting up fair price wool purchasing centres in these areas. A mobile unit may be started for imparting training to the weavers for improving their traditional designs. The Himachal Pradesh Handicrafts and Handloom Corporation may examine the feasibility of opening one production-cum
training centre in these sub-divisions for tweed, blankets, shawls, etc. The prospect of drying 'thangi', 'seera', etc. through solar drier may also be explored in consultation with the National Fruit Research Laboratory, Jammu. These products can be packed in polythene bags and marketed. A survey of the medicinal herbs in these areas may be done by Industries and Forest Departments of Himachal Pradesh Government in consultation with the National Drugs and Pharmaceutical Corporation of India.

It is hoped that in times to come the small scale industries would improve and the economy of the inhabitants of these sub-divisions would be augmented.