Vol XLVIII
No. 3

ISSN 0019-5014

CONFERENCE
NUMBER

JULY-
SEPTEMBER
1993

# INDIAN JOURNAL OF AGRICULTURAL ECONOMICS

INDIAN SOCIETY OF
AGRICULTURAL ECONOMICS,
BOMBAY

*Ind. Jn. of Agri. Econ.*
*Vol. 48, No. 3, July-Sept. 1993*

# A Study of Impact of Agricultural Support Land on Hill Economy of Himachal Pradesh

**D.V. Singh***

Hilly regions are characterised by low density of population, small land holdings, weak market infrastructure, traditional production practices, high dependence on natural resources, etc. More than 90 per cent of the population of hills earned their livelihood from farming business. And due to high percentage of illiteracy, the movement of labour force from land-based activities (farming) to urban-oriented activities (industrial production) is almost negligible. All these factors affect the economy of hill people under some mountain specificities which separate the hilly region from other areas. These specificities are classified as *(i)* inaccessibility, *(ii)* fragility, *(iii)* marginality, *(iv)* diversity, *(v)* niche and *(vi)* adaptation mechanism (Jodha *et al.*, 1992). These specificities have multiple dimensions, namely, physical, biological and socio-economic. All these have direct bearing on the sustainability of hillman's economy.

The paper examines the impact of natural resources (common property resources) on the economy of hill/tribal people in Himachal Pradesh. The studies conducted on hills economy reveal that tribal and hill people's economy is mainly dependent on natural resources. Out of a number of resources available to the hill people, the agricultural support land contributes a major share in the household economy.

Agricultural support land mainly includes pasture and forest lands which are not cultivated for social and legal reasons. Agricultural support land is defined as that piece of land which helps directly or indirectly the agricultural production process and complements a number of economic activities. In hills support land provides livelihood to the hillman in the form of food, fodder, fuel, timber, herbs, etc. From economic point of view, the support land is complementing a number of enterprises and consequently supports the hill economy in various ways.

Theoretically, it is clear that support land provides a number of incentives to the hill people but it needs empirical support for quantification of gains/returns. For this purpose the present study is designed to know the following: *(i)* extent of support land, *(ii)* hillman's dependence on support land, *(iii)* economic returns from support land and *(iv)* issues for sustainablility of the hill economy. To fulfil the above objectives, the data collected under Wood Balance Study of Agro-Economic Research Centre, Himachal Pradesh University, Shimla, have been used. The study is based on field data collected for 12 months from 560 households of different size classes spread over four agro-climatic zones of the state. These zones are: I - Snow desert/Alpine or pastural region, II - Foot hills and valleys or field crop region, III - Mid hills and temperate zone or commercial crop region and IV - High hills wet zone or fruit crops region. The data pertain to the year 1990-91.

Himachal Pradesh falls in the category of hilly state and is located in the Western Himalayan Region of India. More than 90 per cent of the population of the state resides in the rural areas and their main occupation is agricultural production. The tribal population of the state accounts for 4.61 per cent of the total population. According to land use classification, agricultural land (arable land) accounts for 11.18 per cent while support land (non-arable land) for 85.05 per cent of the total geographical area of the state during 1988-89.

* Agro-Economic Research Centre, Himachal Pradesh University, Shimla (Himachal Pradesh).

The land other than agriculture and support land accounts for 3.77 per cent and this class of land is mainly used for non-land based activities like housing, buildings and roads, etc. The support land includes four types of land use categories, *viz.*, forest land, pasture land, miscellaneous tree crop land and culturable wasteland and out of which forest land accounts for a major share (79 per cent). However, forest land accounts for 67.52 per cent of the total geographical area of the state and out of which culturable forest accounts for 38.30 per cent in 1988-89. The remaining area (29.22 per cent) comes under the category of barren and scrub forests. In hills scientific studies show that ecology-based relation between agricultural land and support land should be maintained at the existing demographic and technical levels (*i.e.*, 1:16 hectares) (GTZ, 1990). The long-term viability of hill agriculture depends directly upon certain energy inputs from surrounding forests (in the form of fodder, fuel and fertiliser), and that forests in turn will suffer and vanish from over-use if the forest area becomes too small in relation to agricultural area at the micro level. The balance can be restored if the following measures are adopted: *(i)* plantation of new forests and improvement of existing forests, *(ii)* shifting from open grazing to cut and carry feeding of livestock and *(iii)* improvement of high altitude pastures.

## EXTENT OF SUPPORT LAND

The average per capita agricultural and support land worked out to 0.12 and 0.42 hectare respectively. Due to low density of population and better accessibility of common property resources (CPRs), zone IV has more per capita area under agriculture and support land (Table I). In zone III, because of high population density and extensive nature of cultivation, the availability of both classes of land is the least. The ratio of agricultural and support land varies from 1:0.15 hectare on marginal farms to 1:0.77 hectare on large farms, the overall average being 1:0.47 hectare. The village level ratio worked out is 1:1.33 hectare which includes private and community/government support land while at the household level private support land is considered.

TABLE I. RATIO OF AGRICULTURAL LAND TO SUPPORT LAND IN HIMACHAL PRADESH, 1990-91

*(ha)*

| Farm size/zone | Household level | Village level | Per capita | |
|---|---|---|---|---|
| | | | Agricultural and | Support land |
| (1) | (2) | (3) | (4) | (5) |
| Marginal (upto 1 ha) | 1:0.15 | N.A. | N.A. | N.A. |
| Small (1-2 ha) | 1:0.25 | N.A. | N.A. | N.A. |
| Medium (2-4 ha) | 1:0.43 | N.A. | N.A. | N.A. |
| Large (4 ha and above) | 1:0.77 | N.A. | N.A. | N.A. |
| All | 1:0.47 | 1:1.33 | 0.12 | 0.16 |
| Agro-climatic zones | | | | |
| I Snow desert/Alpine zone (pastural region) | 1:0.07 | 1:2.24 | 0.11 | 0.25 |
| II Foot hills and valleys (agricultural crops region) | 1:0.49 | 1:0.91 | 0.11 | 0.10 |
| III Mid hills and Temperate zone (vegetables and livestock region) | 1:0.83 | 1:1.58 | 0.15 | 0.24 |
| IV High hills wet zone (fruit crops region) | 1:0.12 | 1:1.83 | 0.23 | 0.42 |

N.A. = Not available.

## DEPENDENCE ON SUPPORT LAND

In hills support land provides a number of products, *i.e.*, fodder, fuelwood, timber, herbs, etc. The dependence of hillman on support land for these products is presented in Table II. For fodder requirement, an average household is dependent for 86.43 per cent while medium households for 96.73 per cent. Landless households also met 34.38 per cent of their fodder requirement from support land. In pastural zone I, 92.73 per cent of fodder requirement was fulfilled from support land. In zone II (field crop region), a significant share was contributed by crop by-products (13 per cent). Except on medium and large size of farms and in zone II, the dependence for fuelwood was more than 91 per cent. For timber wood, people in zones I, II and IV were dependent on support land for more than 95 per cent of their requirements. The average household fulfilled 89.68 per cent of their energy requirement (581.88 Coal Replacement in kilograms - CR-kg) from support land.

TABLE II. DEPENDENCE ON SUPPORT LAND IN HIMACHAL PRADESH, 1990-91

*(per cent)*

| Farm size/zone | Dependence on support land for | | | | |
|---|---|---|---|---|---|
| | Fodder | Fuelwood | Timber | Herbs and minor products | Rural energy |
| (1) | (2) | (3) | (4) | (5) | (6) |
| Landless | 34.38 | 97.69 | 100.00 | N.A. | 40.53 |
| Marginal | 89.75 | 94.86 | 96.69 | 100 | 88.13 |
| Small | 87.94 | 91.10 | 83.64 | 100 | 90.67 |
| Medium | 96.73 | 88.15 | 84.40 | 100 | 92.05 |
| Large | 64.63 | 86.68 | 87.10 | N.A. | 92.75 |
| All | 86.43 | 89.76 | 84.93 | 100 | 89.68 |
| Agro-climatic zones | | | | | |
| I | 92.73 | 96.13 | 95.07 | N.A. | 93.71 |
| II | 84.30 | 87.00 | 83.66 | N.A. | 88.50 |
| III | 90.43 | 91.72 | 95.03 | N.A. | 91.03 |
| IV | 77.31 | 96.15 | 95.61 | N.A. | 85.54 |

*Note:* Per capita annual energy consumption varies from 496.89 CR-kg on medium households to 653.43 CR-kg on landless category and the average being 581.88 CR-kg.

N.A. = Not available.

## ECONOMIC RETURNS FROM SUPPORT LAND

Various gains from support land are summarised in Table III. These returns are quantified in value terms at the prevailing market rates in the region concerned. The annual returns from fodder varied from Rs. 3,548 on marginal farms to Rs. 8,625 on medium farms, the overall average being Rs. 5,746. Even the landless households got fodder and fuelwood worth Rs. 123 and Rs. 563 respectively from support land. The average household got fuelwood worth Rs. 2,174 and timber worth Rs. 835 per annum. The average tribal household received Rs. 1,812 in the form of herbs, etc. The returns from fodder and fuelwood on support land were the highest in zone III while these were the highest for timber in zone I.

The returns from support land received by rural people in Himachal Pradesh during 1990-91 were estimated to be worth Rs. 6,651 crores. And out of total gains, fodder, fuelwood, timber, herbs and food items accounted for Rs. 4,326.06, Rs. 1,636.77, Rs. 628.66, Rs. 58.64 and Rs. 0.87 crores respectively (Singh, 1992).

TABLE III. ECONOMIC RETURNS FROM SUPPORT LAND IN HIMACHAL PRADESH, 1990-91

*(Rs./household/annum)*

| Farm size/zone (1) | Fodder (2) | Fuelwood (3) | Timber (4) | Herbs (5) | Food items (6) |
|---|---|---|---|---|---|
| Landless | 123 | 563 | - | N.A. | N.A. |
| Marginal | 3,548 | 1,668 | 946 | 1,938 | 23 |
| Small | 5,930 | 2,229 | 779 | 1,227 | 43 |
| Medium | 8,625 | 2,493 | 640 | 1,778 | 45 |
| Large | 6,839 | 3,260 | 1,058 | N.A. | N.A. |
| All | 5,746 | 2,174 | 835 | 1,812 | 27 |
| Agro-climatic zones | | | | | |
| I | 3,888 | 2,286 | 1,499 | N.A. | N.A. |
| II | 5,320 | 2,130 | 568 | N.A. | N.A. |
| III | 9,509 | 2,785 | 895 | N.A. | N.A. |
| IV | 4,075 | 1,304 | 704 | N.A. | N.A. |

N.A. = Not available.

SHARE OF SUPPORT LAND IN HOUSEHOLD INCOME

The share of different components of household income (Table IV) reveals that income from support land accounted for 37 per cent and in tribal areas for 41 per cent. The share of support land in total income varied from 32 per cent on large farms to 50 per cent on

TABLE IV. SHARE OF SUPPORT LAND IN HOUSEHOLD INCOME IN HIMACHAL PRADESH, 1990-91

*(Rs./household/annum)*

| Farm size/zone (1) | Support land (2) | Agricultural land (3) | Animals (4) | Business/ Service/Sale of labour (5) | Total (6) |
|---|---|---|---|---|---|
| Landless | 868 | - | 176 | 12,869 | 13,731 |
| | (5) | | (1) | (94) | (100) |
| Marginal | 6,162† | 1,198 | 583 | 7,893 | 15,836† |
| | 1,961 | | | | 1,961 |
| | (39,46) | (7.00) | (4) | (50) | (100) |
| Small | 8,938† | 2,645 | 1,070 | 6,552 | 19,295† |
| | 1,270 | | | | 1,270 |
| | (46,50) | (14.00) | (6) | (34) | (100) |
| Medium | 11,758† | 8,895 | 1,858 | 12,534 | 35,045† |
| | 1,823 | | | | 1,823 |
| | (34,37) | (25.00) | (5) | (36) | (100) |
| Large | 11,157 | 11,510 | 1,710 | 10,794 | 35,171 |
| | (32.00) | (33.00) | (5) | (30) | (100) |
| All | 8,755† | 4,775 | 1,152 | 9,193 | 23,875† |
| | 1,839 | | | | 1,839 |
| | (37,41) | (20.00) | (5) | (38) | (100) |
| Agro-climatic zones | | | | | |
| I | 7,673 | 2,078 | 277 | 2,788 | 12,816 |
| | (60) | (16) | (2) | (22) | (100) |
| II | 8,018 | 2,641 | 1,255 | 11,213 | 23,127 |
| | (35) | (11) | (5) | (49) | (100) |
| III | 13,189 | 8,775 | 1,323 | 6,380 | 29,667 |
| | (44) | (30) | (5) | (21) | (100) |
| IV | 6,083* | 17,138 | 1,677 | 12,403 | 37,301 |
| | (16) | (46) | (5) | (33) | (100) |

*Note:* Figures in parentheses denote percentages to the total.
† Value of minor forest products for tribal households.
* Excluding value of wood for packing cases of fruits.

small farms. In zone I the share of income from support land was the highest (60 per cent) in total household income, while zone IV accounted for the highest income from agricultural land because of cultivation of fruit crops (high return crops). Similarly in zone III, the share of agriculture land was significant (30 per cent) due to cultivation of cash crops like off-season vegetables, etc. The income from animals was only 5 per cent while services and business activities contributed 38 per cent on average size of farms. Being highly populated and better educated region, zone II accounted for a larger share (49 per cent) from service and business (off-farm jobs) in total household income. In zone IV, the estimated returns from support land exclude the value of timber wood used for packing cases for fruits and vegetables.

## MARKETED SURPLUS FROM SUPPORT LAND

Marketed surplus generated from support land on tribal farms are presented in Table V for herbs and food items. Almost the entire quantity collected was sold in the market for cash requirement (for more details, see Singh *et al.*, 1992). An average tribal household sold support land products valued at Rs. 1,814 per annum. The marginal households generated higher returns (Rs. 1,938) as compared to large category families from sale of minor forest products.

TABLE V. MARKETED SURPLUS GENERATED FROM SUPPORT LAND PER HOUSEHOLD ON TRIBAL FARMS IN HIMACHAL PRADESH, 1990-91

| Products | Marginal | | Small | | Medium | | All | |
|---|---|---|---|---|---|---|---|---|
| | Quantity (kg) | Value (Rs.) | Quantity (kg) | Value (Rs.) | Quantity (kg) | Value (Rs.) | Quantity (kg) | Value (Rs.) |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Herbs | | | | | | | | |
| *Dhoop* | 21.09 | 635 | 8.04 | 257 | 20.00 | 600 | 18.88 | 571 |
| *Karu* | 2.61 | 117 | 2.21 | 96 | 2.88 | 122 | 2.59 | 114 |
| *Patish* | 0.30 | 118 | 0.25 | 96 | 0.11 | 44 | 0.29 | 111 |
| *Dorighash* | 182.44 | 182 | 132.14 | 132 | 266.66 | 267 | 178.32 | 179 |
| *Singdi* | 13.56 | 144 | 17.86 | 186 | 17.77 | 200 | 14.49 | 154 |
| Food items | | | | | | | | |
| *Guchhi* | 0.64 | 742 | 0.39 | 459 | 0.44 | 544 | 0.59 | 685 |
| Total | - | 1,938 | - | 1,226 | - | 1,777 | - | 1,814 |

## ISSUES FOR SUSTAINABILITY OF HILL ECONOMY

For making the hillman's economy sustainable some special issues need to be considered, *i.e.*, review of legal and social sanctions for the use of support land (CPRs). Basic decision-making policies for the balanced use of natural resources in hilly regions must be based on scientific findings. The optimum can be achieved by considering different limits of the carrying capacity and the requirements and development aims of the concerned population. Development of balanced ratio between agricultural land and support land at regional level is also necessary.

The promotion of social forestry plantations on private and public support lands is expected to be only an alternative for reverting the effects of imbalances created by the declining ratio of agricultural land to support land. Development of social forestry plantations reduces the burden on public support land and restricts the depletion of natural

resources. Social forestry provided 21 man-days of additional employment to the poor families annually and an income of Rs. 1,012 per annum per household (Singh and Sikka, 1993).

## CONCLUSION

Agricultural support land in hills plays a crucial role in the economy of hill people particularly in tribal areas as it contributed 32 to 50 per cent of the total household income of the rural people. In the pastural region of the state, the share of support land was more than 60 per cent. An average household in hills received benefits worth Rs. 8,755 per annum from support land in the form of fodder, fuelwood, timber, etc. And tribal families received higher returns, *i.e.*, Rs. 10,594 per annum including the sale of herbs and medicinal plants. For fodder, fuelwood and timber requirements, an average household was dependent on support land for 86.43, 89.76 and 84.93 per cent respectively. Out of the per capita annual energy consumption (581.88 CR-kg.) in rural areas, 89.88 per cent was met from support land. On tribal farms marketed surplus worth Rs. 1,814 was also generated from support land.

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