The Scope of Crop Diversification in Increasing Productivity to Support Livelihood of Mountain Communities in India
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Research Report
The Scope of Crop Diversification in Increasing Productivity to Support Livelihood of Mountain Communities in India

This study has been researched and compiled by Prof. Nabinananda Sen of the Department of Business Management, University of Calcutta. The opinions expressed in the paper, and any errors of fact or interpretation or omission are the responsibility of the author, and do not reflect the agreed policy positions of the publishers.

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PREFACE

Snow-capped mountains, lush green valley of Hindukush Himalayan (HKH) region in India enamour the tourists since time immemorial. But the mainstream academic discussions and studies leave far behind the impact of changing national and international socio-economic scenario on the livelihood of inhabitants in this mountainous region of the country. The predominant occupation of this region being agriculture, how the agricultural community of this region is facing the challenges of WTO undoubtedly demands proper introspection.

In 1992, the United Nations Conference on Environment and Development at Rio de Janeiro, first recognised the issue of agricultural production in mountain region as important. Then came the Agreement on Agriculture (AoA) under the Uruguay Round in 1995.

The kingpin of Agreement on Agriculture was: market access. Various trade restrictions confronting imports; domestic support – subsidies and other programmes – including those that raise or guarantee farm gate prices and farmers’ incomes; export subsidies and other methods used to make exports artificially competitive. The AoA also puts special emphasis on the Ministerial Decision concerning Least-Developed and Net Food-Importing Developing countries.

The implementation period of commitments under this Agreement encompassed a period of six years (10 years for developing countries) initiated in 1995. Least developed countries do not have to make commitments to reduce tariffs or subsidies.

The Doha Declaration 2001 reiterated the long-term objective enshrined and already accepted in the present WTO Agreement: “to establish a fair and market-oriented trading system through a programme of fundamental reform.” The declaration also emphasised on specific commitments on government support and protection for agriculture.

Various concessionary clauses under AoA and the socio-economic fabric of the Hindukush region are self-explanatory to consider this region as “least developed areas”. Accordingly support measures in multilateral trade rules are required for assuring food security and achieving developmental goals in mountain regions of HKH. Herein comes the issue of WTO Agreement on the farmers’ rights to livelihood in the Hindukush Himalayan Region.

The HKH region, characterised by a chill and harsh climate, is dotted by very small land holdings of less than one acre. The problems of market access and non-availability of seeds are worsenig the plight of the farmers. Against this backdrop, liberalisation of agriculture bringing in its trail indiscriminate adoption of chemical fertilisers without considering the nature of the soil becomes completely detrimental to the Himalayan environment.

The developed countries have introduced ingenious mechanisms even
under AoA to protect their domestic food economy; for example Switzerland provides 100,000 Swiss Franc subsidies to its mountain farmers per annum. Developing countries, on the other hand, hardly have resources to safeguard their mountainous region. Farmers of HKH region in India face increased trade barriers and reduced market access in exporting products to developed countries. This is coupled with cheap import from developed countries to nip many small and marginal farmers in the bud.

Domestic support measures and special differential treatment provision under AoA hardly find application in HKH region in India because of resource crunch. Poor infrastructure facilities like transport, telecommunication etc. leave the agriculture of this region to the “vagaries of nature”.

However, there is always a silver lining even in the darkest scenario of simmering instability. Entangled with numerous adversities, the traditional crop diversity had the in-built characteristics of sustainable production/consumption and food security of the people in HKH region. This issue of crop diversity needs to be given proper attention in the way of framing up developmental strategies for the region.

This report analyses cultivation patterns, crop diversification and portrays the livelihood of farmers in HKH mountain region in India. The impelling urgency to sensitise the farmers on legal provisions like the Farmers’ Rights Act and the Biodiversity Bill of the Government of India, TRIPS, etc. should be considered seriously. All we intend to see is a bright picture of prosperous farmers bedazzling the HKH region with radiant rays of their achievements.

Calcutta

Pradeep S. Mehta
Secretary General
EXECUTIVE SUMMERY

The World Trade Organisation (WTO) agreement in agricultural sector has been recently set up to “establish a fair and market-oriented agricultural trading system”, which advocated globalisation, free trade and a patent regime. The most crucial impact could be coming from agreements on Trade related Aspects of Intellectual Property Rights (TRIPs) and Sanitary & Phytosanitary Measures. The Intellectual Property Rights (IPR) regime introduced by the WTO has come up with an issue of corporate patent versus community rights based on traditional knowledge and practices especially in the field of agriculture.

The traditional practice of cultivation by farmers supports the production of crops including diversification, land distribution system and production of agriculture-based handicraft items. All these are crucial in supporting the livelihood strategy of the mountain community.

The focus of this Report is on the mountain region because of its richness in bio-resources and also because less importance has been paid to the mountain community by the mainstream literature. Therefore, to understand the impact of the WTO Agreement on the Farmers’ Rights to livelihood in the Himalayan region, the study of the existing economic conditions of those regions, an enquiry into the livelihood of mountain community, crop composition of mountain agriculture and the possible scope of crop diversification, alternative livelihood strategies, etc., need to be explored.

To make a clear idea of the impact, the methodology followed included small sample studies through questionnaire surveys considering the complexities of mountain economy of India, the agro-climatic diversities, the biodiversity, the ethnic complexities arising from the existence of a large number of tribes and their cultural differences. The Study was conducted in two districts of the Garhwal region of Uttaranchal and six districts of two North-Eastern states, Assam and Meghalaya.

The states were chosen purposly because the two polar extreme zones the Garhwal Himalayas and the North-Eastern Himalayas, present a very different picture. Between the two north-eastern States, a large part of Assam is hill plains, whereas Meghalaya is characterised by highland hill areas. Assam is one of the low urbanised areas of the north-east, whereas Meghalaya is just the opposite. Also, a far higher percentage of the agricultural population in the hill areas of Meghalaya practice the traditional shifting cultivation method than in Assam. There is also a significant difference in terms of forest cover of these two States.

It is revealed that the overwhelmingly dominant occupations of the mountain communities are cultivation and collection of Non Timber Forest Products (NTFP). The extreme dependence on NTFP apparently indicates the poverty of the local population. Their livestock support encompasses collection of fruits, fodder, honey, medicinal herbs, etc.
From the Study, it was observed that the diversity in crop production focuses mainly on paddy, wheat, grains, vegetables, betel nut, pulses, etc. For example, one particular type of grass, namely broomstick, which is found in Meghalaya, is a major support to the livelihood of the mountain community, as people cultivate and sell it in the market. Handicraft is another important activity for their important livelihood.

As the north-east Himalayan region has been marked as one of the major ‘biodiversity hot spots’ in the world, the impact of TRIPs and its patenting clause may affect the mountain communities adversely, specially in respect of medicinal herbs and traditional use of other economically valued flora and fauna of this region. In the era of globalisation and free market access, attention need to be given to traditional production methods and consumption practices, which largely ensure their food security and basic minimum livelihood.

This research Study has revealed some salient findings related to mountain agriculture and traditional practices and also has given some recommendations, which might be treated as possible solutions to the problems that mountain people have been facing.

The Study has emphasised the preparation of Community Biodiversity Registers (CBRs), involving the local people, to protect their bio-resources and prevent illegal and unethical piracy of the same. Simultaneously, livelihood strategy options are to be expanded in terms of gainful alternatives facilitating the development and improvement of traditional natural farming system.
INTRODUCTION

The increasing consolidation of the WTO regime is gradually encompassing more and more areas of production, and not only manufacturing, activities in the fold of a new world order. As the shadows of this global-scale centralisation and standardisation of economic activities get longer, they will strongly affect not only the livelihood but also the tradition, culture, customs and habits of the people. The effect is likely to be more pronounced in the developing countries of the world, steeped as they are in centuries-old tradition and lifestyle. The decision to bring the agricultural sector within the ambit of a disciplined global regime, defined by the WTO, will bring in far-reaching changes in Indian agriculture, like in many other developing economies.

The ‘Agreement on Agriculture’, as set out in the WTO agreements, seeks “to establish a fair and market-oriented agricultural trading system”, which is a largely alien idea in the context of large parts of our agriculture. Equally distant are the issues of public stockholding and market access (for food security purposes) to at least some major areas of agriculture, which are still somewhat quarantined, but which would, in the near future, become the global playing ground for the food-processing and marketing MNCs from all over the world.

A major impact is likely to come from the agreements on Trade Related Aspects of Intellectual Property Rights (TRIPs) and Sanitary and Phytosanitary Measures. It is observed in some scholarly studies that while the former aim at extending patent, or a patent-like protection to agriculture, the latter seek to introduce strict health and safety regulations. ‘Through both these agreements, norms and standards existing in the developed countries are being extended to developing countries.’ (Dhar and Chaturvedi 1999).

The mountainous agro-economic regions of India, which stretch in the north-western part of the country over the states of Jammu and Kashmir and Himachal Pradesh, and the Kumaon and Garhwal areas of Uttarakhand (formerly part of Uttar Pradesh) as well as in the North-East covering seven states (popularly known as the ‘Seven Sisters’ of North-East India), i.e. Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura, present a very important case so far as the possible impacts of the WTO are concerned. But, unfortunately, the mainstream academic discussions and studies have given extremely inadequate attention to the mountainous regions of the country; the thrust of the mainstream literature is on the plains.

As a result, a study of the existing conditions of those regions, an enquiry into the livelihood of the mountain community, the crop composition in mountain agriculture and the possible scope of crop diversification and alternative livelihood strategies, etc., need to be undertaken for a proper understanding of the probable impact of the WTO Agreement on the farmers’ rights to livelihood in the Hindukush Himalayan Region. The
present Report is an account of the outcome of a research Study undertaken during mid-March to mid-July 2002 to that effect. The field study for the Project was carried out during April-May.

The objectives of the Project were to study:

(a) the current state of farmers in the mountain regions;
(b) the dependence of farmers/local communities on the forest resources;
(c) the need for crop diversification and its implications;
(d) the impact of liberalisation of the economy on the mountain communities;
(e) the existing legal framework in the light of farmers’ rights; and
(f) the stakeholders’ involvement.
CHAPTER - II

METHODOLOGY

In view of the myriad complexities of the mountain economy of India, such as the agro-climatic diversities, the biodiversity, the ethnic complexities arising from the existence of a large number of tribes, the linguistic and cultural differences, etc., and the difficulties of accessibility to many of the mountain villages, and in view of the extremely limited time available the Study is limited to small sample studies, confined to two districts of the Garhwal region of Uttaranchal and the six districts of two North-Eastern states, Assam and Meghalaya.

Given the constraints, a multi-stage sampling method was followed. In the first stage, the States were chosen purposely, keeping in mind the diversity aspect and the two extremely different zones because the Garhwal Himalayas, by all secondary evidence, present a very different picture from the North-Eastern Himalayas. Within the North-East again, the choice of Assam, on one hand, and Meghalaya, on the other, had been prompted by the fact that large parts of Assam are hill plains whereas Meghalaya is characterised by highland hill areas. Besides, according to the Basic Statistics of the North-East Region, 2000, published by the North-Eastern Council, Assam is one of the low urbanised areas of the North-East whereas Meghalaya is just the opposite. Also, a far higher percentage of the agricultural population in the hill areas of Meghalaya practises the traditional shifting cultivation method in Meghalaya than in Assam. The percentages of forest covers of the two states also vary significantly.

In the next stage, the districts and the villages were selected, in consultation with the two partner organisations [Non Government Organisations (NGOs)], the Bosco Reach Out (BRO) for the North-East and the Rural Litigation and Entitlement Kendra (RLEK) for the Garhwal region. These were also purpose samples, chosen with the consideration of capturing the diversities of the regions and the accessibility and logistic convenience.

Finally, within the short period under disposal, 326 households from six districts of the North-East region and 90 households from the villages of the two districts of the Garhwal region were selected depending, on their availability and willingness to co-operate. Thus, the present Study has been virtually a pilot study for a more extensive and intensive study of the subject in future.

Apart from the sample survey, valuable information was gathered regarding the area characteristics and agricultural practices from the interactions with the survey facilitators in the North-East region (the facilitators in Garhwal were not available) and a cross-section of the villagers. Two Workshops organised by CUTS Calcutta - one in in Dehradun and another in Shillong - also gave valuable insights about the local communities' perceptions and practices about mountain agriculture and environment.
But, as the sample size was very limited and the stratification was not comprehensive, the results of the survey are more indicative rather than statistically representative of the entire population.
Six districts from two states of the north-eastern region covering 77 villages and a total of 245 households and two districts from the Garhwal (Uttaranchal) region covering 30 villages and a total of 90 households were sampled for the research project. Further details about the project areas, given below, indicate the socio-economic and geographical specificities of the areas taken care of:

I. NORTH-EASTERN REGION

States: Assam and Meghalaya

Districts in Assam:

a) Goalpara District


Area Characteristics: All hill plains areas. The main crops are paddy, banana, arecanut, betelnut and vegetables; the Lemakona area is marked by its rubber plantations developed in recent years, with a handsome revenue earning potential.

The major livelihood strategies are paddy and vegetable cultivation and occupation as agricultural wage labour. Traditional cultivation methods are practised, though chemical fertilisers and pesticides are also widely used.

b) Karbi-Anglong District


Area Characteristics: All but the last mentioned villages are hill plains; Chirimkam is, however, a high land hill area. The main crop is paddy, followed by subsidiary crops like maize, linsid and arecanut.

Main livelihood strategies include cultivation in the first place, followed, in some cases, by service and small businesses. Traditional farming methods are practised, including "jhum" cultivation in the highland hill areas. The area is particularly rich in medicinal herbs.
c) North Cachar Hills District

Villages: i) Kasipur, ii) Jatinga, iii) Saron Mahur and iv) Habron Mahur

Area Characteristics: All highland hill areas. The main crop is vegetable, paddy and fruits being the subsidiary crops; fruits are grown mainly in Jatinga. The main livelihood strategy is cultivation, along with services, in some cases. Shifting cultivation methods ("jhum") are practised. Most of the villagers belong to 'below poverty line' category.

Districts in Meghalaya

a) West Garo Hills District

Villages: i) Lower Madupara, ii) Rongramgiri, iii) Monabari, iv) Grenggandi, and v) Maljanggri

Area Characteristics: All but the first and third mentioned villages are highland hill areas; the others are hill plains. The main crops are paddy and vegetables. Cultivation is the main livelihood strategy; bamboo and fuel wood selling and fishing are also the livelihood strategies in some cases. Shifting cultivation methods are practised. For about six months of the year, the plain areas remain flooded, aggravating food insecurity for the people and damage to the forest areas.

b) East Garo Hills District


Area Characteristics: All highland hill areas. Main crop of the area is paddy; subsidiary crops are chilli, ginger, etc. Main livelihood strategy is cultivation, sometimes supplemented by bamboo selling. Shifting cultivation method is practised in most of the areas. In some instances, regular cultivation practices are also seen. In the Kitmagre village, there are wild animals like Elephants, wild boar and deer, etc.

c) Ri-Bhoi District

Area Characteristics: All highland areas, partly under forest cover, partly cultivable land. The main crop is paddy; the subsidiary crops are ginger and turmeric and, in some places, broomstick and pineapple. Traditional methods of cultivation are followed.

II. CENTRAL REGION

State: Uttaranchal

Districts in Uttaranchal:

a) Uttarkashi District

Villages: i) Montad  ii) Datmir  
iii) Jakhol  iv) Rajugaon  
v) Bagi  vi) Salla  
vii) Ebang  viii) Saturi, and  
ix) Phittari.

Area Characteristics: All highland hill areas. Main crops are wheat and potato, followed by paddy, chhimi dal, manduva, rajma and cholai. The main livelihood strategies are cultivation, livestock farming and Non-Timber Forest Products (NTFP) collection and sale.

Cultivation practices have not been significantly modernised, in spite of widespread use of chemical fertiliser and pesticides. Medicinal herbs are very widely available and used by the villagers, even though many do not know their names. Many use foreign products like clothes, cosmetics, and electrical and electronic goods.

b) Tehri-Garhwal District:

Villages: i) Miyami  ii) Basoan Gaon  
iii) Srikot  iv) Khairad  
v) Nakot  vi) Kaith  
vii) Munog  viii) Tikri  
x) Mason  x) Dhurakuri  
xii) Devan  xii) Mathi  
xiii) Opice Central  xiv) Dhanvi  
xv) Khaskoti  xvi) Sanoa  
xvii) Bhatwari  xviii) Jhageri  
xix) Bistosi  xx) Endi and  
xxi) Khusonsi.

Area Characteristics: All highland hill areas. Main crops are wheat, potato and paddy, followed by chhimi dal and manduva. Major livelihood strategies include cultivation, livestock farming and NTFP collection and sale. Cultivation practices are traditional, albeit using chemical fertilizers and pesticides. Quite a few households use foreign clothing and electrical/electronic goods. Medicinal herbs are widely available and used.

Given the constraints, a multi-stage sampling method was followed. The states were chosen purposively; the diversity aspect was kept in mind, and the two polar extreme zones were given consideration; because, the Garhwal Himalayas, by all secondary evidence, presents a very different picture from the north-eastern Himalayas. Within the North-East again, the choice of Assam, on one hand, and Meghalaya, on the other, had been prompted by the fact that large parts of Assam are hill
plains whereas Meghalaya is characterized by highland hill areas. Besides, according to the Basic Statistics of the North East Region, 2000, published by the North-Eastern Council, Assam is one of the low urbanized areas of the north-east whereas Meghalaya is just the opposite. Also, a far higher percentage of the agricultural population in the hill areas of Meghalaya practise the traditional shifting cultivation method in Meghalaya than in Assam; the percentage of forest covers of the two states also vary significantly.

In the second stage, the districts and the villages were selected in consultation with the two partner organisations [Non Government Organisations (NGOs)], the Bosco Reach Out (BRO) for the North-East and the Rural Litigation and Entitlement Kendra (RLEK) for the Garhwal region. These were also purposive samples chosen with the consideration of capturing diversities of the regions and the accessibility and logistic convenience.

Finally, within the short period under disposal, 326 households from six districts of the north-east region and 90 households from the villages of the two districts of the Garhwal region were selected depending on their availability and willingness to cooperate. Thus the present study has been virtually a pilot study for a more extensive and intensive study of the subject in future. Apart from the sample survey, valuable information was gathered regarding the area characteristics and agricultural practices, from interactions with the survey facilitators in the north-east region (the facilitates in Garhwal were not available) and a cross-section of the villagers.

But, as the sample size is very limited and the stratification is not comprehensive, the results of the survey are more indicative rather than statistically representative of the entire population.
In this section, the major activities of the mountain communities in the sample areas have been studied, particularly in relation to their livelihood issues.

The occupational composition shows that cultivation and Non-Timber Forest Products (NTFP) collection are two of the most important occupations/activities of the mountain communities in the North-East and the Garhwal regions (see Table-1.1 and Table-1.2). More than 95 percent of the sample households in each of the villages of the two regions corroborate this observation. In the Garhwal region, livestock farming (especially, sheep ranching) is an additional significant occupation, particularly in the distant highland villages like Tehri, where out of the 30 sample households 25 were engaged in the activity.

**STATES: ASSAM & MEGHALAYA**

**OCCUPATIONAL COMPOSITION**

**TABLE : 1.1**

(District-wise distribution of sample households occupying various major occupations)

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Occupation Districts</th>
<th>No. of Sample Households</th>
<th>Cultivation</th>
<th>Live stock Farming</th>
<th>NTFP Collection</th>
<th>Petty Business</th>
<th>Servic- es</th>
<th>Handi- craft</th>
<th>Planta- tion</th>
<th>Wage Labour</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GOALPARA (Assam)</td>
<td>50</td>
<td>48</td>
<td>23</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>11</td>
<td>01</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>KARBI-ANGLONG (Assam)</td>
<td>30</td>
<td>27</td>
<td>-</td>
<td>28</td>
<td>05</td>
<td>17</td>
<td>20</td>
<td>3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>NORTH CACHAR HILLS (Assam)</td>
<td>30</td>
<td>26</td>
<td>02</td>
<td>01</td>
<td>07</td>
<td>05</td>
<td>-</td>
<td>20</td>
<td>-</td>
<td>02</td>
</tr>
<tr>
<td>4</td>
<td>WEST GARO HILLS (Meghalaya)</td>
<td>50</td>
<td>46</td>
<td>-</td>
<td>44</td>
<td>03</td>
<td>15</td>
<td>20</td>
<td>-</td>
<td>01</td>
<td>03</td>
</tr>
<tr>
<td>5</td>
<td>EAST GARO HILLS (Meghalaya)</td>
<td>46</td>
<td>-</td>
<td>44</td>
<td>03</td>
<td>15</td>
<td>20</td>
<td>-</td>
<td>01</td>
<td>03</td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>RI-BHOI (Meghalaya)</td>
<td>120</td>
<td>18</td>
<td>02</td>
<td>76</td>
<td>09</td>
<td>11</td>
<td>30</td>
<td>-</td>
<td>09</td>
<td>03</td>
</tr>
</tbody>
</table>
(District-wise distribution of sample households according to occupation)

<table>
<thead>
<tr>
<th>OCCUPATION / DISTRICT</th>
<th>Total no. of sample households</th>
<th>Cultivation</th>
<th>Wage labour</th>
<th>Livestock farming</th>
<th>NTFP Collection</th>
<th>Handicraft</th>
<th>Service</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
<td>(9)</td>
</tr>
<tr>
<td>UTTAR KASHI</td>
<td>60</td>
<td>59</td>
<td>25</td>
<td>05</td>
<td>59</td>
<td>25</td>
<td>01</td>
<td>04</td>
</tr>
<tr>
<td>TEHRI - GARHWAL</td>
<td>30</td>
<td>28</td>
<td>04</td>
<td>25</td>
<td>28</td>
<td>09</td>
<td>01</td>
<td>03</td>
</tr>
</tbody>
</table>

Even taking all the family members in a household together, the number of service holders is scanty in most of the sample villages. They are usually engaged either as schoolteachers in the local village school or as ordinary staff in the Forest Department of the State Government or else as drivers of the forest offices. In the Garhwal region, however, service holders are hardly found in the sample households.

The extreme dependence on NTFPs, apparently, indicates the poverty of the local population. Their livestock depends largely on the NTFPs for survival and so do the people themselves, gathering fruits and inferior edibles as well as medicinal herbs from the forest. The importance of the forests, therefore, cannot simply be overemphasised in the life of the people of the region. But, as is well known, the forest is getting depleted, largely due to the indiscriminate felling of trees by external agencies and unscrupulous timber traders.

On top of this, a good many laws and rules have been promulgated by the Government of India and the State Governments, with the avowed intention of protecting and preserving the forest, which have put severe constraints on the normal (traditional) livelihood practices of the villagers who had protected the forest over the centuries in an excellent way. There are views, and even a number of villagers themselves believe, or have been made to believe, that the ‘shifting cultivation’ (jhum) practised by them is responsible for forest depletion. The Forest Survey of India, Dehradun, 1998, also points out the same. However, there are controversies in this regard, as it is also argued that shifting cultivation helps in the natural recovery and enhancement of productivity of the once-cultivated forest land during the interim fallow years and, particularly because the North-East is a heavy-rainfall area, the forest undergrowth takes place quickly. The increasingly adverse land-man ratio is, in fact, disturbing the ‘jhum cycle’ and causing environmental problems.

In the Goalpara district of Assam, in particular, and in Karbi-Anglong, to an extent, rubber/tea/coffee plantation is a significant burgeoning activity. Rubber plantations introduced in Assam in recent years by the Rubber Board of the Government of India have proved to be a highly gainful occupation and, though very slowly, more and more households are taking to rubber plantation as a livelihood alternative.
CROP DIVERSIFICATION

The present status of crop diversity can be understood from Tables 2.1 and 2.2. In the North-East districts, paddy is a major crop for a large majority of the households, especially in Assam. In the Karbi-Anglong district of Assam and the West Garo Hills and Ri-Bhoi districts of Meghalaya, however, vegetable cultivation is a second major occupation. Apart from the summer vegetables and winter vegetables, ginger too has become popular as a cash crop in recent years, particularly in the East-Garo Hills and Ri-Bhoi districts of Meghalaya. But, its yield and market demand have been very sharply falling over the last year or so.

TABLE NO: 2.1

CROP COMPOSITION
(District-wise distribution of sample households growing various crops)

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>CROP DISTRICT</th>
<th>Total No. of Sample Households</th>
<th>Paddy</th>
<th>Vegetable</th>
<th>Ginger</th>
<th>Betel Nut</th>
<th>Turmeric</th>
<th>Bromstick</th>
<th>Coffee, Rubber-Tapioca</th>
<th>Maize</th>
<th>Fruits</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>GOALPARA</td>
<td>50</td>
<td>42</td>
<td>03</td>
<td>-</td>
<td>-</td>
<td>36</td>
<td>-</td>
<td>11 (4+7)</td>
<td>-</td>
<td>13</td>
</tr>
<tr>
<td>2</td>
<td>KARBRI-ANGLONG</td>
<td>30</td>
<td>23</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>09</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>NORTH CACHER</td>
<td>30</td>
<td>05</td>
<td>23</td>
<td>03</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>WEST GARO HILLS</td>
<td>25</td>
<td>17</td>
<td>19</td>
<td>01</td>
<td>04</td>
<td>-</td>
<td>-</td>
<td>03</td>
<td>03</td>
<td>03</td>
</tr>
<tr>
<td>5</td>
<td>EAST GARO HILLS</td>
<td>50</td>
<td>30</td>
<td>-</td>
<td>24</td>
<td>13</td>
<td>01</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>03</td>
</tr>
<tr>
<td>6</td>
<td>RI-BHOI</td>
<td>120</td>
<td>90</td>
<td>55</td>
<td>110</td>
<td>01</td>
<td>22</td>
<td>25</td>
<td>01</td>
<td>03</td>
<td>16</td>
</tr>
</tbody>
</table>

TABLE: 2.2

CROP COMPOSITION
(District-wise distribution of households according to Crop produced)

<table>
<thead>
<tr>
<th>CROPS / DISTRICT</th>
<th>Total No. of Sample Household</th>
<th>Paddy</th>
<th>Wheat</th>
<th>Other Pulses</th>
<th>Inferior cereals Makai &amp; Jo</th>
<th>Potato</th>
<th>Other Vegetables</th>
<th>Mandua</th>
<th>Rajma</th>
<th>Cholai</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 UTTARKASHI</td>
<td>60</td>
<td>16</td>
<td>40</td>
<td>20</td>
<td>-</td>
<td>45</td>
<td>-</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>2 TEHRI-GARHwal</td>
<td>30</td>
<td>20</td>
<td>22</td>
<td>16</td>
<td>10</td>
<td>18</td>
<td>07</td>
<td>10</td>
<td>09</td>
<td>-</td>
<td>05</td>
</tr>
</tbody>
</table>
In the Garhwal region, wheat is also a very important crop, coming second in importance and followed by potato, which is a major money-earner. Pulses like chhimi dal, kulath, etc., are also important crops of the region, as is rajma and mandua. In Garhwal, cholai is yet another popular crop, particularly in the Uttarkashi district.

It was observed that most of the major crops, excepting the cash crops, like paddy/wheat, pulses and the summer and winter vegetables, provide staple consumption to the villagers. These are, therefore, produced first (and, in several instances, exclusively) for domestic purposes and then the surplus, if any, is sold in the market.

Farmers from Dehradun stated (in the Workshop) how the traditional practice of ‘composite vegetable cultivation’ (the Barah Anaj or ‘Twelve Grains Farming’) would take care of the balanced sustenance of soil nutrition, on the one hand, and the balanced diet requirement of the rural household, on the other. Thus, the traditional crop diversity had in-built characteristics of sustainable production/consumption and food security of the people.

Taking into consideration agricultural inputs, the farmers in the highland areas of East Garo Hills and Ri-Bhoi districts of Meghalaya very largely use indigenously developed seeds, manures, pesticides and implements. However, their counterparts in Assam and Garhwal use predominantly, if not entirely, seeds, fertilisers, pesticides and implements in their cultivation, all purchased from the market.

But, the cultivators of Garhwal, in particular, were quite vocal about the adverse impacts of chemical fertilizers on the soil. But the cultivators of Garhwal, in particular, were quite vocal about the adverse impacts of chemical fertilisers on the soil, as they had experienced that increasing doses of the same were required over the years to maintain the same level of (per acre) productivity of land. This indicates eroding natural fertility of the soil. However, once they had taken recourse to the chemical fertilisers, it would not be possible for them to change over to natural manures overnight, or even in the short run, because the land would need to be left idle for a couple of years to recuperate its eroded natural fertility.

The implication of all this is that improvisation and modernisation in the agricultural practices have to be undertaken, keeping in mind not only the pros and cons of the same but also the multifarious merits of the indigenous practices.
Talking about livelihood strategies, a peculiar type of 'crop', namely broomstick (grass), which grows in the forests of Meghalaya, may be mentioned. But, many villagers also cultivate it because of its good revenue potential. Twenty-five out of the 120 sample households of Ri-Bhoi district grow broomstick and sell it in the market because it is in good demand. It could be important to explore the possibilities of developing it as a viable and popular cash crop in the region.

Among the well known cash crops, betel nut is grown widely in large parts of the Goalpara district of Assam and, to a lesser extent, in the Garo hills, particularly in the east Garo hills. Rubber is another cash crop that is recently gaining ground, particularly in some parts of Assam and Meghalaya. In the latter, sericulture is also practised. Flowers and orchids of wide and exclusive varieties and fruits of high quality that grow abundantly in large parts of Assam and Meghalaya can also be developed as major cash crops of the region.

Making handicraft items is a leisure-time occupation for the people in many areas of mountainous regions. In the North-East, particularly in the Ri Bhoi district of Meghalaya, 30 out of the 120 households make various types of handicraft items from bamboo and cane, which are widely available in the areas, often as free gift of nature (See Table 3.1 and Table 3.2).

**TABLE NO: 3.1**

(District-wise distribution of sample households according to types of handicraft items procured)

<table>
<thead>
<tr>
<th>SL No</th>
<th>HANDICRAFT ITEMS District(State)</th>
<th>Total No. of sample household</th>
<th>Bamboo Basket</th>
<th>Cane Basket</th>
<th>Cane Stool</th>
<th>Clothes</th>
<th>Bag</th>
<th>Others</th>
<th>Non-Producing Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GOAL PARA (Assam)</td>
<td>50</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>KARBI-ANGOLONG (Assam)</td>
<td>30</td>
<td>02/01</td>
<td>-</td>
<td>09/05</td>
<td>-</td>
<td>-</td>
<td>01/02</td>
<td>18</td>
</tr>
<tr>
<td>3</td>
<td>NORTH CACHAR HILLS (Assam)</td>
<td>30</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>WEST GARO HILLS</td>
<td>29</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>EAST GARO HILLS (Meghalaya)</td>
<td>50</td>
<td>15/-</td>
<td>12/-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>02/01/-</td>
<td>30</td>
</tr>
<tr>
<td>6</td>
<td>RI-BHOI (Meghalaya)</td>
<td>120</td>
<td>01/04/-</td>
<td>01/06/-</td>
<td>04/04/01</td>
<td>03/10/-</td>
<td>-</td>
<td>09/5/02</td>
<td>02/03/-</td>
</tr>
</tbody>
</table>
HANDICRAFTS PRODUCTION

There is a wide variety of handicraft items like bamboo baskets, bamboo mats, cane baskets, cane tools, bags and clothing from the locally available yarns. These often bear the unmistakable stamp of local ethnic designs and patterns, motifs and icons that vary distinctively from State to State. Even though they usually make these casually in their lean hours, the products are outputs of enviable skill earned and reproduced over generations.

What is significant is the fact that the products are most often primarily for domestic use and secondarily, if at all, for the market (as will be evident from Table 3.1 and Table 3.2). Even when they sell these products in the market, they sell them at a throwaway price, because, as they say, these are made (casually) only during the leisure hours.

It is important to understand that these people can be motivated to develop their products through diversification strategies, including experiments in product design, hybridisation and adequate marketing strategies. The reasons for lack of commercialisation of the handicraft products by the hill people themselves are explained largely by their weak market-orientation, which also precludes any attempt towards experiments in product diversification, product modification, including changes in design, features, etc. Further intensive studies are required in regard to the marketing prospects of the handicraft products of the North East.

However, the benefits of the revenue earned must be properly shared by the direct producers concerned, not siphoned away largely by the middlemen or mediating agencies and the end-point sellers, as is the current situation. The conventional passive role of the Handicraft Boards of the central and state governments has already proved to be inadequate.

### TABLE: 3.2

<table>
<thead>
<tr>
<th>HANDICRAFT ITEMS/DISTRICT</th>
<th>Total Sample Households</th>
<th>Wool Work</th>
<th>Non-users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Home use</td>
<td>Market</td>
</tr>
<tr>
<td>1 UTTAR KASHI</td>
<td>60</td>
<td>01 08 15</td>
<td>36</td>
</tr>
<tr>
<td>2 TEHRI-GARHWAL</td>
<td>30</td>
<td>05 04 02</td>
<td>19</td>
</tr>
</tbody>
</table>

*What is significant is the fact that the products are most often primarily for domestic use, and, secondarily, if at all, for the market.*

*It is important to understand that these people can be motivated to develop their products through diversification strategies, including experiments in product design, hybridisation and adequate marketing strategies.*
CHAPTER - VII

DEPENDENCE OF FARMERS/LOCAL COMMUNITIES ON THE FOREST RESOURCES

The people of the mountainous regions depend heavily on the forest resources for their survival as well as livelihood. They glean fruits, flowers, orchids, medicinal herbs, etc. from the forests and also get some gainful employment in forest related activities.

The importance of forests had been studied partially and already mentioned in respect of NTFP and medicinal herbs.

The importance of forests was studied partly in this project and has already been mentioned in respect of NTFP and medicinal herbs. For a more detailed description of the use of medicinal herbs, please see Table 4.1 and Table 4.2.

TABLE NO: 4.1

AGRICULTURAL INPUT COMPOSITION BY SOURCE

(District-wise distribution of sample households using various agricultural inputs)

<table>
<thead>
<tr>
<th>INPUT DISTRICT</th>
<th>Total No. of Sample Households</th>
<th>SEED</th>
<th>FERTILISER</th>
<th>PESTICIDE</th>
<th>IMPLEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sl. No.</td>
<td>Indigenous MFD</td>
<td>Indigenous MFD</td>
<td>Indigenous MFD</td>
<td>Indigenous MFD</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3a</td>
<td>4</td>
<td>4a</td>
</tr>
<tr>
<td>GOALPARA</td>
<td>50</td>
<td>-</td>
<td>48</td>
<td>-</td>
<td>47</td>
</tr>
<tr>
<td>KARBI-ANGLONG</td>
<td>30</td>
<td>-</td>
<td>29</td>
<td>-</td>
<td>23</td>
</tr>
<tr>
<td>NORTH CACHAR HILL</td>
<td>30</td>
<td>-</td>
<td>30</td>
<td>08</td>
<td>14</td>
</tr>
<tr>
<td>WEST GARO HILL</td>
<td>25</td>
<td>15</td>
<td>08</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>EAST GARO HILL</td>
<td>50</td>
<td>42</td>
<td>40</td>
<td>40</td>
<td>-</td>
</tr>
<tr>
<td>RI-BHOI</td>
<td>120</td>
<td>110</td>
<td>09</td>
<td>04</td>
<td>10</td>
</tr>
</tbody>
</table>

TABLE: 4.2

AGRICULTURAL INPUT COMPOSITION

(District-wise distribution of Sample households using different agricultural inputs)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Total Sample House-holds</th>
<th>SEED</th>
<th>FERTILISER</th>
<th>PESTICIDE</th>
<th>IMPLEMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indigenous Mfd</td>
<td>Indigenous Mfd</td>
<td>Indigenous Mfd</td>
<td>Indigenous Mfd</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>UTTARKASHI</td>
<td>60</td>
<td>06</td>
<td>53</td>
<td>04</td>
</tr>
<tr>
<td>2</td>
<td>TEHRI-GARHWA</td>
<td>30</td>
<td>03</td>
<td>25</td>
<td>01</td>
</tr>
</tbody>
</table>
It transpires that Neem, Tulsi and various types of bitter herbs, are popularly used in the North-East and herbs such as Atees, Kaudai, Hathpanja and Salam panja, Meetha, Kutki, Bukhar ki jadi, Kasmir ki jadi, etc., are widely used in the villages of Uttarkashi and Tehri-Garhwal.

But, the most striking factor is that while everybody uses some medicinal herb or the other as preventives or curatives for various ailments and maladies, their knowledge and awareness about the medicinal properties of the herbs are most often rudimentary, limited and unorganised. All the same, medicinal herbs are still effective remedies for diseases and ailments of the hill people. It is extremely important that the mountain regions, the North-East in particular, rich as they are in such herbs, should make a record of all the medicinal plants available in a particular locality, their characteristics and their uses/applications, etc., and Community Biodiversity Registers (CBRs) should be prepared extensively for all the different areas and the different communities. The issue of CBR is, of course, not without controversy because a section of the concerned stakeholders are apprehensive of the possibilities of bio-piracy and smuggling out of invaluable traditional knowledge, ultimately to the unscrupulous people/organisations/institutions.

In the process, the poor villagers - so long the exclusive creators, developers, custodians and users, over generations, of the traditional knowledge - would be deprived and made dependent on the market. Consequently, their life security would be adversely affected. The relevant departments of the Central and State Governments and academic and research institutions, NGOs, etc., need to do a lot of research on the medicinal herbs to come out with effective ayurvedic medicines/cures and get them duly patented in such a manner that the people of the mountain communities can be due co-sharers of the benefits. Refer Table No. 5.1 and 5.2

**TABLE No: 5.1**

**MEDICINAL HERB COMPOSITION**

<table>
<thead>
<tr>
<th>MEDICINAL HERBS DISTRICT</th>
<th>NEEM</th>
<th>TULSI</th>
<th>BITER HERBS</th>
<th>OTHERS</th>
<th>NAMES UNKNOWN</th>
<th>TOTAL NO. OF SAMPLE HOUSEHOLDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sl. No.</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
</tr>
<tr>
<td>1 Goal Para</td>
<td>47</td>
<td>46</td>
<td>08</td>
<td>40</td>
<td>03</td>
<td>50</td>
</tr>
<tr>
<td>2 Karbi- Anglong</td>
<td>06</td>
<td>12</td>
<td>01</td>
<td>03</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>3 North Cachar Hills</td>
<td>05</td>
<td>03</td>
<td>-</td>
<td>01</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>4 West Garo Hills</td>
<td>03</td>
<td>02</td>
<td>04</td>
<td>02</td>
<td>17</td>
<td>27</td>
</tr>
<tr>
<td>5 East Garo Hills</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>6 Ribo</td>
<td>05</td>
<td>-</td>
<td>17</td>
<td>15</td>
<td>88</td>
<td>120</td>
</tr>
</tbody>
</table>

(District-wise distribution of sample households using various medicinal herbs)
## District-wise distribution of sample households using various medicinal herbs

<table>
<thead>
<tr>
<th>MEDICINAL HERBS/DISTRICT</th>
<th>Total Sample Households</th>
<th>ATEES</th>
<th>KAUDA</th>
<th>PANJA</th>
<th>MEETH</th>
<th>KUTKI</th>
<th>JADIS</th>
<th>OTHERS</th>
<th>NAMES UNKNOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
<td>(9)</td>
<td>(10)</td>
</tr>
<tr>
<td>1 UTTARKASHI</td>
<td>60</td>
<td>35</td>
<td>16</td>
<td>35</td>
<td>18</td>
<td>05</td>
<td>-</td>
<td>08</td>
<td>19</td>
</tr>
<tr>
<td>2 TEHRI-GARHVAL</td>
<td>30</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>15</td>
<td>04</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

TABLE: 5.2

**MEDICINAL HERB COMPOSITION**
As already indicated earlier, the impact of TRIPS and its patenting aspects can have far-reaching impact on the communities in the mountain regions in respect of medicinal herbs. As, on the one hand, the North-Eastern region is a ‘bio-diversity hot-spot’ and extremely rich in medicinal and aromatic herbs/plants and, on the other, the villagers in these regions, in spite of using the herbs regularly, have no documentation on the same. On top of that, they are, without exception, absolutely unaware of the WTO, let alone its implications. The survey glaringly revealed this ignorance in one hundred percent cases covered. The rich resources, are therefore precariously exposed to the possibilities of intervention and plunder by unscrupulous traders.

The survey also revealed that the villagers in the Ri-Bhoi district of Meghalaya and in both the Uttarkashi and Tehri-Garhwal districts of Uttaranchal are major users of foreign products (imported from China, Indonesia, etc.), particularly cosmetics, clothes and electrical/electronic products (see Tables 6.1 & 6.2 and Tables 6.3 & 6.4).

**TABLE NO. 6.1**

**COMPOSITION OF FOREIGN PRODUCTS IN USE**

(District-wise distributions of sample households using various following products)

<table>
<thead>
<tr>
<th>FOREIGN PRODUCTS DISTRICT</th>
<th>Total No. of Sample Households</th>
<th>SHOES</th>
<th>CLOTHES</th>
<th>COSMETICS</th>
<th>HAIR OIL</th>
<th>EDIBLES</th>
<th>OTHERS</th>
<th>NON-USERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
<td>(9)</td>
</tr>
<tr>
<td>1 GOALPARA</td>
<td>50</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>50</td>
</tr>
<tr>
<td>2 KARBI-ANGLONG</td>
<td>30</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>30</td>
</tr>
<tr>
<td>3 NORTH CACHAR HILLS</td>
<td>30</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>30</td>
</tr>
<tr>
<td>4 WEST GARO HILLS</td>
<td>25</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>25</td>
</tr>
<tr>
<td>5 EAST GARO HILLS</td>
<td>50</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>50</td>
</tr>
<tr>
<td>6 RI-BHOI</td>
<td>120</td>
<td>35</td>
<td>40</td>
<td>35</td>
<td>25</td>
<td>02</td>
<td>01</td>
<td>79</td>
</tr>
</tbody>
</table>
TABLE NO. 6.2

**REASONS OF PREFERENCE FOR FOREIGN PRODUCTS**

(District-wise distribution of sample households according to reasons of preference for foreign products)

<table>
<thead>
<tr>
<th>REASONS OF PREF</th>
<th>Total No. of sample Households</th>
<th>Better Quality</th>
<th>Better Packaging</th>
<th>Better Advertised</th>
<th>Ready Availbility</th>
<th>Greater Durability</th>
<th>More Effective</th>
<th>Less Costly</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISTRICT</td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
</tr>
<tr>
<td>RI-BHOI</td>
<td>120</td>
<td>40</td>
<td>37</td>
<td>35</td>
<td>37</td>
<td>36</td>
<td>36</td>
<td>35</td>
</tr>
<tr>
<td>OTHER DISTRICTS</td>
<td>185</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*It is apparently paradoxical but true that the poor villagers of Tehri-Garhwal and Ri-Bhoi districts, who depend largely on the NTFP, do at the same time wear foreign clothes and use foreign cosmetics.*

The waves of globalisation and liberalised imports under the WTO regime may result in the near future in more imports to these regions. A section of the mountain communities, particularly those near or along the way to places of tourist attraction, have already become attracted to foreign imports, lured by their peripheral attributes. It is, apparently, paradoxical but true that the poor villagers of Tehri-Garhwal and Ri-Bhoi districts, who depend largely on the NTFP, do at the same time wear foreign clothes and use foreign cosmetics. The reasons for preferring foreign products cited were better packaging, better advertisement, ready availability and better quality, in the sense of more fashionable designs, according to most villagers.

TABLE: 6.3

**FOREIGN PRODUCT COMPOSITION**

(District-wise distribution of sample households using various medicinal herbs)

<table>
<thead>
<tr>
<th>FOREIGN PRODUCT/ DISTRICT</th>
<th>Total Sample Households</th>
<th>Shoes</th>
<th>Clothes</th>
<th>Cosmetics</th>
<th>Edibles</th>
<th>Electrical/ Electronic goods</th>
<th>Others</th>
<th>Non-Users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
</tr>
<tr>
<td>UTTARKASHI</td>
<td>60</td>
<td>09</td>
<td>18</td>
<td>41</td>
<td>10</td>
<td>20</td>
<td>02</td>
<td>02</td>
</tr>
<tr>
<td>TEHRI-GARHWAL</td>
<td>30</td>
<td>05</td>
<td>17</td>
<td>10</td>
<td>08</td>
<td>10</td>
<td>03</td>
<td>06</td>
</tr>
</tbody>
</table>
TABLE: 6.4

REASONS OF PREFERENCE FOR FOREIGN PRODUCTS

District-wise distribution of sample households according to reasons of preference for foreign products

<table>
<thead>
<tr>
<th>DISTRICT (States)</th>
<th>Total No. of Sample House holds</th>
<th>Better Quality</th>
<th>Better Packaging</th>
<th>Better Advertised</th>
<th>Ready Availability</th>
<th>Greater Durability</th>
<th>More Effective</th>
<th>Less Costly</th>
<th>Non Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
<td>(8)</td>
<td>(9)</td>
<td>(10)</td>
</tr>
<tr>
<td>UTTAR-KASHI</td>
<td>60</td>
<td>25</td>
<td>35</td>
<td>15</td>
<td>08</td>
<td>10</td>
<td>05</td>
<td>05</td>
<td>19</td>
</tr>
<tr>
<td>TEHRI-GARHWAL</td>
<td>30</td>
<td>02</td>
<td>18</td>
<td>14</td>
<td>14</td>
<td>08</td>
<td>13</td>
<td>05</td>
<td></td>
</tr>
</tbody>
</table>

It is very important to understand that the substantial dependence of the mountain communities on various types of non-timber forest products etc and on traditional production methods and consumption practices largely ensure their food security and basic minimum livelihood.

It was observed that fruits of wide-ranging varieties and exquisite quality grow on their own in various parts of Garhwal and North-East India.
AWARENESS FOR EXISTING LEGAL FRAMEWORK

The survey revealed the villagers’ total ignorance about the legal provisions pertaining to their life and livelihood, like the Farmers’ Rights Act and the Biodiversity Bill of the Government of India, let alone about the WTO, TRIPS, etc., and also about local rules and laws relating to the State or the local bodies.

It is, therefore, extremely urgent to sensitise the mountain communities in this regard.

STAKEHOLDERS’ INVOLVEMENT

The two workshops organised by CUTS in Dehradun and Shillong regarding the ‘WTO and its Impact on Village Communities in Mountain Regions’ upheld unanimously and strongly their felt need for networking with regard to preparing Community Biodiversity Registers in the mountain regions, as well as sensitising the villagers about the Farmers’ Rights and the legal provisions in this regard. The academia, the government representatives and the others present at the workshop enthusiastically corroborated the view and drew up resolutions to this effect. The professional and local social activists have also to be integrated into the programme, as was evident from the workshops and the survey.
CHAPTER - X

THE MAIN FINDINGS

The salient findings of the survey can be summed up as follows:

1. Cultivation for agricultural production is the most dominant livelihood strategy among the surveyed mountain communities. Livestock farming is an additional major livelihood strategy, particularly in the Garhwal region.

The main crops are paddy and vegetables in the North-East and wheat and potatoes (along with paddy) in the Garhwal region. Chhimi Dal and rajma are also significant crops in the latter area. But, people, in general, suffer from limited livelihood strategy options and crop diversity options.

2. The people in the mountain areas are mostly poor, especially in the highland areas, and depend substantially on forest products and NTFPs for their survival.

3. Most of the crops are produced first for domestic consumption, and then for the market, if at all, except in case of the cash crops.

4. In some of the mountain areas, especially in the hill plains or areas near hill towns and tourist spots, chemical fertilisers and pesticides are largely used though the villagers have known their bad effects, like long-term loss of natural nutrients of the soil, but they have become increasingly dependent on them.

5. In some of the hill areas, like the Ri-Bhoi district of Meghalaya and the Garhwal areas, foreign products have made inroads, mainly in clothing, shoes, cosmetics, etc. The villagers find them better in packaging, availability and advertisement.

6. The mountain areas are rich in medicinal herbs and villagers use them widely for cure and prevention of their ailments, without any sound knowledge about them. These may be developed as important alternate crops, leading to alternate gainful livelihood strategy.

7. In some areas, the handicraft products bear the stamp of sound skill and competence. But, these are mainly produced for domestic consumption and are sold, if at all, at throwaway prices, because of an ill-developed market and lack of awareness about the market potential.
CHAPTER - XI

RECOMMENDATIONS

The policy recommendations emerging from the survey are:

1. Livelihood strategy options are to be expanded in terms of gainful alternatives; some cash crops like potato and other vegetables are to be given additional incentives; and plantation products like rubber are to be encouraged (given their newly discovered potential in some parts of north-east India). All these are to be done within limits defined by their food security constraints and their livelihood requirements.

2. The favourable agro-climatic conditions for growing fruits like orange, pineapple, guava, banana, apple, peer and other (citrus) fruits that already grow in the Garhwal and the north-east have to be fully exploited and the potential for growing them on a large scale (over and above their subsistence level) have to be explored with an assured support system of food processing and marketing the disposable surplus keeping in mind the farmers’ food security and requirements and the environmental considerations.

3. The amazing variety of flowers, and orchids (which grow abundantly in the north-east) — rarely available in the plains - can be grown on a commercial scale with adequate facilities for preservation and transportation, or even promoting joint venture with cent per cent buy-back guarantee taking account of the farmers’ food security and requirements and the environmental considerations.

4. A Farmer’s Insurance Scheme for their crops, and particularly for their highly perishable produce like the fruits, flowers and orchids, have to be developed especially in view of the high vulnerability of the farmers in the mountain regions to the extremely unpredictable weather conditions and the lack of adequate storage facilities.

5. Farmers have to be extended technical support to save indigenous seeds for free exchange through village-based seed banks; and for more productive and sustainable agricultural practices using traditional knowledge for organic farming and intercropping for better yield.

6. Community Biodiversity Registers (CBRs) as a priority task are to be prepared as extensively as possible with the involvement of the local people for establishing rights of the farmers in particular and local community in general over their plant resources including all indigenous varieties, wild relatives and cultivars as well as lifescape and landscape at village level, list of plants, abundance, rarity, uses and location of occurrence in a given village. With this end, necessary training programmes have to be arranged.
7. Training in product diversification (incorporating necessary changes and design, use, processing, and packaging) and customised product development are needed along with more active marketing strategy for agricultural as well as handicraft products with the direct producer as a proper benefit sharer.

8. Sensitisation of the mountain communities at all levels, and especially of the poor farmers with regard to WTO and the legal provisions regarding Farmers’ Rights, and the local rules and laws, etc. have to be taken up as a priority.

9. An extensive networking with local NGOs, concerned government offices and agencies, academics and professionals needs to be built up for a continual monitoring, motivating, training and supporting exercise in close interaction with the mountain communities. The training/ awareness programmes would be particularly necessary for the preservation of crops, product diversification and the sensitisation programmes and for the preparation of CBRs.

10. Capacity building of the programmes for the local NGO professionals, in particular, has to be undertaken for enabling them to take up on their own the various training programmes and sensitisation programmes in the mountain villages.

11. The rich reservoir of local traditional knowledge of the uses of medicinal plants needs to be substantiated through modern laboratory-based research, and a benefit-sharing mechanism (as established by Tropical Botanical Garden and Research Institute, Trivandrum for the Kani tribals in Kerala) may be established for those communities who acted as ‘conserver and provider’ of valuable knowledge over the centuries.

12. An extensive large sample survey is to be taken up for capturing as comprehensively as possible the great diversity of plant resources, cropping pattern, livelihood, and traditional knowledge of the mountain communities across the Hindukush Himalaya Region.
2.1 Non Timber Forest Products Collected:

<table>
<thead>
<tr>
<th>Items</th>
<th>Collection/ week</th>
<th>Destination</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaves</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel wood</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.2 Handicraft Items Produced:

<table>
<thead>
<tr>
<th>Items</th>
<th>Production/ week</th>
<th>Destination (Distance)</th>
<th>Trend (rising/falling/stagnant)</th>
</tr>
</thead>
</table>

3.1 Medicinal Plants Available in the Locality:

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Production/ Week</th>
<th>Availability Trend (rising/falling/stagnant)</th>
<th>If Extinct (Yes/No)</th>
<th>Use Pattern</th>
</tr>
</thead>
</table>

3.2 Factors Behind Extinction e.g. Forest/Biodiversity Depletion, Fertilizers & Pesticides etc and its effect.
4.1 Revenue Earned/p.a from Sale of Crops:
(Arrange in descending order of importance)

<table>
<thead>
<tr>
<th>Order</th>
<th>Crops</th>
<th>Revenue (Rs.)</th>
<th>Trend</th>
<th>Buyers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Min</td>
<td>Max</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rising/falling/stagnant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.2 Revenue Earned/p.a from Sale of Handicraft items:
(Arrange in descending order of importance)

<table>
<thead>
<tr>
<th>Order</th>
<th>Crops</th>
<th>Revenue (Rs.)</th>
<th>Trend</th>
<th>Buyers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Min</td>
<td>Max</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rising/falling/stagnant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.1 Nature of Inputs bought from Market:

<table>
<thead>
<tr>
<th>Input/Tools</th>
<th>Indian/Foreign</th>
<th>Remarks/Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pesticides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tools</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.2 Nature of Finished Foreign Products Bought from Market:

<table>
<thead>
<tr>
<th>Products</th>
<th>Foreign</th>
<th>Remarks</th>
</tr>
</thead>
</table>

5.3 Do you find increasing presence of Foreign Products in the market in recent years? (Yes/No)

5.4 If Yes,
   a) Since When:
   b) Mostly in what Product Areas:
   c) Why (Personal Point of View):

5.5 Do you think that the Foreign Products are generally -
   a) Better Quality:
   b) Better Packaged:
   c) Better Advertise/Publicised:
   d) More Readily Available:
   e) More Durable (If Applicable):
   f) More Effective:
   g) Less Costly:
   h) More Harmful:
   i) Having any other Attribute (Specify):

6.1 Are you aware of New Farmers’ Rights Bill:

6.2 If Yes, How do you know about it?

6.3 Mention any two/three major provisions of the Bill:

6.4 Do you think the Bill will really help the Farmers:

6.5 If Yes, Why?
## Questionnaire - II

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Region (District)</th>
<th>Village (Project Area)</th>
<th>Plain Village (if applicable)</th>
<th>Hill Area (if applicable)</th>
<th>High Hill Area (Bugiyal) (if applicable)</th>
<th>Characteristics of village/region (Jhum cultivation/ Wildlife/ Traditional/ Non-traditional Farming)</th>
<th>Abundant Forest Area (if applicable)</th>
<th>Significant Wild Life (if applicable)</th>
<th>Rich in Medicinal Plant (if applicable)</th>
<th>Main Livelihood</th>
<th>Major Crops</th>
</tr>
</thead>
</table>
THE EVENTS

Background and Objective:

SAWTEE is undertaking a project to study the impact of WTO (World Trade Organisation) agreement on the farmers’ rights to livelihood in the Hindukush Himalayan Region. The main objective of the project is to make strategic interventions, which will contribute to securing farmers’ rights to livelihood in the Himalayan region in the context of liberalisation, globalisation and the WTO agreements. CUTS, a founder member of SAWTEE, is implementing the project in India. To begin the process these workshops were organised with the following objectives:

- To gain better understanding of key issues related to farmers’ rights,
- To establish contact with a diversity of institutions working in mountain areas especially that have a role to play in devising specific policies related to farmers’ rights,
- To find out the other stakeholders who are likely to input substantially into this process.

Participants:

These workshops have brought together the farmers and people from farmers’ bodies, regional NGOs working with local communities, scientists and academicians involved in the relevant fields from Himachal Pradesh, Uttarakhand, Assam, Meghalaya, Arunachal Pradesh, Nagaland and Manipur to address issues on the impact of WTO agreement on the Farmers Rights to Livelihood.

Summary:

Non governmental organisations, policy makers, farmers and farmers bodies and academia from the Central Himalayan Region/North Eastern Himalayan Region strongly feel the need of proper domestic policy measures to make the globalisation process less painful for mountain region. The same should be achieved by broadening the network among the stakeholders and generating awareness in all level so that linkage between grass root level and policy level is created. A strong demand for better market access and stopping for displacement of local habitats are urged by the farmers and farmers’ bodies.

This is the main message which came out of two-day regional workshops at Dehradun/Shillong on 23-24 March 2002/ 9-10 April 2002. The workshop “The Farmers Rights and Mountain Communities - Where We Stand” was organised at Dehradun jointly by Calcutta based Consumer Unity & Trust Society (CUTS), South Asia Watch on Trade Economic and Environment (SAWTEE) based at Kathmandu and Dehradun based Rural Litigation and Entitlement Kendra (RLEK). The same was organised at Shillong by CUTS and SAWTEE jointly with local partner Bosco Reach Out (BRO). International Centre for Integrated Mountain Development (ICIMOD) was the main supporter of these programmes.
PRESENTATION

Dehradun Workshop held on 23-24th March, 2002

Day I:

Session-I

Inaugural Session

Prof. Nabin Sen, Reader, Department of Business Management, Calcutta University, Mr. Kamal Badani, RLEK, Mr. Kamlesh Adhikari, SAWTEE

Prof. Nabinananda Sen, Consultant of CUTS welcomed participants on behalf of CUTS and narrated the objectives and purpose of the workshop mentioning the workshop as part of the long term ongoing project on the impact of WTO agreement on Farmers’ Rights to Livelihood with special reference to the state of Indian Farmers in Mountain Region in global perspective.

Mr. Kamalesh Adhikari representing SAWTEE welcomed participants and greeted people for their active participation. He briefly introduced his organisation as evolved out of a network of civil society, academia, media people from Nepal, Bangladesh, India, Sri Lanka and Pakistan.

Mr Kamal Barani of RLEK briefed the past activities of RLEK. He invited the participants to be united to fight the evil of globalisation process which is going to affect poor mountain communities.

Session-II

Globalisation/Liberalisation and their Implications with Special Reference to the Himalayan Region

Chair: Prof. Nabin Sen, Reader, Department of Business Management, Calcutta University, Speaker: Mr. Bharat Dogra, Journalist and eminent Environmentalist.

Mr. Bharat Dogra, an eminent environmentalist, warned participants of the workshop about the new brand of colonialism in the form of globalisation and market economy. According to him the term “Globalisation” apparently stands for an aggressive attitude of developed countries towards the developing countries. He also mentioned the exploitative and autocratic motives of international financial institutions like IMF, World Bank through which developed countries are restricting the rights of indigenous communities.

In global perspective and in connection with the impact of WTO agreement he stressed on the discrepancies of Patent Rights, as it would facilitate the foreign Multinational Corporations (MNCs) to take patent on indigenous trees, vegetables, seeds etc. in developing countries. Developed countries would use their advanced technology to create hybrid seeds from indigenous seeds in developing countries and LDCs with the help of genetic engineering and will take patent on it. This will results in a situation where local communities will have to buy back their natural wealth at hugely inflated rate and which ultimately would promote a unhealthy competition in global market.

Session-III

Farmers’ Rights and Seed Companies: Compatibility and Conflict

Chair: Mr. Bharat Dogra, Journalist and eminent Environmentalist, Speaker: Mr. Kunwar Prasun, one of the active associate of “Beej Banchao Andolon”, Mr. Sahab Singh, associate of “Beej Banchao Andolon”.

Mr. Kunwar Prasun, one of the eminent associates of ‘Beej Banchao Andolan’ explained the background of this movement. Initially, during the Green Revolution, usage of hybrid seeds and chemical fertiliser had been encouraged. These hybrid seeds required chemical fertilizer for good harvest, which caused decline of natural fertility of soil. During this period many of indigenous variety seeds are collected by MNCs which had been
preserved in Gene Bank. Later on those varieties were modified by applying genetic engineering and MNCs had taken patent on those new breeds. This is how many varieties were lost. A good example is patenting of Basmati rice.

Mr Sahab Singh, another associates of Beej Bachao Andolan pointed out the loss of some of the animal and bird species. Some insects, annelids and micro organisms that contribute positively in the agricultural process have become extinct due to heavy use of chemical pesticides and fertilizers. He has also highlighted the need for Campaigning to preserve our traditional varieties and practices by holding meetings and taking out processions a fruitful way to generate awareness among larger sections of farmers.

Session-IV

Traditional Knowledge-base and Agriculture Practices in Central Himalayan Region

Chair: Dr. D. Bandyopadhyay, Former Additional Secretary, Ministry of Agriculture
Speaker: Dr. Atul, Head of the Department, Agro-Forestry and Environment, Himachal Pradesh Krishi Vishwa Vidyalaya, Mr Kunwar Prasun.

Dr Atul, Head of the department for Agro Forestry and Environment, Himachal Pradesh Krishi Vishva Vidyalaya emphasised the need for going back to the roots, because the Himalayas still preserves a lot wealth of virgin nature. He finds that the farmers and NGOs have a major role to play to preserve the knowledge and system.

Mr. Kunwar Prasun spoke on the extinction of traditional skills, knowledge and pointed out the causes for decline of indigenous agricultural crops. The traditional practice of using compost and organic manure as well as bio-pesticides helped specific species to contain more nutritional value. There exists some rice varieties, full of calcium and phosphorus, farmers traditionally using for restoring good health. But as farmers are motivated to cultivate the genetically engineered seeds and no longer feel interested to produce those owing to low productivity, these species are nearing toward extinction these days.

Dr. D Bandyopadhyay, Former Additional Secretary, Ministry of Agriculture, highlighted that the Green Revolution initially made India self sufficient in terms of food but this too had vested commercial interest. The American Petroleum companies saw a good market in India. The energy intensive seeds were produced which needed fertilizers. These days the Green Revolution became the prisoner of fertilisers. Agricultural practice has become standardized, bio diversity is lost and from 100 varieties of rice, only four-five varieties are left.

Day II:

Session-V

Existing/Potential Changes in Legislation and their Impact on Local Customs

Chair: Dr. Ghayur Alam, Centre for Sustainable Development
Speaker: Mr. Bharat Dogra, Journalist.

Mr. Bharat Dogra emphasised that WTO agreement has its impact not only on the agro products, but also on the medicinal and pharmaceuticals products. He mentioned that for last 4-5 years various organizations and institutions have been dealing with patent law and WTO agreement. He advised those organizations that, to reach grass root level and local community they should translate the new “The Protection of Plant varieties and Farmers’ Rights Act, 2001” in local language and distribute among the Farmers so that they can have an idea about the same.

To inform participant-Farmers about this Act, he has depicted a clause, which has a pivotal importance to Farmers regarding their seeds. He explained that this clause allows farmers to save, use, resow, exchange, share or sell his farm produce including seed of a variety protected under this Act in the same manner as he was entitled before the coming into force of this Act.;........provided that the farmer shall not be entitled to sell branded seed of a variety protected under this Act.
Involvement of the Stakeholders in the Context of the Recent Changes in the Himalayan Agriculture

Chair: Dr. Madhu Soni, Senior Environmental Officer, Himachal Pradesh Pollution Control Board,
Speaker: Prof. Nabin Sen, Reader, Calcutta University, Mr. Jayprakash Panwar, representative from RACHNA, Dr. Atul, Head of the Department, Department of Agro-forestry and Environment, Himachal Pradesh Krishi Vishya Vidyalaya.

Mr. Jayprakash Panwar from RACHNA highlighted on the land problem in villages of mountain region. His slide presentation showed how wrong government planning had contributed to the gradual destruction of the mountain economy and ecology of the Himalayan and how most important stakeholders—the villagers—stood to suffer. It projects an overview on how encroachment over fertile agricultural land in mountain region for urbanisation and sanctuary etc affected lives of mountain communities. This results in decline in the agricultural land and farmers are forced to opt for some non-agricultural works. People find it difficult to feed their cattle owing to lack of grazing field and presence of chemical fertiliser and pesticide in the fodder. Thus the two main support to livelihood of mountain farmers i.e. land and cattle are going off their hands.

Prof Nabin Sen emphasised on the possible role of NGOs, farmers bodies, local bodies and of the government to create network among themselves for mutual cooperation in the development of mountain communities. The NGOs and other institutions should work as an interface between the policy makers and farmers for whom the policies made. Further stress has been given on documentation of the traditional knowledge and practice by largely gathering oral history from the village elders and others.

To begin with this he suggested to maintain a stock Register where we could register these knowledge along with the related description of biodiversity. In addition with this farmers should make a local body to participate in decision making.

The last session was for the interactive and open discussion period to point out relative outcomes from this two days interactive workshop.

Dr. Atul, Professor of Himachal Pradesh Krishi VishyaVidyalaya, during this session asked farmers to be aware about the WTO agreement. Against the backdrop of globalisation and liberalisation, the impact of this agreement will be reflected in local and micro level market. So farmers should keep their mind open for consideration of all kind of national and international policies.

According to him so far it is concerned with documentation of traditional knowledge, where indexing and listing of indigenous technique are very important, which ultimately could help the farmers protecting their resources from being patented by external agencies. He requested Farmers of this region to take active part in documentation of indigenous knowledge.

Recommendations:

1. Developmental policies in mountain region should not involve displacement of traditional habitats and should include conservation of regional bio resources.
2. On farm conservation of Biodiversity should be promoted. The activity should be decentralised to give Gram Panchayat a monitoring authority status.
3. Farmers should be interested to combine the modern technology with traditional practices which can yield better agricultural benefit in the long run.
4. Strong networking among NGOs, Institutions, research institutions, farmers bodies to create better upward and downward linkages should be encouraged.
5. People should not abstain themselves from taking benefit with the help of advanced knowledge for socio-economic development, otherwise over all social prosperity will decline.
Day I.

Session-I

Inagural Session

Dr. Dipankar Dey, Director CUTS, Mr. Thomas Roy Mallai, Bosco Reach Out, Mr. Praveen Gautam, SAWTEE

Dr. Dipankar Dey, Director of CUTS-Calcutta welcomed the participants and introduced CUTS and narrated the objectives and purpose of the workshop mentioning the workshop as a part of long term ongoing project which is focusing on the state of Indian Farmers in Mountain Region with a global perspective including the impact of WTO agreement on Farmers' Rights to their Livelihood.

Mr. Thomas represented Bosco Reach-Out and welcomed participants as the co-host of the workshop. He introduced his organisation BRO as committed to the integral and holistic development of the people. Established in 1983, as the official development wing of the Salesians of Don Bosco, Province of Guwahati, it has been actively in the field of community development through Self Help Groups (SHG).

Mr. Praveen Gautam welcomed participants on behalf of South Asia Watch on Trade, Economics and Environment (SAWTEE). He explained that SAWTEE evolved out of a network of social activists and media persons from non-governmental organizations in Bangladesh, India, Nepal Pakistan and Sri Lanka. It objective is to create capacities in NGOs and media persons to enable citizens to understand and cope with the processes of transition and equip them with information to provide adequate safety nets for protection of the environment and consumers.

Session-II

Globalisation/Liberalisation and their Implications with Special Reference to the Himalayan Region

Chair: Dr. Subhendu Dasgupta, Professor, Centre for South Asian Studies, Calcutta University
Speaker: Prof. Nabin Sen, Reader, Department of Business Management, Calcutta University.

Prof. Nabinananda Sen, Calcutta University pointed out that the forest organise affront on traditinal knowledge and practice in the Indian agriculture in the post Independence period was seeing when the concept of Green Revolution was adopted to boost agricultural sector. In current century government is promoting an objective emphasizing on people's self sufficient welfare concepts.

He mentioned that in the second Five-Year Plan Government of India followed the USSR model. In the 1960s Indian economy suffered from stagnation and inflation along with unemployment. Green Revolution followed this phase while developed countries sold their high yielding variety seeds and obligatory chemical fertiliser and pesticides to developing countries. Farmers initially adopted the technology and government promoted the same to strengthen the food security of the country. After a few years of high production they experienced a major problem of depletion of soil fertility and decrease of productivity as well an increase of pests. Meanwhile, in the 1980s developed countries experienced home market saturation for their technology and chose the developing countries as their prospective market.

In 1991, Dr. Maimohan Singh, former finance minister, promoted Structural Reforms followed by the concept of liberalisation. Liberalisation essentially stands for major structural changes whereby we open our market doors to other countries for importing and exporting knowledge, technology, commodities etc.

As developed countries are major inventors of 'advanced' technologies, they are trying to produce products sourcing inputs from all over the world and to turn the whole world into a single market for selling their products. Thus 'Globalisation has set in, which is now being followed by WTO agreements and related issues to materialise their intentions.
Session-III

Farmers’ Rights and seed companies: Compatibility and Conflict

Chair: Dr. B.K. Tewari, Professor, North East Hill University (NEHU)
Speaker: Dr. Subhendu Dasgupta, Professor, Centre for South Asian Studies, Calcutta University.

Prof. Subhendu Dasgupta, Professor of Calcutta University, highlighted present scenario of the transitional seed firms and Indian Farmers. He suggested govt should set agricultural policies considering each geographical area and its own specificities-the ecology, the history, the economy, the culture, the types of seed and the food pattern. But, on the contrary, the governmental agricultural policies have provided the required support for such changes that have accelerated the intervention of hybrid seeds, chemical fertilizers and terminator seeds in Indian traditional agricultural system undermining the local knowledge of farmers of mountain region.

He also elaborated the importance of seeds in Indian agricultural process. On the basis of the local and traditional knowledge system, seeds are saved, developed, exchanged and reused by farmers. A seed through a natural process gets evolved and developed into a variety that suits the local ecology. In case of conventional breeding the yield potentiality is not limited by the normal availability of water, nutrients, pests, diseases or weeds and in this way contextual category of seeds has been improved.

This context is missed in the case of engineered seeds and genetically modified seeds. These seeds are made not to satisfy the local interests, but the interests of the manufacturers of the seeds. These seeds are made not considering the specificities of locale where the seeds will be used, but considering all kinds of agricultural fields as a general category. With the change of birthplace of seeds from the agricultural fields to the industrial laboratories, with the displacement of seeds from its local ecological specificity to the technological generality, a new category has emerged -the seed manufacturers. In this process seed has lost its autonomous role in the agricultural production process and has become tied to chemical inputs- the seed manufacturers and chemical manufacturers become integrated.

Farmers in Himalayan Region are characterised by small and medium cultivators producing food crops at the subsistence level. The production process was initially based on local knowledge system and local seeds. Farmers here are not only cultivators but also breeders of the seeds they use. Therefore, the above agenda gave rise to mono crop culture and loss of traditional knowledge and degradation in farmers’ rights.

Session-IV

Traditional Knowledge-base and Agriculture Practices in Central Himalayan Region

Chair: Dr. A. K. Goswami, WWF-Guwahati
Speaker: Dr. Silanjan Bhattacharyya, Vivekananda College, Calcutta University.

Dr. Silanjan Bhattacharyya, Calcutta University emphasised on the process of documentation of traditional knowledge practiced in agriculture and that people should consider the Ecosystem documentation because agriculture depends on the diversified biological agents which directly and indirectly influence the agriculture.

India harbours a rich biodiversity resource base including two biodiversity hotspots within its territory. Richness of its traditional knowledge base relating agro-biodiversity and medicinal biodiversity is unparallel. Dr. Bhattacharyya brought to the fore the present trend of the Research and Development efforts of several TNCs from developed countries in producing genetically engineered biomaterials from the natural resources of developing countries. The new IPR regime under the GATT-TRIPS fold encourage those entrepreneurs by ensuring their stricter monopoly over such invented biomaterials.

To protect our resources we should fight for modifications in the IPRs of the GATT-TRIPS on biodiversity issues as suggested by CBD, including the compulsion of recognizing the Country of origin of the genetic resource and justified benefit sharing with the person or group whose traditional knowledge led to a patentable innovation. Documentation, monitoring and conservation of local biodiversity and indigenous knowledge on it are to be considered as the thrust area of activities by a mega diversity country like India. It was mentioned in this connection, that to initiate the process for documentation of traditional knowledge one effort has been
taken in the Western Ghats mountain region for its rich Biodiversity and LIFESCAPE. It has been initiated by networking with local teachers and students from undergraduate colleges scattered over almost entire peninsular India who are working for documentation and monitoring their local biodiversity through preparation of People’s Biodiversity Registers (PBR) and otherwise, through the studies of selected communities of plants and animals or habitats.

He highlighted some aspects that have been documented in detail in the PBR

- **Landscape**: The diversity and characterization of different habitats like farmlands, ponds, within the village and dynamics of changes in them.
- **Lifescape**: It includes the variety of flora and fauna prevailed in a particular area.

PBR is very important because that helps taking stock and document the status of the biodiversity resources and traditional knowledge from indigenous communities who could be made aware of the TRIPs induced global scenario and its relevance on their lives.

**Day II.**

*Session-V*

**Existing/Potential Changes in Legislation and their impact on Local Customs**

Chair: Prof. Nabin Sen, Reader, Department of Business Management, Calcutta University,

Speaker: Dr. Dipankar Dey, Director, CUTS, Dr. D. K. Hore, principal scientist of National Bureau of Plant Genetic Research (NBPGR).

Dr. Dipankar Dey, Director CUTS, Calcutta, narrated the three salient features of WTO and TRIPS agreement and raised the intention for reviewing the TRIPS agreement. The agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) of the WTO sets certain obligations on its member’s countries to protect its Intellectual Property at the national level. Article 27.1 of TRIPS requires all the member countries of WTO to offer patent protection to inventions in all fields of technology in their own countries.

Under the articles 27.2 and 27.3 of TRIPS there is provision for providing some kind of intellectual property protection to elements of the plant world. This rule is in opposition to The Indian Patent Act 1970, framed in the pre-globalization era where patent over elements of both plant and animal were banned.

According to Carlos M. Correa, the terms, which are open to be interpreted properly, are plants, animals, microorganisms, non-biological processes, essentially biological processes, microbiological processes and plant varieties, effective and sui generis system.

The developed countries on the contrary want to mention UPOV as a model of effective sui generis system and would like to bring the effectiveness question within the ambit of the rather powerful implementation mechanism of the WTO. This will mean that any sui generis system to be accepted as “effective” for the purpose of this article must be compatible with UPOV.

Dr. D. K. Hore, principal scientist of National Bureau of Plant Genetic Research (NBPGR) showed some slides, on the local customs and indigenous knowledge practiced in north east region of India. He focused especially on its tribes, demographic structures, farming system, crop landraces, culture/traditions to maintain crop, conservation practices and community gene bank.

He explained and defined “Farmers’ Rights” as it refers to “rights arising from the past, present and future contributions of farmers in conserving, improving and making available plant genetic resources, particularly those in the context of origin and diversity.”
He mentioned that the genetic conservation methods of rural and tribal families are being catalogued to provide a basis for the implementation of Farmers’ Rights under sui generis system relating to plant variety protection in northeastern region. To provide linkages between ex-situ and in-situ on farm conservation, the community gene bank is linked to field gene banks for maintenance of local landraces to ensure sustainable use and equitable sharing of benefit.

He also discussed the various legal aspects of ‘The Protection of Plant Varieties and Farmers’ Right Act 2001” looking after the sustainable agricultural practice followed in north east, he guessed that the law may not be much needed, but poor farmers may be benefited through recognition and reward, as they will be more conscious to hold the value of such kind of in-situ/on farm conservation practice which prevents the crop genetic erosion.

Session VI

Involvement of the Stakeholders in the Context of the Recent Changes in the Himalayan Agriculture

Chair: Dr. D. K. Hore, principal scientist of National Bureau of Plant Genetic Research (NBPGR).
Speaker: Prof. Nabin Sen, Reader, Department of Business Management, Calcutta University.

Prof. Nabin Sen, Calcutta University, opined that the farmer might be the biggest stakeholder who could raise his voice against any discrepancies in relevant acts affecting their livelihood with the support of NGOs, academic and autonomous institutions. To initiate the process of development a good networking is needed to link the grassroots entities with policy formulation and implementation. Information dissemination programmes should be adopted and a modus operandi for benefit sharing should be set to solve the problems and to improve the state of local community.

He mentioned that in the North-East region various NGOs like AIDA, NEN, BRO are working for awareness generation campaign to motivate local people towards their traditional practices. According to him these NGOs after networking within themselves could play a vital role in documentation of traditional knowledge and also in preparing People’s Biodiversity Register (PBR).

He stressed on the farmers’ active participation in all these processes. These interactions can contribute to raising the local farmers’ voice for the attention of the policymakers. He suggested that stakeholders like NGOs, Rural Institutions, etc can mediate between local farmers and the Government in addressing the local problems and finding remedies for the same.

Recommendations:

1. More participation from women must be ensured which can give better insight to the socio economic scenario of a matriarchal society.

2. People in the North-East states have been suffering from improper market access for their product, where an effective policy should be adopted by Government to overcome loss to farmers in the North-East.

3. Initiation of the process of creating PBR was urged by the whole team of NGOs, grassroot people, academicians and government officers.

4. CUTS should seriously seize itself with these issues in the days to come and should interact with the participants and participating organizations more closely and regularly for doing something meaningful in regard to the awareness generation about Farmers’ Rights and mountain environment in the post-WTO regime.
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Launched in December 1994 by a consortium of NGOs from South Asia region, South Asia Watch on Trade, Economics and Environment (SAWTEE) is a recognised, registered, non-profit, non-governmental organisation. It currently operates through its headquarters in Kathmandu and 11 network members from five South Asian countries, namely, Bangladesh, India, Nepal, Pakistan and Sri Lanka.

SAWTEE’s mission is to build capacity of concerned stakeholders in the context of liberalisation and globalisation in South Asia region. SAWTEE follows a five-prong strategy to achieve its mission:

- **Networking**: Establishing institutional linkage with various national, regional and international institutions that are working in the areas of liberalisation, globalisation and sustainable development.

- **Capacity building**: Conducting capacity building activities at various levels through training workshops, information dissemination and internship programme.

- **Policy research**: Conducting policy research on issues such as WTO rules, regional cooperation, intellectual property rights, competition policy, environment and development dimension of trade liberalisation.

- **Advocacy**: Organising conferences, seminars, policy dialogues, consultation meetings, talk programmes and interaction programmes. The advocacy at the policy level is also supplemented by publication and distribution of policy briefs on relevant issues in a timely manner.

- **Sensitisation**: Publishing briefing papers, newsletters, discussion papers, monographs and policy briefs on issues related to globalisation, liberalisation, multilateral trading system, regional cooperation, competition policy, environment, intellectual property rights, food security etc.

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Established in 1983, Consumer Unity & Trust Society (CUTS) started off as a consumer protection organisation in Rajasthan. Since then it has been working in several areas of public interest at the grassroots, national, subcontinental and international levels.

CUTS launched the CUTS Centre for International Trade, Economics & Environment (CUTS-CITEE) in 1996. Its aim is to become a global standard institution for research and advocacy on trade issues affecting countries in the South. The mission of the Centre is “pursuing economic equity and social justice within and across borders by persuading governments and empowering people.” The Centre’s goals are as follows:

- Enable, empower and facilitate representatives of the civil society, from developing countries in particular, to analyse, articulate and advocate on emerging and relevant issues in the international trading and economic system at the appropriate fora.

- Create an informed society through empowerment of people and civil society representatives thus enhancing transparency and accountability in the international trading and economic system.

- Promote equity between and among the developed and developing countries through well-argued research and advocacy on issues of international trading and economic system.

In order to attain the above-mentioned goals, the following strategies are followed:

- Conducting research and advocacy on issues of international trade, sustainable development and comparative domestic policies.

- Training and networking with international agencies, NGOs and media.

- Creating dynamic upward and downward linkages between people and policy makers.

- Implement the above under the guidance of an international advisory board of experts.

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