Chapter-6

Summary and Conclusions
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To summarise the present study on the Rural Resource Marketing and the Role of Transport Network in Mokokchung District, a comprehensive overview of the finding is presented with the aim to understand the present resource position and its marketing. Mokokchung district is located in one of the most diverse geo-ecological environment of the Eastern Himalayan biodiversity zone and experience monsoon climate. It is divided into three Agro Ecological Situations (AES) with the climatic variation ranging from tropical to sub-tropical. The topography is mostly hilly with few patches of fertile river valley located on the Western margin bordering the State of Assam. Vegetation is rich and varied which the people of the district have exploited to a large extent. Many of the fauna have decreased in number or even disappeared which was found to exist in the past. The forest abounds with a variety of medicinal plants used by the people with the indigenous knowledge acquired through generations of experience.

The practice of shifting cultivation where the fields are rotated in a cyclic manner following a proper sequential order have continued for generations. This method of cultivation have resulted in the exploitation of the entire land occupied by the people of the district and therefore almost a major part of resources available have been in used and they have acquired indispensable knowledge on the properties of almost all plants and there utility. Even the most rugged and difficult terrain which are unsuitable for cultivation are explored by hunters and gatherers who roam in the jungle for game and in search of eatable wild plants and fruits. The study has revealed that there are as much as 11 green leafy vegetables and 17 wild fruits and
other items like fan palm, broom grass, Chinese cinnamon, walnut, different varieties of eatable mushroom like Jungko (Mongsen), mani (Mongsen), zena (Mongsen), avon narong (Mongsen), onghok (Mongsen) and various other fodder plants obtained from the forest in Mokokchung district. The cultivated crops include 46 vegetables, 70 varieties of rice, and 7 plantation crops. Extensive collection of samples have been carried out and documented and yet there may still be more to include. It has been observed that even a small plot of land can grow as much as 15-20 varieties of plants which indicates that the soil, climate and environment are suitable for the growth of all such plants and if proper system of farming is taken up, the production of those crops can be done on commercial scale.

The vast variety of these natural resources have been a source of livelihood for the people of the district and cultivation was subsistence in nature therefore marketing of the produce was not common among the people. Trade on barter system was carried out between the people living in villages bordering the plains of Assam for a long period and even from the hills they used to go down to exchange their agricultural produce with items that were not available in the district.

Due to the inability to produce surplus production and the distance of the villages from the urban centre of Mokokchung town, marketing system has not developed in the district and is still at the primary stage. The villages that are located close to the town have started to sell the surplus produce and it was observed that some of the farmers have shifted to cultivation of vegetable crops due to the increase in its demand.
The marketing structure is not organised therefore there is disparity of price with the use of locally available means of measurement like those of plates, cups and fixing of price by the farmer on their own depending on the availability of the produce.

Three types of marketing systems have been identified viz- Daily market, Roadside market and Weekly markets. In the daily and weekly market both local and non local vegetable stalls were observed. The local vegetable stall in the daily market have two groups- the first group are vendors who comes to the market place as and when they have enough produce that can be sold after satisfying their needs at home and the other group are the ones who have permanent stall with permit obtained from the Mokokchung Municipal Council (MMC). Those traders who sit in the permanent market stall have link with the farmer from different villages and they get the supply from them.

There are three daily vegetable marketing centres in Mokokchung main town viz- Salangtem bazaar, Old town hall bazaar complex and Kichuchar complex. Marketing centres have also developed at the divisional headquarters of Mangkolemba and Tuli. In the main town the marketing of local vegetables are daily except Sunday which remains closed. At Mangkolemba and Tuli it is mostly done along with the weekly market.

The non local vegetable shops are managed by the non locals and the products are also brought from outside the State. These shops have trade permit obtained from Mokokchung Municipal Council and the price are controlled from time to time by the Council. Since they are dependent on the supply of the
agricultural products from outside, the price fluctuates so much so that at times even within a fortnight the price of the items becomes double and even triple, for instance during the monsoon season due to heavy flooding in the plains there is crop damage and the supply gets affected as a result of which the price of vegetables becomes so expensive that a kilogram (kg) of chilli will cost 80-100 rupees which normally are sold for 25-30 rupees. At the local vegetable stalls in the meantime a plate of chilli is sold for 20 rupees. The quantity of chilli in one plate weights approximately 500 gram. The market rate of chilli at that same time was 80 rupees per kg in the non local vegetable shops. Therefore comparing the price of the same commodity at the same time gives a staggering difference of rupees 40 as the chilli in the local stall will be costing only rupees 40 per kg. While at times when the supply of chilli improves it will cost roughly around 25-30 rupees whereas the same price of 20 rupees per plate will exist at the local vegetable market which will cost the same rupees 40 per kg, thereby the price becomes more than the non local shops. The price of other vegetables that are sold in the non local vegetable shops keeps changing depending on the market from which they bring the commodity. While it's has been observed that the price of local vegetable item remains more or less the same but it is only seasonal. The summer vegetables are replaced by winter vegetables depending on the season.

There is no continuity in the supply of vegetables but one thing that can be observed is that the price of the items remains almost the same and the seasonal vegetable crops are quite sufficient to cater to the demand in the market. Therefore it can be concluded that other vegetable item sold in the non local vegetable shops
specially crops like potato, tomato, onion, chilli etc., should also be cultivated by the local farmers on a commercial scale by identifying potential areas. This will ultimately reduce the dependence on the products brought from outside the State and the market can also sustain on local produce.

Taking into consideration the various environmental effects of shifting cultivation and the subsistence nature of production the local farmers should be encouraged to take up permanent cultivation. It has been observed that in some villages the farmers have started to cultivate cash crops like tomato, cabbage, cucumber, Anishi (a food item prepared from the leaves of colocasia), ginger, turmeric, etc., which has proved successful but due to lack of proper marketing and storage facilities the farmers are facing problems. They are unable to sell the produce on time therefore it gets wasted and even if the produce are sold they get minimal amount as there is no marketing channel and regulations to control the exploitation by the traders.

Since the cultivation is only seasonal, continuous supply of the vegetable items are also not possible. Squash which grows very well in almost all part of the higher altitude of Mokokchung are sold for 4-5 rupees per kg to the non local traders during the peak season and during the off seasons it is sold for 35-40 rupees per kg in the market. This indicates that due to lack of proper cold storage facilities people from outside are taking advantage by taking the produce from the district. Various other horticultural crops are cultivated in the lower and middle ranges of the district like orange, pineapple, litchi, banana etc., at large quantity but there is not a single fruit processing unit in the district therefore traders from the plains fixes the price
and takes it and the farmers have no other option but to sell the produce at those price as there is no proper market for them. For the small farmers the usual market is along some important junction on the roadside as the produce cannot be taken to the urban centres due to distance problem.

Other than the vegetable and fruits there are many other items like tea, rubber, cardamom, turmeric, Alpina, betel nut, betel leave vines, passion fruit etc., which grows very well in the district. Therefore the various departments like Agriculture, Horticulture, Land Resources, Rural Development, Soil and Water Conservation, Forest and Environment, Irrigation, Industries, PWD (R&B) Highways etc., should tie up and make a strategic and concrete plan for the development of this resources. Most importantly the Agricultural Produce Marketing Committee (APMC) should be structured with proper regulation so that the farmers at the grass root level gets the benefit without being exploited by the traders and also enjoy the fruit of their labour. It should be equipped with modern state of the art technology for storage, grading, value addition, processing, packaging and marketing so that the produce can be sold not just within the district but it can be sent to the markets in other part of the district as well as to the other States and abroad.

As far as possible organic farming should be encouraged which has high demand in the international market. The involvement of the village councils in all the developmental activities are a pre requisite for successful implementation therefore they also need to be consulted because land which is the most important resource belongs to the individual and the village council as is the case of Nagaland and that of Mokokchung district.
It has been observed that the produce marketed by the farmers includes mostly vegetables and forest products which are all seasonal and the vegetable items like those of potato, tomato, onion, chilli that are brought from outside the state can also be cultivated in the district. Rice, the staple food for the people are also brought from outside because the production in the district is not at all sufficient even for the farmers. Therefore there is an urgent need for the people of the district and the concerned departments to modulate a common strategy. At present all the departments are separately working out plans and execute according to the demands and needs of the people for the development of the district, but by implementing a coordinated strategy more success can be achieved. With consent from all the concerned departments the potential area for specific crops need to be identified in all part of the district and seeds suitable only to those areas should be distributed so that the farmers can concentrate on those crops which can give more yields. Irrigation to the fields wherever feasible should be planned out and provided. Machineries and implements that are required for cultivation especially for the paddy field in the valley areas should be provided to the farmers. This will demand good transport network for easy access to the farm and transportation of the produce which will again need to be processed. Therefore various processing unit like mills, fruit canning etc., have to be set up. And finally a good marketing system, where all facilities are available for the items to be stored, marketed and maintain a constant flow of commodity to the market should be established.

Study on the transport network of the district has revealed that roads are the only means of transportation due to the difficult terrain condition. The two important
roads connecting the district with Assam are National Highway (NH)-2 which connects with Amguri on the extreme north western corner and the State Highway (SH)-6 (now NH-702D) connecting with Mariani towards the south western part. These two roads are the main artery for the transportation of goods and services for the people of the district. It was also observed from the analysis that the important roadside locations are used for marketing of the agricultural produce by many of the villages that are located away from the urban centres as they are unable to bring the produce to market place due to distance problem.

Out of the three locations selected for the purpose of study, two of the areas i.e., Changki junction and Changtongya Town are located more or less half way of the route connecting Mokokchung town the district headquarter with the nearest railway, airport and market at Assam i.e., Mariani and Amguri respectively. The two locations are used as a stopover for traveller passing on these roads and it act as a transaction point for many of the nearby villages which gradually started to grow resulting in the development of those market centres. The farmers of the area brought their surplus agricultural produce from the field as well as forest products and sell it. Many other permanent and temporary marketing centres have been observed all along the State highways-6 (now NH-702D) like those at Sabangya, Satier, New Camp, Longnak etc., and at National Highway -2 like those at Impur Junction, Yisemyong, Chuchuyimlang and Tuli which indicates a positive impact of the road network on the development of marketing centres in the district of Mokokchung.

The availability of certain local items have also attracted people to buy those products. In Changki junction the items that are found in abundance are the lilem
leaves (M), jorang (M) and ongjiang (fermented crab pickle). Another important item found at this junction is the earthen pottery for which the Changki villagers are well known. At Changtongya town along with the vegetable produce the important items are mostly of horticultural crops like orange, litchi, banana, pineapple and banana chips. The third marketing centres located at the main Town of the district headquarter stretches from Salangtam market to Kichutzar complex over half a kilometre which is well connected by roads. The variety and quantity of agricultural produce are the maximum in this centre. Almost all the items that are available at these markets can be produced in every village but some items that are grown in certain village are favoured by many as the case of zanthoxylum leaves from Longjang village, Anishi from Sungratsu village, chilli and cucumber from Khensa village, orange from Yajang village, pineapple and banana from Changtongya village.

Conclusions

The present traditional system of cultivation needs to be replaced by commercial crops with more scientific input and proper strategic planning so that the market can be dominated by the produce from the district. It will also require the construction of cold storage with 24x7 electricity so that the items can be stored and marketed during the off season and ultimately the dependence on other states will be minimised. To make this a reality a co-ordinated effort between the policy makers and the local citizen is very essential. At the outset the farmers needs to be sensitised about the various issues pertaining to the practice of the age old method of
cultivation; though certain factors like their association with this system which have been entrenched into the social fabric may be difficult to do away with but still then better method can always be encouraged. In lieu of this method since majority of the villages are located on the hill top and large scale farming may not be possible due to the hilly topography and the existence of the peculiar land holding system, the village council can decide to set aside certain areas as reserved forest in all the villages which may include among others the hill top or important watershed areas so that the surface run off during the monsoon season can be checked and retained, which will serve as a source of water for the entire village for drinking as well as irrigation in the lower areas. The protection of forest will also contribute to the conservation of many flora and fauna. The low lying areas if at all available should be kept aside for permanent cultivation where some selected crops can be raised. In Longkhum village some farmers have started to take up tomato, potato and cabbage cultivation which have proved very successful but till today due to lack of proper facilities the farmers are unable to sustain their produce throughout the year. It is only during the growing season that they can cultivate after which they have to depend on the produce that are brought from outside the state at much higher rate all throughout the off season.

Cultivation of off season crops will be very costly. Many of the farmers will not be able to afford as it will require expensive inputs. The best option is to provide good storage facilities so that the crops cultivated during the season can be collected from the farmers. This will ultimately encourage them to produce more since they
can sell their produce and the supply to the market will also be sustained with those stocks throughout the lean season.

To implement this successfully, Agricultural Produce Marketing Committee (APMC) in the district can play a very important role by adopting rules and regulations acceptable by the farming community and also identifying certain crops that can be raised conveniently without much effort depending on the location and climatic factors. Agricultural Produce Marketing Committee (APMC) should be equipped with the modern facilities along with proper managerial skill and development. Since rice is the staple food of the people of the district intensive method of rice cultivation can be taken up in the valley areas of Tsurang, Changki, Tuli, Longsa, Mangmetong, Kinunger, Aliba, Chungtia where selected seeds suited to those location should be cultivated. Other important crops that needs to be encouraged on a commercial scale includes tomato, potato, chilli, onion as these are the major vegetable items required by the people.

The forest products that grows in abundance and having high medicinal values like those of balliric myrobalan, Indian gooseberry etc., horticultural and plantation crops that grows well in the district needs to be taken up in a large scale which can be processed and sent to outside market to generate more income for the local people. This requires a well established market system. Marketing and handling of the produce is an important area that requires special attention which is lacking at present. This discourages the farmers as they are unable to sell their produce and get the benefits from the effort they put in for the whole year. The improved productivity and value addition to the agricultural produce will go a long way in the reduction of
import from outside, while it will lead to the development of the overall economy through the linkage of agricultural and non agricultural sectors thereby maintaining an equitable development in all parts of the district.

In the mean time the improvement in production can lead to food security and reverse the present trend of importing huge quantity of items by exporting the produce to the outside market. In the quest for all such development the basic ethics of conserving the environment and adapting to organic farming should be taken into consideration for a sustainable future.