Exploring the Scope of Agro-based Industries in Manipur and the Miracle of *Chakhao*

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Abstract: This research contribution attempts to study the role that agro-based industry as well as multi-farming in improving the agricultural sector in Manipur, India. Till now, farmers in the remote North-eastern state of Manipur have been using traditional methods of farming. However, with increasing population and due to lack of awareness towards efficient utilization of land resource, farmers in the state are struggling to keep this sector sustainable. It is thus the need of the hour to make farming economically viable in Manipur so that the food supply in the region is not adversely affected. Manipur also produces several local and nutritious crops like black rice or *chakhao*, the commercial production of which could help turn around the farming sector in Manipur towards prosperity. The properties of the black rice and how its well-planned production can augment and improve the income of the state is discussed. Presence of rich nutrients and the medicinal properties of *chakhao* make it a good crop for the health-conscious citizens. However, there is need for generating awareness about this crop and a simultaneous requirement of incentives for the farmers who are growing black rice, before it can become a useful cash crop for Manipur.

Keywords: agro-based industry, black rice, chakhao, Manipur.

The industries are the most relevant example of development, especially for the rural and remote parts of the world. All industries need raw material. Raw materials are the backbone of every industry. This is also true for agro-based industries, which have been helping mankind to sustain ourselves by providing steady supply of food right from the very beginning of civilization. Agro-based industries cover activities such as growing or raising crops or plants under different circumstances, their harvest, storage, etc. usually by an agriculturist or agronomist. The raw materials are subsequently processed into finished goods through capital investment for being sold into the market, for example, sugarcane to sugar, cotton to clothes, etc. It needs to be noted here that the agro-based industrial sector is nature-philic and eco-friendly (Balakrishnan and Batra, 2011). The development of this sector is also an opportunity for us to reconnect with nature and live longer, healthier lives by returning to the nature. We have so far only taken away from nature and industrial processes have largely desecrated nature. Further, developing agro-based industry is also a pathway for developing the rural sector (Marjit, 1991).

There are numerous ways that we have developed to produce large scale goods according to our needs, largely using industrial methods. Raw material are usually carried from their source of production, far away to a centralized industry for further processing. Interestingly, this concept of developing for the masses has not been much developed in many rural and remote areas of India, due to some obvious and not so obvious reasons. The development of agro-based industry in rural parts of India can go a long way for ensuring sustainable development of these areas since most of the land in the rural and remote parts of India are unused due to lack of awareness of the potential of land resource. Some of the immediate benefits of promoting agro-based industries in rural and remote parts of India includes agriculture becoming more lucrative and profitable, greater employment opportunities both in primary and secondary sector (i.e. production and marketing) and prevention of mass scale migration to urban areas. The promotion of agro-based

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industry will also improve social and physical infrastructure of rural and remote parts of India. Increased scope and variety of goods being produced in or around the farmland will lead to suitable commercialization of agriculture, thereby improving the income of farmers and creating more food per hectare.

The development of agro-based industries are easy to establish and have the potential of providing steady and additional income to individuals in rural areas without making large initial investments. Thus, development of agro-based industries can play a significant role in the process of economic development of any country, especially in a country as vast as India. The development of agro-based industry in rural areas will also make the agricultural sector independent from the fluctuations of the overall economy of the country since it will lead to reduced dependence on transport, etc. sectors. This will make the agricultural sector self-sustaining which will come with its own benefits in countries like India, which are pre-dominantly agrarian. It is worth mentioning here that the agricultural sector in India gives employment to backward, unskilled, uneducated labour, who will directly benefit from the self-sustenance of this sector (Bhalla, 1987). The self-sustaining of the agricultural sector will also boost production of food supply, increase the per-capita income of the rural communities and will greatly reduce migration to urban centres.

A similar approach of boosting agro-based industry is the need of the hour in the North-east Indian state of Manipur. The state of Manipur notes good agricultural productivity especially with respect to the local foods consumed by the people of the state. However, agro-based industrial sector is either wanting or not available at the scale that it benefits the people and the economy of the state. To better understand the scope of agro-based industry in Manipur, it is important to understand a few details about the state. Manipur is one among the seven North-eastern *sister states* of India and is also known as the *jewelled land*. The economy of the state of Manipur depends mainly on agriculture sector, the latter being the backbone of rural people. The agro-climatic conditions in Manipur make it suitable for growing almost all kinds of agricultural and horticultural crops. The economy of Manipur grew at a rate of 12.90% from 1980 to 1997. The agricultural sector in Manipur has been growing at the rate of 10.69% per year and the manufacturing sector has been growing at the rate of 10.53% per year (IFP, 2017). Since the agricultural sector does not require raw materials inputs as much as are required by the manufacturing sector, promoting the growth of the former will certainly address the unemployment problem in Manipur and bring more jobs for the people.

The primary method of agricultural cultivation in Manipur is through *jhumming* (swidden agriculture) and terraced farming methods. However, a key drawback of the prevalent agricultural sector in Manipur today is that people cultivate only during the rainy season, which is the time for the growth of rice and wheat. Thus, agricultural activity is carried out only in one half of the year and during the other half of the year, the fields remain unutilized. The same pattern is followed in many other parts of India as well. It is but common sense that if the agricultural cultivation is carried out throughout the year, by growing different crops (and through crop rotation) the yield and income from this sector will increase and will be almost doubled. There are various kinds of crops including fruits and vegetables which can be rotated with the existing wheat and rice crops. Some of these include rice, maize, pulses, wheat, pineapple, orange, mango, lemon, carrot, ladyfinger, cabbage, pea, bamboo, apple, etc. Rubber plantation have already begun in Jiribam (Singh et al., n.d.) which is a place located in the west of the state. Some sectors which have good economic potential in Manipur include agro and food processing, handlooms, handicrafts, (eco)tourism, fisheries, poultry, animal husbandry and forestry. Manipur is also known for the many medicinal plants cultivated in the state. However, a key challenge in the development of the aforementioned sectors in Manipur is the general ignorance of the people of the state towards its rich cultural and biological diversity.

Among all industries with scope for economic development in Manipur, one type of industry that will be effectively profitable as well as environment friendly is that of Multi-Farming. Multi-Farming industry includes agro-cultivation, fisheries, food processing, animal husbandry, and poultry in one land at the same time. Since land as a resource is presently available in Manipur, Multi-Farming as a sector has a good scope. Multi-Farming ensures that productivity will be high and since natural manure is available as a waste product (e.g. excreta from poultry or animal husbandry) it also avoids the use of artificial fertilizers and chemicals. The waste of the animals is recycled as manure for the plants, and waste and dead plants help improve the soil quality. Multi-Farming is a highly efficient and waste-free sector. This is also true since unused plant waste can be used to feed the animals. In this way, Multi-Farming can help protect the pristine ecosystem of Manipur, boost the economy of the state while simultaneously producing healthy food. However, promoting Multi-Farming in Manipur needs to

begin with understanding the needs of the farmers and also the necessary information they require in this direction. Therefore, the use of ICT based information dissemination systems also need to be developed (Meitei and Devi, 2009).

These are the various types of Multi-Farming and Agro-based industry that Manipur can scale up. A key type is that of developing and promoting the 'black rice' crop variety which is grown mainly in Manipur. The black rice crop variety in Manipur is locally called *chakhao* and is produced in two shades, black and white with the black one being more popular. Black rice has earned greater popularity than the white one because it has more potential and nutrition (Asem et al., 2015). Black rice is harvested once a year, in the months of November-December. To plant black rice, a good irrigation system is a pre-requisite. Since black rice is a traditional rice variety of Manipur, it is well acclimatized to this place and is easier to grow. Some other traditional varieties of black rice include *poireiton, tathabi, moirang phou, khokngambi, kumbi phou, changlei* and *phoudum.* Presently, 20 varieties of black rice are grown in more than 200 hectares farmland in the state. All varieties of black rice are rich in medicinal properties and help in fighting diseases like viral fever, dengue, chikungunya and influenza (AgricultureInformation.com, 2016).

Among all the varieties of *chakhao*, *chakhao poireiton* is considered to be most useful due to its potential property of curing cancer. *Chakhao poireiton* is purple-black in colour and both its ends are pointed. It is oval in shape and has a tempting shine on it. When cooked, this black rice variety becomes deep purple and also give a tempting aroma. It is widely used in pudding along with other fruits and nuts and is also an appetizer. Despite its filling look, this variety of black rice is actually very healthy to eat. Black rice benefits us in many ways. Besides being popular for preventing cancer, other ailments that it can help cure are diabetes, heart disease, Alzheimer's disease, heart attacks, gallstone, etc. Over polishing of this rice destroys the nutrient content and all of the dietary fibre and essential fatty acids. Black rice is rich in minerals, vitamins, fibre and fatty acid and its consumption, even in excess, does not lead to gaining weight. Further, black rice diet is a highly recommended food for post-menopausal women, especially those with high cholesterol and high blood pressure or others who are showing signs of cardiovascular disease. The benefits of black rice are not limited to the aforementioned. Consumption of black rice and physical use is also locally known to enhance skin and hair, thereby helping maintain clear and soft skin and in preventing wrinkles.

The development of agro-based industry around the black rice crop variety can bring about a magical spin around in the economy of Manipur state. This is because in addition to the large-number of nutrition and health benefits, black rice is not grown in other parts of India and can be sold as an exotic agri-product. Its development would require growing it in large scale, for which there is land and trained-human resource available in Manipur. Black rice or *chakhao* production has been preserved in Manipur since several generations despite green revolution in India which promote mainly the high-yielding varieties even though the latter required large-scale irrigation and chemicals. The technique of producing *chakhao* is still preserved in the traditional knowledge of the people of Manipur though its production is limited due to lack of awareness about its large number of benefits. However of late, new industries are indeed being set up which are utilizing *chakhao* as a raw material to produce *chakhao* products such as cakes and other snacks. With proper assistance and support from the Government, and the promotion of agro-based industry in the state, the *chakhao* crop can be grown and harvested to locally produce many types of goods like snacks, skin care products, health care products, etc. Such a value addition to *chakhao* will go a long way in promoting economic growth in Manipur and will also give recognition to Manipur in the national and international markets.

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