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Cultivation of Medicinal and Aromatic Plants as Source of Profit Generation and Employment Opportunities: A Look into India with special reference to Northeastern Region

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Abstract

Cultivation of Medicinal and Aromatic Plants is an excellent source of employment and profit generation. A large section of rural population in Northeast India depends on biodiversity for their better health and life. But certain anthropogenic activities are identified as the main causes of losing the medicinal plants diversity. Here, appropriate measures are in need of time to save the ecosystem.

Introduction:

With ever growing demand for natural products in food, pharmaceutical, perfumery, flavor and cosmetic industries, cultivation of medicinal and aromatic plants has now become popular and economically viable (Khanuja, 2004). Medicinal and aromatic plants, natural source of raw material for industrial products offer a great scope to receive net higher return and scoe for larger employment opportunities in recent times. The cultivation of such plants now form an important place in global international agricultural business with an estimated growth rate of about 6 to 12 percent (Economic Review, 2006). The Menthol mint (menthe arvensis) in Indo- gangetic plants damask rose in the plains and hilly areas of north India, lemongrass (cymbopogon flexuosus) in southern Indian plants, geranium (pelargonium, graveleons) in southern and northern part of India, citronella (cymbopogon winteriams), neem, pudina, tulsi acodo, kani pata in north eastern regions are some of the valuable industrial raw material aromatic plants are collected from forests, their systematic cultivation has now started in different parts of the country.

Sarpagandha (rauvolfia serpentine), periwinkle (catharanthus roseus), safed musli, isabgol (plantago ovate), senna (cassta senna) and aloe vera are some of the important medicinal plants that are being cultivated on a large scale the regular supply of raw materials for upcoming pharmaceutical industries (Botanical Survey of India).

However, there has always been problem of obtaining equitable genus raw materials in good quantities from the natural sources. Indiscriminate environmentally unfriendly assemblage has resulted in limited supply of some important herbs resulting in adulteration or substitution. Furthermore, the compatible quality of herbal raw materials collected from indigenous sources cannot be ensured due to cross reaction resulting in variability. Thus systematic cultivation of medicinal and aromatic plants involving High Yielding verities (HYVs) producing quality product maintaining the regular supply of raw materials at desired good qualities has therefore become essential for the growing user industries.

Role of Central Institute of Medicinal and Aromatic Plants:

Taking into consideration the upcoming and rising demand for medicinal and aromatic plants' products in both domestic and global market the Central Institute of Medicinal and Aromatic Plants (CIMAP) has taken initiatives to develop technology packages in cultivation and for the potential growth of medicinal and aromatic plants in different parts of India. Genotype yielding products such as, ayurvedic medicines, natural food products, natural health care perfume, and chemicals are recently popularized developed in different environmental viable region, particularly in forest zone. The raw materials of them are highly demanded and acceptable both for domestic and international markets. Systematic and scientific interventions put together the product like menthol mint becomes most popular crop of marginal and small farmers across the country. The cultivation of menthol is now increasingly replacing opium. For the farmers, the production of menthol oil has become a cottage industry. Because of higher return the quality product of High Yielding Verities of Himalayan products are released by CIMAP got wide acceptability among the farmers and demand of raw materials in industries are increasing day by day due to the quality. In fact, geranium bio-village programme in Uttaranchal and Uttar Pradesh sensitized growers for cultivation of excessive priced crops for still higher returns (Singh, 2004). The research are initiated by the CIMAP for new anti- cancer, anti- ageing, anti-virus, malaria, dyrihia, anti-obesity, anti-hypertension, diabetic medicine and hepatic-protective molecules from various plants is on.

Employment Opportunities:

Medicinal and aromatic plants, once brought under cultivation would be required both skilled and unskilled labour since the very beginning cultivation to processing, improved processing and delivery of an active ingredient in convenient and useable form. All these activities involved labour intensive come up with huge range for employment opportunities and generate it and helps in eradicate poverty of rural mass people. Cultivation, processing and trade through value addition of harvested products from medical and aromatic plants give higher profit to the cultivators and a good approach for self employment of farmers and master plan of sustainable agro-economic growth. With medicinal and aromatic plants , the potentiality for self employment is also enormous e.g. the total chain from seed or propagate to the product requires manpower for cultivation, generating planting materials and processing or distillation, technical manpower for value addition and product formulation and personnel involvement in marketing. There is ample scope for employment in each and every stage from beginning to last.

However, among basic needs of human being, food is the first choice and hence cultivation of medicinal and aromatic plants does guide us to replace the food crops production. Therefore, it is obvious that medicinal and aromatic plants cultivation to be integrated with food from horticulture crops. Higher extent of net yielding can be expected by integrating the cultivation of medicinal and aromatic plants with rice cultivation .For example, mints to be integrated with rice –wheat, rice-potato rotation. Similarly, co-cultivation of onion with mint, garlic with geranium and mints with sugarcane may increase the amount of profit from a small unit of area under cultivation. Most of these crops can also be homogenized with plantation crops or orchards, e.g, patchouli can be cultivated in orchards of coconut and coffee plantations similarly, a pineapple can be grown in banana plantation. This provides an additional yield /profit without affecting the profitability of main crops'. Thus the mission statement of CIMAP towards "green technologies for better health and life" is to be reflected towards societal improvement through medicinal and aromatic plants integrated with food crops and will generate more employment.

The raw materials and value added produce from cultivation of medicinal and aromatic plants are increasingly demand in day by day and safety and efficacy of plants based drugs and importance of natural aroma chemicals in perfumery, cosmetics and flavours. There is a sufficient scope to export these products to USA, Europe and other global markets. The production of quality raw materials therefore is bound to fetch higher prices

and thus higher profits (Swaminathan, 2001). However, some kind of traditional plants, menthol mint among one which did not gain much popularity initially mainly because of lack of HIVs producing good quality, now completely replaced that prevalent cultivated poor genotype after using HIVs seeds. Plant transplanted technology and early maturing varities enabled farmers to obtain good quality can earn more profits and now many small to marginal farmers are adopting this crop. At present this crop covers more than 1.5 lakh hectares (Chada, 2002).This has improved the socio-economic status of the poor farmers. Similarly, cultivation of menthe arvensis on large scale has also generated enormous employment and strengthened the business of related industries and promoting entrepreneurships in backward region. It is estimated that in each employment benefits from mint business of about Rs 420 cr. accrued to about 3 lakh persons. Now, menthe arvensis is considered a major cash crop in North India plains contributing 75-80 percent global menthol mint oil production and exports to other countries earning valuable foreign exchange (GOI, 2006).

A Look into North-Eastern Region of India:

The Northeastern region of India, earlier called seven sister states of Northeast India endowed with vast natural resources. The whole Northeast Region is located within the IUCN, recognized by Himalaya Hotspot and considered to be very good birth place of some valuable medicinal and aromatic. The zone, for instance, plants possessed plenty in distinct variety of herb, distillation, creeping plants which are important prospective therapeutic utility of local health giving physician along with medical practitioner. More than 900 varities of medicinal plants with different species are existed in wide hilly areas of Northeastern region. Among them most popular and widely practiced of some commercially valued products such as; Sarpagandha, Nayantera sarpagandha,Dhatura,Chalgoch, Java citronella, Agnisikha,Haldhi, Dalchira, Tulsi, Tejpata Pudina Omita, Rauvolflia, Mekuri Kendu, Tankuni patha, patorkuchi neen ,etc, are some of the important industrial medicinal and aromatic plants are still collected from forest (Baishya, Begum, 2013). Although, the scientific and systematic cultivation of them are started now they are being cultivated on a large scale on traditionally for continuing the regular supply of raw-materials for pharmaceutical industries.

However, with a huge wealth of biological diversity of plants and agro-climatic zone possessed by North-East are capable of supporting the cultivation of medicinal and aromatic plants. With vast manpower resources and varied agro-ecosystem, NE region of India has a scope to play a major

role in production of medicinal and aromatic plants. MAPs related business opportunities are enormous and are visibly on rise due to the diversified uses that plants derived molecules and compounds are finding in perfumery, pharmaceutical, cosmeceutical and agro- chemical industries. The valuable molecules from the plant sources that may have utility in wide ranging applications such as antibacterial, antifungal ant protozoan, anti cancer, anti insect, ant depressants cardiovascular and nerving stimulants, growth promoters, post harvest potentiating or bio enhancer (Kameshwara Rao,2004). With an excellent natural resource base, large gene pool, undoubtedly and both skilled and unskilled manpower, the NR region may look for achieving higher quality produce and product from medicinal and aromatic plants and may an ideal method for achieving economical security besides increasing employment potential especially in rural sector and income generation.

Conclusion and Suggestions:

Summarizing the above issues it is observed that indiscriminating destruction of forests, together with unscientific extraction of the plants and over exploitation for export purposes etc, have led to the extinction of many valuable medicinal and aromatic plants. Formation of Self-help Groups (SHGs) at different levels, though exist, involving representatives of ayurvedic medicine manufactures, farmers, NGOs, agronomists, professional raw-drug collectors etc. will facilitate demand based cultivation with a buy-back arrangement. The SHGs should take care of imparting technical know- how to the cultivators, supplying genuine planting materials, establishing medicinal plants nurseries and seed banks for propagation collecting requirements from various Pharmaceutical companies and marketing the produce at reasonable price. Moreover, areas rich in medicinal plants can be developed in to herbal sanctuaries, so that this unique biological wealth can be safeguarded and conserved well for posterity.

Secondly, there is need to expand facilities for a continuous updating of skills and information in relation to all aspects of medicinal production, processing and marketing among producer. For this, it will be useful to establish in every district the Institute of Medicinal and Aromatic Plants with merge of Krishi Udgyon Kendra. It is also desirable to develop region as herbal bio-region. The infrastructure that are necessary for seed multiplication including tissue culture facilities, establishment of nurseries of elite materials, validation and certification and producer-oriented marketing and other centralized facilities efficient decentralized production will have to be provided in the herbal bio-region.

Thirdly, the Government of India should review the current policy regulation of medicinal and aromatic plants and adopt intensive programmes and policies for promotion of MAPs cultivation. The Department of Horticulture, Government of India should provide incentives to the farmers for taking up of MAPs by demonstrations to the grower, assistance for the establishment of herbal garden, oil extractions including processing, drying and storage unit. The training and workshop involving professional local ayurvedic kabiraj and like that is also required.

Lastly, a massive awareness and education programme should be launched on medicinal and aromatic plants involving not only the public, but also the media and more importantly the Governmental agencies responsible for formulation and implementation of massive plan.

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Contractual Arrangements and Rural Credit Market in Assam.

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ABSTACT

The paper addresses the question of existence of land mortgage under usufructuary system in agriculture of Assam. It is well known that when a small farmer needs loan they can easily receive it by mortgage their land to the landlords. This system, however has been on the increase during the current decades. A number of explanatory factors have been considered to explain this phenomenon. There is a considerable scope here for they to catch up with the empirical findings. Our findings, primarily based on the field survey data, suggest that among the factor considered intensity of informal credit transactions are the most important ones to explain the forms, nature and extent of informal credit transactios in agriculture of Barak valley during the current decades.

Key words: Hunger Leasing; Pyakas; Kat Banddhak: Transaction cost; Banddhak.

ITRODUCTION

Besides, land is a basic factor of production, the subject of land closely related to that of rural credit market. It is well known that a bulk of the institutional or formal credit goes to the larger farmer. This comes out very clearly from our earlier study of villages in Barak valley of Assam. We find, for instance, the bureaucratic delay that a borrower has to face in getting a formal loan comparatively to big farmers. The transaction cost for a small is greater than that for a larger loan. When small farmers have need of credit, they can easily receive it from their landlord, relatives, shopkeepers or village traders. However, when quantum of loan is required, they have only choice to mortgage their inheritance small piece of landed property to the landlord. When debt is assemble by a huge amount and exceeds the paying capacity of the farmer, the land is lost by the small farmer. Moreover, attention was also drawn to the fact of interest rates which are high in backward areas but vary a lot.

EXISTING LITERATURE ON INTERLINKING CREDIT TRANSACTIONS

In a backward agricultural economy, on the question of inter linkage between tenancy and rural credit system, there is a philosophy which opines informal credit transactions allow the landlords to extort outmost surplus which leads to the tenant indebtedness[Badhuri, 1974 and 1977: Gathak,1977:Scandizo,1979: Prassad,1973: Chandra, 1994].In reality, liability of tenants to the landlord think about to be the mark of backwardness (Bhaduri,1984: Prasad 1979). There is first hand relation between informal credit in underdeveloped agriculture and landownership model. "The sizeable landowners have, to the greater extent capable of take over the institutional credit, sadness and small peasant carried with turn on non formal sources show there's below far involvement in the process of agricultural growth (Kuri,2004)". Loans for consumption and production needs of the farmer necessities to credit contract between landlord and tenants.

duction loan so called project financing loans as rule limit to purchase fertilizer, seeds ughing tools and other mode of capital. Tenants in non identical pay different borrowing rates heir mortgage | Singh,2003;Braverman and Stiglitz,1985. Bardhan and Rudra,1978|.

Under consideration of whether the consequence of interlinked credit is stimulant in take up ricultural development, Bhaduri (1973) initiated his work in this regard. According to him, the uation of interlinking credit and tenancy arrangement, should be an impediment to the chnological innovations. In his model, the land owners obtain rental income from the leased ot land and be of interest to loans that the amounts provided to tenants. Land owner did not refer technological innovations. If the landlords encourage the tenants to adopt technology, roduction will increase and therefore the tenants will be disincentives to borrow cash from andlord. Technological innovation, therefore makes tenants better off, bring down their order for consumption loan and here landlords worse off.

A number of studies have challenged the Bhaduri's theory. Using Bhaduri.s model Srinivsan (1979) has putted argument in favour of innovations lead to lower demand or credit. Barverman and Stiglitz (1986),have exhibited on the point that innovation effect at a time reduction and growing in tenant's need for informal credit sources. The studies of Gosh and Smith, (1976); Mitra, (1983); Pant (1980); Gangopadhya and Sengupta,(1987); Griffen,(1974);and Newbery (1975) accepted credit arrangements between landlord and tenants are essentially interlinked and renter behave as a face to face and incidental cause or effect of credit truncations. Rudra (1978), on the basis of his empirical study on agrarian relations in several districts of west Bengal, challenged the Semi feudal models of Bhaduri. Rudra has received support from a series undertaken by different writers [Braverman and Srinivasan,(1981); Guasch,(1984); Chakraborty,(1981)].Moreover, through the work of agricultural credit multitudinous informational effort has been built in the empirical field, particularly, the micro –emperical studies, for instance, the study of Nagraj (1985), Sarp (1991), Swaminathan (1991).

In Assam ,many academician mentioned their studies on the subject of tenancy spell their study on the agrarian reforms in the state. Though the study was not purely economic analysis, but they have shown tenancy situation and the problem related with it. Considerable studies have been made by Goswami, (1985); Guha, (1991); Chakravarty, (1995); Choudhury ,(2000);Gautam, (1995); Pukan, (1991); Khatun,(1984) ; Roy and Bezbaruah 2002). Though there have been theoretical attempts to model of interlinking credit arrangement under sharecropping, but no such work carries yet in the Barak vally of Assam to match up experiential among prevailing hypothetical propositions. What we need to do is to model the relationship between rural seasonality and credit market institutions.

OBJECTIVES OF THE STUDY

In Assam, tenancy is characterised by a high incidence of sharecropping, in which the tenant yields to the landlord on agreed upon share crop. Despite of the existence of share cropping over the years, their unusual terms and conditions and verbal or non-formal credit linkages to usufruct ray mortgage or bond land are remain still further untouched or understudied. The present paper strives to survey the typical terms and condition of informal credit market in rural areas of Brak valley in Assam.

DATA AND METHODOLOGY

The study is taken up in the Barak valley of Assam. The study is based on collection of primary data. Data of only 24 major villages of six Agricultural sub-division of three districts in Barak valley are used. The villages have been chosen purposively considering the dominant practice of the institution of tenancy. Household is the basic unit of our sample and is chosen from those whose agriculture is the primary source of livelihood. The listing farming household have been done consultation with the official of the agricultural department in each Agricultural sub-division. Two considerations have kept in the mind while selection process has done. First, the chosen sample villages have indicative of the entire sub division. Second, the sample village have to not either developed or backward village. The certain banking infrastructure and new agricultural practices have to be accessible in some villages of the adopted circle. A total of 206 sample households have been collected for the purpose of the study.

RESULTS AND DISCUSSION

Small tenants need credit for various purposes. They can easily get small amounts of loan required for consumption purposes from their landlord, relatives, shopkeepers or village traders. However, when require amount is needed for multi- purposes, the only way to receive cash through mortgaging their land. In non appearance of advanced and unambiguous credit market, land and credit connected with land mortgage is general practices in the sample villages. Simple mortgage and usufructuary mortgage that are two forms of mortgages found in our study villages. In the former type, the ownership of land remains to the debtor. In case of default to repay the borrowed amount the ownership will be transferred to the creditor. While, in case of usufructuary mortgage, the ownership of land be passed to the creditors and he will be the owner of that mortgaged land and will cultivate it instead of interest on loan, so long borrower repays the borrowed money.

Divergent type of usufructuary mortgages observed in our sample area. Commonly, three categories of usufructuary mortgages that are plasticised; (i) Partial mortgage or *Banddhak* . (ii) Total mortgage or *Pykas* and (iii) *Kat Banddhak* or mortgage on limited sale. In all instances, some kind of written agreement made between the contracting parties taken one or two as witness. However, the written agreement is done in form of hand note on ten rupees India non judicial stamp. The system is popularly in locally called *Smaranlipi*. In case of the *Kat Banddhak* where deed writer, so called *Monir* mediated in arranging the agreement in forefront the concerned Govt official. Although land mortgaged for certain sum of money, no interest charge levied for this loan. The money lender either cultivate the land itself or lease out to the mortgagetor or part of others. The *pykas* system or total mortgage is alike to that of partial banddhak or mortgage, but in case of former agreement is done for time bound and production of land to be pertain until clearance of the debts. The system of total mortgage is considered to be equivalent to fixed rent tenancy where the lease in on the condition that tenants will pay a fixed rent per acre either in advance or after the harvest in kind or in cash. In *kat banddhak* or mortgage on limited sale, mode of repayment is much rigid from the other two types of contract. In case of default of repayment by the borrower on that place a warning come from the lender with regard to detachment from land. The contract is made on condition that borrower after make full payment of borrowed

money on specified time the lender will return the land. Failure of which piece of land will be forfeited by lender. Thus,in case of *kat banddhak* lender will be the owner of land provided that the failure of borrower in repayment of loan in time. In Table-1 has presented different types credit contract under usufructuary mortgage mostly plasticised in our sample farm households

TABLE - 1
CREDIT CONTRACTS UNDER USUFRUCTUARY MORTGAGE

CIRCLES	PARTIAL BANDHAK	PIKAS	KHAT-BANDHAK	TOTAL	AMOUN OF LAND UNDER MORTGAGE (IN HA)	AVERAGE LOAN PER BIGHA (RS.)
1	2	3	4	5	6	7
Fakira Bazar	4	0	0	4	2.88	6295.00
R.K. Nagar	9	0	0	9	5.31	7200.00
Narshi-ngpur	2	4	0	6	3.12	8100.00
Salch-apra	3	1	0	4	2.65	5500.00
Bans-kandi	2	5	1	8	4.30	4550.00
Haila-kandi	1	6	0	7	4.18	5660.00
Total	**21**	**16**	**1**	**38**	**22.44**	**5250.00**

Source: Field Survey, 20015.

The partial usufructuary mortgage is common practiced in our sample villages (refer Table-1). Here, the land owner can anticipate ambiguous rate for bond his land. The variation has found in circle to circle and pact to pact. The highest amount of loan depends on the nature of the land to be bond. Also, maximum possible amount may fixed by the negotiating between debtor and creditor. We have also observed a uncommon character of tenancy under usufructuary mortgage in our sample villages, where owner becomes tenant in their own land. This condition comes when pity farmers mortgage their land to the lenders who then again lease it out to owner under share cropping. It is very winsome to the salaried and business men who have not any farmable land but can receive land by means of credit to the lender and can draw out lease income in forms of sharecropping.Table-2 illustrate the non identical partners of mortgage land.

Jamaluddin

Table-2

Usufractuary Mortgage and Operators of Mortaged of land

Circle	No. of victims of usufructuary Mortgage	Lender operator	Sharecropper	
			Owner of land	Other sharecropper
Fakira Bazar	13	8	4	4
R.K.Nagar	18	12	9	2
Narshingpur	3	3	1	1
Salchapra	16	8	5	3
Banskandi	14	9	8	1
Hailakandi	20	7	8	2
Total	84	47	35	13

Source: Field Survey,2015.

It is evident from the Table-2 that in some cases owners of land becomes lease in their own land. In some cases, we have also noticed that the professional money lenders have entered into the land lease market. They come up with interlinked land and credit market giving credit against the mortgage of land and later lease it out to the owner under sharecropping. This type of leasing in the Marxist literature is as 'hunger leasing.' In many cases, we have found that pity landowners are unable to repay the debt amount in long duration; they go on as tenant in their own land or put on sale it with low price to the creditor.

CONCLUSION

The sharecropping is a familiar practice in agriculture of Barak valley in Assam. Lease agreements go along with non-formal credit arrangement with the tenant. The sharecrop farmer accepts certain troubles either in getting institutional credit or non availability of sufficient institution credit. The farmer's need of loan arises mainly for consumption ,production and other multi purposes. The nature of informal credit agreements are of different. Land interlinked to bond or mortgage under three different types that is the common picture of the sample village. All in forms, small farmers when they have need sum of big amount of loan either for aforesaid purpose, they have only option to mortgage their inheritance property to the money lender or village *mahajan* to get loan. The money lender or mahajan encourage the poor farmers to borrow more and mortgage their land as security. As the debt is accumulated by a huge amount and exceeds the paying capacity of the farmer, the land is lost to the money lender.

Thus, the measures are necessary to control the exploitation by the money lenders. Though the state has brought under statutory regulation the function of lending in the form of licensing obligation of the money lenders and the chargeable rates of interest, the poor borrowers have not been much benefited because the greedy lenders know the lacuna of legislative provision and many ways of escaping due to helplessness of the debtor. The loss of land to the village mahajans and money lenders has to be stopped by ending their land mortgage type of exploitation. However, this is only possible by making institutional credit facilities available to the needy farmers. This will bring down inability to act independently on informal credit market.

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Existing Land Tenure System is an Obstacle for Diversification of Agriculture in Barak Valley of Assam: An Analysis

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Abstract

Agriculture has been and will continue to be the lifeline of the economy of Barak Valley The Barak Valley of Assam constitutes 8.9% of the geographical area of the states but it contains 11.22% of the population as per 2011 census. The economy of the region is predominantly agricultural with 70%of the work force being engaged in agriculture and other primay activities as per 2011 census. Though the region is not devoid of manufacturing units, its relative geographical isolation handicaps it for a programme of large scale industrialization. The prospect of economic development of the region therefore depends critically on the growth of agriculture and alied activities. Agriculture in Barak Valley as it stands today, is predominated by small farmers growing mainly rice and vegetables the market supply of which is far below in respect to their demand. In view of the mounting demands for food, linking of enhance food production with nutritional security, conservation of natural resources, enhancing farmers income, employment generation etc, diversification of agriculture is necessary in the backward agriculture in Barak Valley of Assam. Diversification interms of fruits, vegetables, livestock, poultry fisheries and agro-forestry may contribute to holistic development in the region. However, the existing land tenure system where share cropping is found practice largely informally and insufficiency of tenant farming may have an obstacle to the diversification of agriculture in the Barak Valley of Assam. Besides, lack of agricultural infrastructure, such as, improved cold storage facilities, short period storage during transit of commodities on farm processing and cool chain facilities are critical for insulating the farmer against risks and for the success of diversification. Proper identification of all these factor goes a long way in sustaining agricultural development in the region.

Keywords; Sharecropping, Agricultural infrastructure, Small farmer, Tenant farm, Cropping pattern.

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Introduction

Diversification of agriculture has been acknowledge to make more profit, generate additional employment for rural masses and to conserve natural resources. Diversification to traditional/non-traditional crops has been found to be the best option as these crops not only meet the above requirements but areas also adapted to a wide range of climate and are more remunerative for replacing subsistence farming and thus alleviate poverty in rainfed, dry land, hilly and arid ecosystem. These crops also have potential for improving wasteland and need comparatively less water than conventional crops. However, this practices mainly depend on the availability of agricultural infrastructure such as new technologies in agriculture, irrigation infrastructure, practice of HYV seed, cold storage facilities etc. As tenancy dominated land ownership pattern in the region and this may retards the diversification of agriculture in the economy of Barak Valley region of Assam.

Study Area

Agriculture has been and will continue to be the lifeline of the economy of Barak Valley. The Barak Valley of Assam constitutes 8.9% of the geographical area of the states but it contains 11.22% of the population as per 2011 census. The economy of the region is predominantly agricultural with 70%of the work force being engaged in agriculture and other primay activities as per 2011 census. Though the region is not devoid of manufacturing units, its relative geographical isolation handicaps it for a programme of large scale industrialization. The prospect of economic development of the region therefore depends critically on the growth of agriculture and alied activities. Agriculture in Barak Valley as it stands today, is predominated by small farmers growing mainly rice and vegetables the market supply of which is far below in respect to their demand.

The agriculture is almost entirely weather depended, the irrigation over being limited to only 2.43% of the Gross Cropped area. Not surprisingly therefore, the region today stands far behind the all India standards in terms of use of improved agricultural practices and also in agricultural productivity (Roy and Bezbaruah, 2002). On the other hand, share cropping is in practiced largely informally in Barak Valley. The insecurity of tenant cultivators is acting as an obstacle for effective use of the available technology package in the region. The levels of inputs used for owners and tenants cultivators are not uniform and the resulted output also differs. The owner has an edge over tenant cultivators (kuri, 2003). The tenants have insufficient incentive to the optimum use of resources on the land he cultivates. Owing to these factors, the practices of modern agricultural technologies are not willing by farmer and therefore the economy of Barak Valley is facing chronic food shortage.

Necessity of the study

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In view of the mounting demands for food, linking of enhance food production with nutritional security, conservation of natural resources, enhancing farmers income, employment generation etc. diversification of agriculture is necessary in the backward agriculture in Barak Valley of Assam. In this direction, technological improvements may have an important role to play in several traditional and non traditional crops/regions/seasons. Hybrid breeding approach may extend to rise and increases yield and stability may achieve through enhance biotic and abiotic stress resistance/tolerance in plants and Increase area under rabi season production. Diversification in terms of fruits, vegetables, livestock, poultry fisheries and agro-forestry may contribute to holistic development in the region. However, the existing land tenure system where share cropping is found practice largely informally and insufficiency of tenant farming may have an obstacle to the diversification of agriculture in the Barak Valley of Assam. Besides, lack of agricultural infrastructure, such as, improved cold storage facilities, short period storage during transit of commodities on farm processing and cool chain facilities are critical for insulating the farmer against risks and for the success of diversification. Proper identification of all these factors goes a long way in sustaining agricultural development in the region.

Existing Empirical works on tenancy and diversification of agriculture in Assam

With a few exceptions, neither any systematic theoretical exercise nor any empirical investigation has yet been carried out on the issue of land tenancy contract and diversification of agriculture in Assam in general and Barak Valley in particular. Many scholars only touch upon the issue of land tenancy contract while analyzing the agrarian reforms in the state. Some studies though not based on pure economic analysis have been conducted to highlight the tenancy situation and the problem of agriculture and diversification associated with it. In this respect the studies by Goswami (1985); Guha (1991); Chakraborty (1995) and Gautum (2005) have found to be outstanding. These studies explore the nature and pattern of tenancy and diversification problems in the state of Assam. In similar studies Nag (1991), Phukan (1993) have also reached the conclusion that tenancy reforms in Assam have not favourable impact upon the tenant farmers and thus retards the diversification of agriculture before the economy of Assam. Sengupta (1991), in his study impact of land reforms in Karimganj district of Assam has shown that tenants are still being exploited by the land owners and for which diversification of agriculture in this region is insignificant. Roy and Uddin (2010), in their study Factor Market Imperfections and Agricultural efficiency in Barak Valley has shown that the effects of intensive agricultural practices, increasing population pressure, climate changes, environmental pollution, loss of bio-diversity, soil erosion, salinisation and water depletion are all threatening the sustainability of agriculture in the region. Therefore, to protect and conserve the natural resources not only for the present but also for the posterity is out most important. This may possible by generating new technologies that conserve resources and

economise the resource use. If security of tenure is provided to the tenant it will motivate to tenant to adopt new technology. In the absence of the security the tenant will not be ready to take risk associated with the technology and for there is no possible to success of diversification (Rai, 2008).

Methodology

The study is based on primary data. The primary data is selected through a process of multi-stage sampling. To retain the representatives of the entire region it has been decided to select the sites of sample survey from all the agricultural sub-division in the region. There are six agricultural sub division in the three districts of Barak Valley, namely, Cachar, Hailakandi, and Karimganj, District. From each of the six sub-division one Agricultural Development Officer (ADO) circle has been selected for field study. The Selection of ADO circle has been done in consultation with the officials of the Agricultural department. From each ADO circle four villages have been chosen at random. 281 households selected in this manner consists the sample size for the present study. The sample households have been classified in three farm size as small, medium and large farms. Suitable test statistics have been used to test the significance.

Cultivated Area and Cropping Pattern

The cropping is an important indicator of agricultural development. The decision will reflect *inter-alia* the resources under the control of the household, the quality of the land, extent of low land and upland, the amount of family labour allocated to agriculture and the willingness of the household to undertake risk, farming assets particularly bullock labour and irrigination infrastructure. Therefore the analysis of the cropping pattern is necessary for an identification of major crops that the grown in the region by its farmers. Data related to cultivated area in the six circles are presented in Table I

Table 1: Area under Cultivation in the Six Circles in The Year 2011-12

CIRCLES	NET CULTIVATED AREA (in hectare)	GROSS CROPPED AREA (in hectare)	CROPPING INTENSITY (in percentage)
Fakira Bazar	4250	5146	121.08
R.K. Nagar	6350	8408	132.40
Narshingpur	5808	6962.5	119.87
Salchapra	4526	6174	136.41
Banskandi	6638	6795	102.36
Hailakandi	5513	6932.5	126.04
Total	33085	40,418	122.16

Source: ADO of the Six circles

So far as cultivated area is concerned, Baskandi is the largest of the six circles followed by R.K. Nagar, Narshingpur, Hailakandi, Salchapra and Fakira Bazar, while cropping intensity is lowest of about 102.36

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percent in the Banskandi circle and highest of about 136.41 percent in the Salchapra circle. The higher cropping intensity in the Salchapra circle indicates greater prevalence of the practice of multiple cropping than other five circles. The R.K. Nagar circles also shows cropping intensity of about 132.40 percent, while the Fakira Bazar, Narshinpur and Hailakandi shows cropping intensity is 119.87 percent, and 126.04 percent respectively.The cropping patterns in the six circles can be inferred for the data given in Table.II

Table 2: Area under Different Crops and Their Percentage in the Total Cropped Area in the Six Circles during 2011-12

CIRCLE	FAKIRA BAZAR		R.K. NAGAR		NARSHIN-GPUR		SALCH-APRA		BANSK-ANDI		HAILA-KANDI	
CROPS	Area (in ha)	Percentage	Area (in ha)	Percentage	Area (in ha)	Percentage	Area (in ha)	Percentage	Area (in ha)	Percentage	Area (in ha)	Percentage
1	2	3	4	5	6	7	8	9	10	11	12	13
Sali Rice (HYV)	1750	34.69	3120	37.23	1947	28.56	1362	22.06	1255	18.74	1060	16.12
Sali Rice (T)	1325	26.25	1980	23.62	3199	46.92	2914	47.19	4475	66.84	3190	48.52
Total Sali Rice	3075	60.94	5100	60.86	5146	75.48	4276	69.25	5730	85.58	4250	64.64
Ahu Rice (HYV)	1012	20.06	1275	15.21	976	14.32	1115	18.06	420	6.27	655	9.96
Ahu Rice (T)	158	3.13	345	4.11	155	2.27	330	5.34	119	1.78	95	1.44
Total Ahu Rice	1170	23.19	1620	19.33	1131	16.59	1445	23.40	539	8.05	750	11.40
Boro Rice (HYV)	14	0.28	245	2.92	-	-	75	1.21	-	-	448	6.81
Boro Rice (T)	4	0.08	980	11.70	-	-	35	0.57	-	-	427	6.49
Total Boro Rice	18	0.36	1225	14.62	-	-	110	1.78	-	-	875	13.30
Total Rice	42.63	84.49	7945	94.81	6277	92.07	5831	94.44	6269	93.63	5875	89.34
Others	131	2.60	175	2.09	171	2.50	82.5	1.33	191	2.86	332.5	5.06
Vegetables (Kharif + Rabi & others)	652	12.92	260	3.10	370	5.43	261	4.23	235	3.51	368	5.60
Total	**5046**	**100.0**	**8380**	**100.0**	**6818**	**100.0**	**6174.5**	**100**	**6695**	**100.0**	**6575.5**	**100**

Source: ADO of the six Circle

Agriculture has been found to be the dominant economic activity among the sample farms in all the villages of the six ADO circle. Of all the ADO circles, Salchapra and Baskandi have be found better economic base with diversified occupations of the household members. The dominant practice of agriculture in the sample villages in characterized by the institution of tenancy. Although paddy, pulses, rape and mustard, vegetables (both karif & rabi) etc. are grown in the sample villages, the tenancy have been observed mainly in paddy cultivation. *Ahu, Sali* and *Boro* are the three important varities of paddy. It is grown almost through out the year in the three seasons. *Ahu* harvested in Autum Season, *Sali* in Winter and *Boro* in summer seasons. Most of the sample farm follows single cropping pattern.

Though insignificant, the figures in the table - II show prevalence of double cropping in all the six circles under study. A wide variety of food and non-food crops are grown through out the all selected circles. Rice occupies a predominant place by comprising 84 percent to 94 percent of the total cropped area in each of these circles during 2011-12. Vegetables (both summer and winter), the second most important in order, comprised about 5 percent to 12 percent of the total cropped are. However, some variations in the cropping pattern in the circles become on a closer look at the figures. For instance, Banskandi and Narslingpur circles do not have any boro-cultivated areas. Of our four circles cultivating boro paddy, R.K. Nagar and Hailakandi circles seems to be very important comprising about 14 percentage of total cropped area.

So far as HYV paddy is concerned, it is not widely adopted in Salchapra, Banskandi and Hailakandi circles. The HYV Sali paddy area for the respective circles are only 22.06 percent, 18.74 percent, and 16.12 percent. A closer look of the HYV paddy area to total cropped area in all the six circles in Table -II clearly indicates that the low incidence of HYV. This is due to fact that agricultural practices depends mainly upon rainfall and there is neither irrigation facilities nor flood control arrangements. The degree of mechanization is almost insignificant. Further number of farmer using fertilizer to revive the fertility of soil is also negligible. Probably these are the main reasons for diverse cropping pattern in all the circles as shown from the table -IIAs such *ahu* paddy not have any important place in the cultivation of paddy in the circle. The farmers, therefore, depends greatly on pre-kharif crops mainly vegetables even with the help of traditional method of irrigation the area under vegetables.

Since, the tenurial status of land is found in agricultural practices in the entire Barak Valley practices (Roy, Bezbaruah, 2002), the share cropper followed wholly a mono cropping pattern. The reason for practicing momo cropping attributed to the following: Firstly, land taken on lease by the tenants was mostly the low land suitable for rice cultivation only. Secondly lack of irrigation facilities would not allow them to go for second crop with ahu paddy easily, which is water exhaustive crop.

Conclusion and suggestions

The Development of agriculture is directly related to the resource use efficiency. However resource use and productivity in agricultural production is largely influenced by a number of factors. Tenancy is identified as one of the factor influencing the resource use efficiency. The poor state of agricultural infrastructure, especially of irrigation, extension services and institutional credit system, non suitability of available technology package to good part of cultivated are the major constraint in the diversification of agriculture in the region. The share croppers in valley, faces the problem in applying modern inputs, as they do not have any security and access to institutional credit facilities. Unless the credit facilities are extended to them or it is mandatory by enforcing legislation, the share croppers will remain handicapped in diversification of agriculture in the region. Moreover, in Barak Valley, as in the state of Assam as whole, low lying plots prone to frequent flooding and prolonged water logging is fairly common. If the flood control measures are effective the majority of the farmers particularly to poor farmer who desire to cultivate more land and desire for cultivation in varieties of crops but unable to do it because low-laying areas prone flooding cause enormous loss of crops. There may be greater adjustment in the owned land and the desired cultivable land through tenancy operation and this brings the distribution of operational holding. The availability of irrigation infrastructure lead to a significant positive impact on the rate of consumption of fertilizer in farms and also farmer's decision regarding adoption of mechanized plough practice of HYVs. Thus technologies lead to a saving of irrigation water, fertilizer and seed may significantly improve soil health. Moreover, developing technologies for waste management and utilization assumes considerable significance. Similarly there is much scope to convert by- products into main products. Technologies and infrastructure, which promote primary processing value addition and product diversification in and around the villages need to be promoted.

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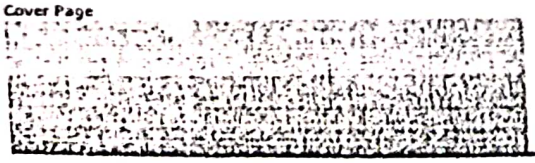

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An Empirical Study on Productivity Efficiency and Share Tenancy in Agriculture of Barak Valley in the State of Assam

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Abstract

Agriculture in Barak valley region of Assam, as it stands today, is predominated by small farms growing mainly rice. The region today stands far behind the all India standard in terms of use of improved agricultural productivity. The prospect of economic development of the region therefore depends critically on the growth of agriculture and allied activities. On the other hand, share tenancy has been fairly extensive in the region. In fact, as substantial debate has taken place on the question of share cropping efficiency, if the share cropping proves to be inefficient institution how could be it have continued over the wide areas of rural India in explain by some empirical studied. In view of this, an attempt has been made in this paper to provide explanation of empirical findings.

Keywords: Share Cropping, Efficiency, Rice, Monocropping, Barak Vally.

Introduction: - The economy of Barak Vally is predominantly agricultural with 70 percent of the work force being engaged in agriculture and other primary activities as per 2010-11 census. Though the region is not devoid of manufacturing units, its relative geographical isolation handicaps it for a programme of large-scale industrialization. The prospect of economic development of the region therefore depends critically on the growth of agriculture and allied activities. Agriculture in Barak Valley, as it stands today, is predominated by small farms growing mainly rice. As per 2010-2011 Agricultural Census, 53.09% of agricultural holdings in the Barak Valley, of which was in the size class of below one hectare. The average size of operational holding works out to be 1.62 hectors, which contains some amount of upward bias due to the large holdings of the tea estates. In 1998-99 rice crops constituted 92.5 percent of the gross cropped area (excluding the area under plantation and tree crops) of the region. The agriculture is almost entirely weather dependent, the irrigation cover being limited to only 2.43 percent of the gross cropped area till 1996-97. Not surprisingly therefore, the region today stands far behind the all India standard in terms of use of improved agricultural practices -and also in agricultural productivity (Roy and Bezbaruah, 2000). Despite the provision of different tenancy reforms in the state share cropping is practiced largely informally in Barak Valley. Though numerous studies have been carried out both at theoretical and empirical level on the issue

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of sharecropping efficiency, no such empirical study has yet been under taken in the State of Assam as n whole and Barak Valley in particular.

Review Of Literature :

On the issue of land tenancy contract, there has always been controversies on a number of theoretical and empirical issues since the day of Adam Smith (1776). The major debates in this regard have been concentrated on share cropping efficiency, factor market interlinkages, modes of production, rationale for the persistence of share cropping along with other forms of tenancy, its implication for technological development and so on. The economist belonging to classical, neo-classical and Marxian tradition have contributed profoundly in these debates.

The decision made so far classical and neo-classical and Marxist tradition analysis, almost all economists have condemned share cropping as inefficient. If the share cropping proves to be inefficient institution how could it's continued over the wide areas of rural India be explained by some empirical studies. The empirical investigation on the issue of share cropping efficiency also gives puzzle picture. The available empirical evidence on the efficiency of alternative land tenure contract is mixed. Some studies do not find significant inefficiency of share tenancy and the distribution of case study results shows no significant evidence of Marshallian inefficiency of share cropping (Otsuka and Hayami, 1988). The studies that support Marshallian inefficient hypotheses are Bharadwaj (1974) in Maharastra, Chattopadhyay (1979) in West Bengal; Bell (1976) in Bihar and Shaban (1987) in Bangladesh. On the other hand, several studies document the fact that share cropping has not adverse effects on efficiency. These includes studies in Gujrat by Vyas (1970); in Andhra Pradesh by Rao (1971); in West Bengal by Dwivedi and Rudra (1973); Parthasarathy and Prasad (1974) in Andhra Pradesh; Bliss and Stern (1982) in Uttar Pradesh, Jabbar (1977), Hossain (1977) and Zaman (1973) in Bangladesh; Ahmed (1974) in West Pubjab in Pakistan; Kauri (2003) in Assam. However, no conclusive evidence has been provided by empirical research to prove inefficiency or efficiency of tenant farming and findings are mixed (Appu, 1975; Rudra, 1982; Bhalla 1977; Murty 1987; Srivastava, 1983). Difference in factor endowments, adoption levels of new technology, geographical location and many more factors have lead to believe that it is not necessary to believe in Marshallian inefficiency of share cropping as a proper result.

Thus, in order to test the significance of the Marshallian logic of 'inefficiency', a large number of case studies have been conducted in India. They compare the average output and inputs per unit of land between share tenancy and owner cultivation or fixed rent tenancy, mostly in the production of rice and wheat. In order to control the quality differences in land and the factor market imperfections, some efforts have been made to classify observations according to irrigation status and the size of cultivation. However, most of these works not only differ at the level of their methodologies that they adopt in selecting criterion variables, but also arrive at mixed and conflicting results regarding the efficiency theory of share cropping. While the majority of studies did not find the inefficiency hypothesis of share

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cropping to be significant, there are some studies reporting inefficiency, hypothesis to be significant. In view of these conflicting findings it has been of interest to analyse in the context of industrially backward and agriculturally depended Barak Valley region of Assam.

Sampling & Data: In the field survey conducted in the six Agricultural Development Officer's (ADO) circles, namely, Fakira Bazar, R.K. Nagar, Narshingpur, Salchapra, Banskandi and Hailakandi, in the three districts of Barak Valley. A total number of 281 farm households have been selected at random from 24 villages were interviewed. From each circle, four villages were chosen at random subject to condition that at least in one village some amount of irrigation facilities must be available. The sample of 281 farm households comprised 39 from Fakira Bazar, 50 from R.K. Nagar, 47 from Narshingpur, 53 from Banskandi, 46 each from Salchapra and Hailakandi. It may be noted that, to draw the sample of farm households, the households in the selected village had to be first classified between farm household and others. The classification was done as per information provided by VLEWs concerned.

Results and Discussion:

Agrarian Characteristics of the Sample Locations: Agriculture is the dominant economic activity in all the villages of the ADO's circle. Of all the ADO's circles, Salchapra and Banskandi have better economic base with diversified occupations of the household members. Compared to agriculture, permanent job outside the villagers are generally considered as quite attractive in the sample survey area.

The dominant practice of agriculture in the sample villages is characterized by the institution of tenancy. Although paddy, pulse, rape and mustard, vegetables (both Kharif and Rabi) etc. are grown in the sample survey area, the tenancy contracts have been observed mainly in paddy cultivation. 'Ahu', 'Sali' and 'Boro' are the three important varieties of paddy. It is grown almost through out the year in three seasons, 'Ahu's harvested in autumn season (August/September), 'Sali' is harvested in the winter (December/January) and 'Boro' is harvested in summer season (April/May). The sample farms in all villages have been cultivating of all these crops. The types of seasonable variety of paddy to be planted depends manly upon the condition of the soil. Sali crop is suitable for soil where sufficient water is available. But Ahu is planted on the soil where there is scarcity of water. The cultivation period for Sali variety is slightly longer than that of the Ahu paddy.

Another important feature of the agriculture in the sample survey area is that most of the farmers follow single cropping pattern. Though insignificant, the incidence of double cropping is observed both in Salchapra and R.K. Nagar circles. The low incidence of double cropping is due to the fact that agricultural practices in the sample survey area are traditional in nature. It depends mainly upon rainfall and there is neither irrigation facilities nor flood control arrangements. The degree of mechanization is almost insignificant.

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Area Cultivated and Cropping Pattern: The cultivated area and cropping pattern of the sample farm households in the six circles are shown in Table-I

TABLE – I

AREA UNDER DIFFERENT CROPS, THEIR PERCENTAGE SHARE IN GCA IN TENANT AND OWNER CULTIVATED FARM

		AREA (IN HECTARE) TOTAL							
		PADDY				VEGETABLES			
1	2	3	4	5	6	7	8	9	10
Circles	Tenurial status	Autumn Paddy	Winter Paddy	Summer Paddy	Total	Winter	Summer	Total	Combined gross cropped area
Fakira Bazar	Tenant	6.30 (23.4)	8.25 (30.7)	3.30 (9.2)	17.85 (64.8)	5.50 (20.2)	3.50 (13.0)	9.0 (33.2)	26.85 (100.0)
	Owner	1.64 (23.6)	1.29 (18.5)	-	2.93 (42.1)	2.56 (36.8)	1.44 (20.6)	4.0 (57.4)	6.96 (100.0)
R.K. Nagar	Tenant	13.25 (24.7)	19.70 (36.7)	6.63 (12.3)	39.88 (73.7)	8.64 (16.2)	5.40 (10.1)	14.04 (26.3)	53.65 (100.0)
	Owner	5.34 (17.8)	6.40 (20.0)	3.67 (12.2)	15.05 (50.0)	13.66 (45.5)	2.34 (4.5)	16.0 (50.0)	30.05 (100.0)
Narshingpur	Tenant	12.36 (34.6)	17.11 (48.0)	-	29.57 (82.6)	5.27 (14.5)	1.49 (2.90)	6.76 (17.40)	36.33 (100.0)
	Owner	2.07 (18.7)	3.09 (27.9)	-	5.16 (46.6)	3.97 (35.9)	1.95 (17.5)	5.92 (53.4)	11.08 (100.0)
Salehapra	Tenant	13.34 (30.4)	17.66 (40.3)	4.52 (10.3)	35.22 (81.0)	6.50 (16.0)	1.79 (4.0)	8.29 (20.0)	43.81 (100.0)
	Owner	.80 (13.5)	1.43 (24.1)	.50 (8.4)	2.73 (46.0)	2.0 (33.8)	1.19 (20.2)	3.19 (54.0)	5.92 (100.0)
Banskandi	Tenant	9.54 (26.5)	15.44 (42.9)	-	24.98 (69.4)	9.12 (25.3)	1.90 (5.2)	11.02 (30.5)	36.0 (100.0)
	Owner	1.39 (6.6)	7.67 (36.3)	-	9.06 (43.1)	9.19 (43.7)	2.74 (13.2)	11.93 (56.0)	20.99 (100.0)

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Hail a-kandi	Tenant	7.46 (25.7)	12.73 (43.8)	5.68 (19.6)	25.87 (89.1)	2.10 (7.2)	1.08 (3.7)	3.18 (10.9)	29.05 (100.0)
	Owner	1.27 (8.0)	1.64 (23.0)	1.49 (15.8)	4.40 (46.8)	5.25 (33.2)	3.13 (19.8)	8.38 (53.2)	12.78 (100.0)
TOTAL	Tenant	62.35 (26.7)	90.89 (43.7)	20.13 (8.2)	173.37 (78.6)	37.13 (15.2)	15.16 (6.2)	52.29 (21.4)	225.66 (100.0)
	Owner	12.51 (15.5)	21.16 (24.7)	5.66 (7.1)	39.33 (47.3)	36.63 (39.0)	12.79 (13.7)	49.42 (52.7)	88.75 (100.0)

Source: Field Survey

Note: Figures in the parentheses represent percentage of respective crop to gross cropped area.

The figures in the Table-1 shows that of 78.6 percent of the combined area under rice cultivation in case of the tenant farms, only 47.3 percent of the combined are under rice cultivation in case of owner farms. Further area under vegetables (both winter and summer) cultivation, 21.4 percent of the combined area is in case of tenants farm and 52.7 percent of the combined area is under owner farms.

This empirical findings suggests that tenants are more attractive in the rice cultivation and less incentive in vegetables cultivation whereas, the owner farm's have more interested in vegetables cultivation.

The agriculture for commercial purpose is, of course, based on the profit maximizing principles of the cultivators. The higher area under vegetables cultivation by owner farm, as has been found in our sample farm, is partly due to the commercial interest of the rich land owners. The market price of the vegetables has been found to be invariably higher than that of the rice cultivation. The rice land owners with their able financial strength cultivate the vegetables more intensively in order to obtain the maximum profit.

Decision Making, Incentive and Efficiency: Tenants in our sample farms enjoy considerable autonomy in making decision about cultivation. In many cases, we observed landlords involved in making decision in the use of inputs (specially where HYV crops are introduced). When landlords consider that tenants have adequate skills and assets for the technologies they use, the tendency is to leave them alone. In either case, the system seems to be flexible and capable of promoting efficiency. Table-2 has shown the adoption of HYVs paddy by tenant farms and owner farms.

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TABLE – 2

COMBINED AREA (IN PERCENTAGE) OF SAMPLE FARMS UNDER HYVS IN TENANT AND OWNER CULTIVATORS

CIRCLES	TENANTS / OWNER	'SALI' (HYV) AREA IN TOTAL PADDY AREA (IN PERCENTAGE)	'AHU' (HYV) AREA IN TOTAL PADDY AREA (IN PERCENTAGE)	PERCNETAGE OF HYV AREA TO TOTAL PADDY AREA
1	2	3	4	5
Fakira Bazar	Tenant	26.86	34.13	61.04
	Owner	24.69	31.52	56.21
R.K. Nagar	Tenant	24.19	17.05	41.24
	Owner	22.56	19.78	42.34
Narshingpur	Tenant	20.24	30.22	50.46
	Owner	18.23	27.47	45.70
Salchapra	Tenant	16.20	10.34	26.54
	Owner	14.12	12.86	26.98
Banskandi	Tenant	19.67	22.92	42.59
	Owner	18.02	21.40	39.42
Hailakandi	Tenant	16.73	23.08	39.81
	Owner	14.23	22.79	37.02
Total	Tenant	23.89	18.21	42.10
	Owner	22.97	18.96	41.93

Source: Field Survey

The figures in the Table-2 shows in our sample farms, 42.1 percent of the tenant farms of their combined are under HYV paddy and 41.93 percent of the owner farms of their combined are under paddy. But there is a considerable variation among the six circles. The highest percentage of both the tenants farm and owner farms of 61.04 percent and 56.21 percent respectively was recorded in Fakira Bazar circle. In Salchapra circle where the percentage was the lowest, the same was low as 26.54 percent and 26.98 percent respectively the tenants farms and owner farms. The farmers in Fakira Bazar might have been helped in using HYVs more extensively by their relative locational advantage. The Fakira Bazar circles is situated just 5 km away from the district headquarter town of Karimganj. The farmers in this circle therefore being benefited by better contract with the district agriculture authority and easy access to various agricultural tenants.

From the above discussion, it indicates that there is no significant difference in the adoption of HYVs by the tenants farms and the owner farms in our sample villages. The only the differences that can exist among the inter-circle variations may due to other constraints.

Cropping Intensity and Productive Efficiency: Higher cropping intensity implies larger cultivated area under the crops. Cropping intensity is sometimes used to explain the relative

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efficiency of owner cultivation and share cropping. However, in our sample villages, almost all the farmers follow single cropping system and there is little differences in cropping intensity of owner operated and share cropped farm. The cropping intensity of the sample farms in the six circles is shown in Table-3

TABLE – 3
PERCENTAGE OF IRRIGATED AREA, LOWLAND AND CROPPING INTENSITY OF SAMPLE FARMS

CIRCLES	STATUS OF FARMER	PERCENTAGE OF LOWLAND OF GCA	PERCENTAGE OF IRRIGATED AREA OF GCA	CROPPING INTENSITY
1	2	3	4	5
Fakira Bazar	Tenant	37.9	42.5	120.7
	Owner	19.1	24.1	116.0
R.K. Nagar	Tenant	50.2	40.5	159.5
	Owner	47.8	45.8	160.0
Narshingpur	Tenant	32.0	45.0	108.9
	Owner	19.7	39.3	105.2
Salchapra	Tenant	54.5	61.9	132.0
	Owner	29.1	36.9	133.6
Banskandi	Tenant	24.9	59.8	112.3
	Owner	29.2	37.5	105.6
Hailakandi	Tenant	34.9	27.2	101.4
	Owner	27.4	29.0	103.4
Overall	Tenant	39.1	46.2	122.6
	Owner	28.7	35.4	123.0

Source: Field Survey

The figures in Table-3 shows that in case of the tenant farm cropping intensity is 122.6 percent and in case of the owner farm it is 123.0 percent. Thus there is little differences in cropping intensity of owner operated and share cropped farm. But any given cropped area can yield more output per bigha with greater effort. This effort is translated into agricultural activities such as deeper ploughing, careful weeding and hoeing, etc. Our empirical result of equal productivity in owner cultivation and share cropping indicates that landowners were able to get their share croppers to cultivate as intensively as owner cultivations.

Productivity Comparison In Tenant's Farm And Owner's Farm

The average productivity measured in terms of yield per hectare in the case of tenants and owner cultivators are presented in Table-4

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TABLE – 4

Circle Wise Comparison of Yield of Rice (Kg/Hectare) Of Tenant And Owner Cultivators

CIRCLES	STATUS OF FARM	AUTUM RICE	WINTER RICE	SUMMER RICE	OVERALL YIELD
1	2	3	4	5	6
Fakira Bazar	Tenant	1730.55	2976.63	1539.13	2094.55
	Owner	2175.30	3253.48	-	2683.71
R.K. Nagar	Tenant	2650.54	2397.76	1898.54	2321.84
	Owner	2205.79	2513.25	2126.86	2694.87
Narshingpur	Tenant	3016.14	3854.82	-	3417.76
	Owner	2872.74	4235.98	-	3886.14
Salchapra	Tenant	2624.53	1759.04	2142.40	2158.40
	Owner	2481.13	2805.74	2423.70	2987.75
Banskandi	Tenant	2723.45	3998.52	-	3376.92
	Owner	3496.48	4012.52	-	3853.65
Hailakandi	Tenant	3875.82	3412.32	2584.56	3304.82
	Owner	2854.95	3592.06	3385.64	2984.56
Overall	Tenant	2667.52	2265.96	2705.89	2518.17
	Owner	2670.52	2268.74	2701.92	2507.92

Source: Field Survey

The figures in Table-4 shows that the average productivity of land of Autumn Rice (Ahu) is 2667.52 kg and 2670.52 kg per hectares respectively in tenant's farm and owner's farm. The corresponding figures for winter rice (Sali) is 2265.96 and 2268.74 kg per hectare for in tenant farm and owner farm respectively. For summer rice (Boro), the corresponding figures are 2705.83 and 2701.92 kgs per hectare respectively the tenant and owner operators. The overall yield rate of 2,518.17 and 2,507.92 kg per hectare in tenant farms and owner farms.

The main point to emerge from the Table-4 is that there is no significant differences in the productivity between the tenants operated farms and self operated farms. Of course, there is little inter-village deviations to these results and thus, it would not be wise to treat the whole, community of share croppers as efficient or inefficient in the use of land under cultivation.

Thus, the empirical results, in general, suggests that there is no significant difference of productivity levels between the tenant operated farms and the owner operated farms. It has been found that share croppers use more labour and bullock power per hectares operated land compared to owner cultivations. This clearly contradicts Marshallian hypothesis of distinctive effect and smaller work efforts under share cropping. Thus the empirical evidence and economic reasoning suggests that Marshallian and related disincentive effects of share cropping are of limited importance in our sample villages. Since the share cropping *per se* has not hurt the productivity in our sample farms, it cannot be interpreted as detrimental to development.

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Our data also support partly the findings of Vyas (1970) and clearly indicate that tenants cultivators cultivate the land more intensively than the owner cultivators but the results of our survey do not provide any conclusive proof of significant yield differences in the owner operated and share cropped land. According to our data, sharecropping does not indicate significant inefficiency in the use of land. This result is again consistent with the findings of Rao (1971) and Rudra and Dwivedi (1973).

CONCLUSION : The dominant practice of agricultural in the Barak Vally of Assam is characterized by the institution of tenancy. A very high percentage of equal share cropping in mostly done on the principle of equal share (may be equal cost sharing or with cost sharing). Although in the some cases, the land owners made arbitrary deduction even before the produce is shared. Also the share cropping contracts led to some kind dependency relationship between the share cropper and the landlord under the circumstances, the landless poor small and marginal farmers are in capable of taking any risk of agricultural modernization. More over, in the absence of security, the tenants have no incentives for higher productivity. As a result, the agricultural scenario in the region is still highly under developed. On other hand, the tenurial conditions by no means is universally perfect in the background of agriculture. The uneasy feudal relationship and unequal economic power in some cases have resulted in 'oppressive' tenurial conditions in the region. In order to pave for a healthy and vigorous development of agriculture as well as protection of tenants in Barak Valley of Assam, the following policy measures have been suggested,

(i) Institutional credit facilities are to be extended to the tenant cultivator and small farmers. This will reduce their dependence on informal source of credit with orbitant rate of interest.

(ii) It should however, be feasible to eliminate the interlocking of the process of social networks and infrastructure of agriculture. The economic status of the tenants cultivators can be improved by providing them adequate irrigation or flood control facilities with regulated tenancy operation.

(iii) Provision of input cost need to be shared by the lessor on the basis of cost of production in proportion of the area rented in by the tenant. This will encourage the modernization of agricultural practice.

(iv) The lessor should not impose any additional responsibilities to the tenant other than works and operations in the tenant operated land. The tenancy legislation must be made effective in rural Assam.

(v) The oppressive tenancy contracts must be made under control by introducing a new reform package including a massive drive of the recording of rights to the tenants.

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Understating Economic Backwardness of the North Eastern Region In The Light Of the Theory of Under Development

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Abstract:

Despite being an advantageous position with rich natural resources, economic backwardness of the North East India is glaring instances of uneven regional development of India since independence. It not only suffer from monetary resources, other economic and non economic factors are also responsible for it backwardness. Generally, the backwardness of the region has sought to explain in terms of what Meier (1970) called 'missing component' and constraints amenable government policy of 'welfarish approach'. A special conceptual framework is needed to correctly identify the maladies that plague the region. In this contest this paper makes an attempt to examine the roots of its backwardness with the light of some importance theories of under development.

Keywords: *Missing components, welfarish approach, left out, Jhumias generous recourses transfer spread effects.*

Introduction: North East India, literally call seven sister is endowed with vast natural resources and is acknowledged as the eastern gateway of India look east policy. Not with standing economic backwardness of the region is a glaring instance of the uneven regional development of India since independence in spite of decades of planning in India. Moreover, the region remains isolated from the rest of India and has not been able to attract investors or produced skilled labour entrepreneurial resource. An economy with abundant natural resources but with out the necessary technology or capital to developed them, is almost as poor as one without these resources (Kurihara,1965). Insurgency problems and autonomy movements have added, political dimension to this scenario of relative backwardness as the social scientists have sought to explain political turmoil and social unrest in terms of economic problem and as the protagonists of various violent and non violent movements have been harping on concept like regional ethnic exploitation and privation, the central government apathy etc. Generally the backwardness of the region has been sought to be explained in terms of what M.G. Mirer (1970), has called 'missing components'. It is pointed out that geographical factor like topography, political factors like long international border and isolation from rest of India, sociological reality like presence of large section of disadvantaged people like the tribals in the population, human

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-ficiencies like primitive technology in agriculture, lack of skill entrepreneur, and over all handicap posed by weak infrastructure retard the economic progress of region. Some of these can be regarded as obstacles limiting the possibility and rate of progress (e.g. hilly, topography, geographical isolation etc.) while some others (weak infrastructure, lack of skill enterprise etc.) may be taken as the constrains amenable to policy measures (Bhattacharjee. 2003). But as Meier opines, the 'missing component' approach is a mechanistic approach that over looks the inter relations among the elements and evolution of the forces of development in an organic process.

The roots of under development have to be searched much deeper. A special conceptual framework is needed to correctly identify the maladies that plague the region. In this context an attempt is made to examine the roots of backwardness with the light of some importance theories of under development.

Dependency Theories: There are still points of serious disagreements among the various strains of dependency theories but there are some core propositions which seen to underline the analysis of dependency theories.

As is well known, dependency theories were originally developed to explain international differences in development Paul Baran, the father of dependency theories attempts to show that economic development in under developed countries is profoundly inimical to the dominant interest in the advanced countries. To avoid such development, the advanced nation will form alliances with pre-capitalist domestic elites and have easy access to domestic resources and thus be able to maintain traditional modes of surplus extraction. With this context the possibilities of economic growth in dependent (underdeveloped) countries would be extremely limited (Baran, 1989). However, frank (1969) has shown that metropolis-satellite chain ensure that surplus generated at each stage is successfully drawn towards centre. It is satellite status which generates underdevelopment as development of the centre necessarily requires the underdevelopment of the periphery (Frank, 1969).

Some centre-periphery models stress the balanced of payments implication of the particular pattern of production and trade between rich and poor countries whish arise from the fact that industrial goods produced traded by rich countries have a higher income elasticity of demand than goods produced by poor countries. In this category lies the model of Prebisch (1950), who arrives at the conclusion that the relative growth rates of periphery and centre will be equal to the ratio of the income elasticity of demand for two countries commodities: $\frac{g_p}{g_c} = \frac{e_p}{e_m}$. Here, g_p and g_c are growth rates of the periphery and the centre respectively and e_p and e_m are income elasticities of demand for primary goods and manufactures respectively. Since $e_p<e_m$. We have $g_p<g_c$ and this explains the widening relatives income gap between the centre and periphery.

The Theory of Circular and Cumulative Causation: Gunar Myrdal (1956) has put forward the hypothesis of circular and cumulative causation as an explanation of the

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backwardness of developing nations. Basically, it is a hypothesis of geographical dualism, applicable to nations and regions within nations and it is intended to account for the persistence of spatial difference in a wide variety of development indices like capita income, rates of growth of industrialization and trade, employment growth rates etc.

Accordingly to Myrdral, once development differences appear, there is set in nation a chain of cumulative expansion in the favoured region which has what Myrdral calls "backwash" effect on other regions. Factors flows from one region to another accentuate income differences instead mitigating them. In a free market, capital as well as labour will tend to move where the prospective return is highest and this will be to the region where demand is buoyant capital, labour entrepreneurship will migrate together. The benefits of trade will also accrue prosperous regions. If production is subject to increasing returns, the region experiencing rapid growth of factor supplies will be able to increase its competitive advantage over the relatively lagging regions containing small-scale industries. In the same way, the general freeing and winding in the international markets and the expansion of world trade will tend to favour the more rapidly growing regions within nations states. In, Myrdral's terms the "spread" effect are always weaker than the "backwash" effects and without state intervention spatial difference in development will tend to widen.

The Theory of Dualism: The feature of dualism has also been considered by many economists to be a casual factor underdevelopment (Singer,2007). There are number are possible definition and interpretation of the term dualism, but in the main, it refers to economic and social divisions in an economy such as differences in the level of the technology between sector or regions, differences in the degree of geographic development and differences in social customs and attitudes between the indigenous and imported social system.

Dualism creates a member of problems. For example, different development strategies will be required to cope with dissimilar conditions in different societies and this may involve real resources costs encountered in developed unified economies. Similarly technological dualism may imbeds progress when the 'modern sector' possess capital impansive method of production with relativity fixed technical co-efficients and the traditional sector is characterized by labour-intensive techniques and variable technical co-efficient. Because in that case absorption of labour from the traditional section in the modern sector will be highly restricted.

Export-Growth Model of Regional Growth-Rate Differences: A.P. Thirwall (1987) shows that it is possible to combines the ideas of Myrdal with the insights of Prebisch and other dependency theorists in a single model called by him "Export Growth Model of Growth-Rate Differences". The hypothesis Thirwall's model is that once a region obtains a growth advantage. It will tend to sustain it at the 'expense' of other regions because faster growths lead to faster productivity growth (Verdroon's Law) which keeps the region competitive in the export in the export of goods which gave the region its growth advantage

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at the first place. Exactly the opposite is true of the region which obtains an export-growth disadvantage.

Relevance the Theories on the North Eastern Region: Now to examine how far the dependency theories are suitable for explaining the underdevelopment of the NER.

Firstly, during the British rule the North Eastern Region was never strongly integrated with British India politically, socially and economically. Even today, the problem of NER is mainly one of weak link and imperfect Socio-economic integration with the rest of India. Therefore, A.G Frank's theory of dependency where periphery is incorporated in to the world economy(in the NERs case via the national economy) to serve the capitalist interest of the metropolis is not applicable to the NER in an unmodified form. However , the careless exploitation of the mineral resources like petroleum, Coal, Wanton destruction of forests to meet the commercial demand of the people in the rest of India, link of the plantation industry with the foreign Capital consequent poor multiplier effect on income and employment, support the dependency theory propounded by Paul Baran who hypothesized that underdevelopment of the backward area is caused by the development of advanced areas.

The model of Prebisch has also some relevance to the North Eastern Region with low income elasticity of demand for its products and high income elasticity of the products it imports from the rest of India. But explanation of regions backwardness derived from such a theory does not touch the root cause as it says nothing about the structural deficiencies of NE economy. The alleged apathy of the Central Government towards the development of the region can not be construed as assign of dependency relation, in the face of high per capita assistance both in plan and non-plan accounts. However, as the Central Government holds control over the infrastructural network like railways, communicational channels, financial institutions etc. the apathy or negligence hypothesis has some kernels of truth in new of the proverbial deficiency in this respect that in the region. Even infrastructure creation is not unrelated to demand and one reason of the underdeveloped infrastructure may be the inadequate demand emanating from defective economic structure of the region.

Secondly, as compared to the dependency theory, Gunar Myrdral's hypothesis of circular and cumulative causations seems to be better suited to explain the relatives backwardness of the North Eastern Region and its inability to participants vigorously in the process of planned development. Following the prediction of Myrdal's theory, both social and economic forces have produced tendencies disequilibrium (regional divergence) in the Indian economic scenario. The growth of the regions like Punjab, Maharastra, Haryana and Gujrat has much greater "backwash" effect than "spread" effect on the economy of the North East in spite of the center's policy of generous resource transfer in this regions on plan and non-plan accounts. The green revolution having greatly bypass the NE states, they are helplessly dependent on import of essential primary products likes rice, fish etc. along with the manufactured items from the rest of India. Capital, entrepreneurship and even skilled labour have been concentrated in the advanced regions. Assam and other North

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Eastern states have not been ale to strength their economics as their base mostly consist of traditionnal agriculture (along with semi-primitive shifting cultivation), small and cottage industries and only few modern enterprises connected with natural oil and gas extraction., oil refinery, power generation, paper mills etc. and the crisis-ridden plantation sector unable to generate dynamism.

Thirdly, the theory of dualism is also relevant to the NER. The North Eastern Region is characterized by dualism of all types described reinforcing each other. The rural-urban dualism is reinforced by tribal-non-tribal dualism and hills-plains divide. Consequently, even the traditional agriculture is technologically divided between settled and shifting type contributing to social dualism between the present farmers jhumias. This grates complicates the problem of development. The problem of the dualism in the North East manifests itself in twofold dilemma in policy adoption. First, in the NER one most distinguish between economic development of an area and economic of its backward section of population especially the tribals. In spite of the policy of the reservation and other measures of protection meant for the tribals and disadvantages groups the spillover of benefits is so large that any meaningful attempt of development inevitably generates inequality not only between the tribals and non-tribals or between the hills and the plains but also between advanced and backward groups of tribals themselves. The geographic dualism in the region is also intimately related to the problem of striking a balanced between the requirements of economic development and those of protecting the fragile ecology of the region. Although the region is very rich in respect of hydel –power potential, forests, minerals etc. these resources can not be exploited to the optimum limit with out keeping in mind the constraint imposed by ecological consideration.

It is observed that dualism as a theory of under-development can explain much of the difficulties faced by the North Eastern Region and it has only theoretical significance but also important policy of implications.

Fourthly, Thirwall's theory has grate relevance for explaining the backwardness of the North Eastern states as they have been unable to participate vigorously in meeting increasing national demand for good through regional exports. The North Eastern sates face great imbalance between their exports and imports and this gap is being met through high rate of resources transfer from the Central Government to the states and generation of disproportionately large services sector. But central resource transfer has failed to have the desired multiplier effect and thus generate dynamics in the North Eastern economy as income leaks out of the region through various channels of imports of both consumptions and capital goods.

Conclusion: The foregoing review of the theories of underdevelopment and examination of their applicability to the North Eastern situation go to the show that although these modes are useful in many ways, they can not answer all questions. The level of economic development of the North Eastern could suggest that there is a wide gap between the potential and actual development. The region is not only more backward than India as

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whole, but its backwardness stands in the great contrast to its resource endowments. In particular theories are unable to explain Government failure in achieving rapid growth of the regional economy. The Government in the political units of region have not been too much concerned with the welfarish approach rather the commodity producing sector and the task of long term, growth. The fact lies at the root of non-fulfillment of the aspirations of people of the region giving birth to strong descent against the national policy. Firstly, it was expected that during the plan period, the rate of economic growth of the NER would be high enough so that a substantial reduction in regional inequality would be achieved. But the in equality seems to be on the increased. Secondly, the natural, resources, particularly forests, minerals and hydral resources expected to utilized for industrialization of the region so that what Bhattacharjee (2003), called 'regional colonialism' would come to on end. Thirdly, in the process of economic development, the indigenous population of the region would have their genuine share of participation in the process of development. Fourthly, it was expected the pattern of economic development would be in conformity with maintenance of the socio cultural identify of tribal groups and their environment and protection of their interests from the attack on the market economy. Finally, the successive Indian Governments supported the Indian 'Look East Policy, built on it. It is this process that a new vision to serve as the gateway to South East and East Asia, Jairam Ramesh, (2005), forcefully argued, "political integration with the rest of India and economic integration with east and South East Asia particularly to certainly one direction that this region must be looking to as a new way of development".

It is alleged that none of these aspirations have been fulfilled during the plan period. The Government in the political units of the region have not much concerned with the welfarish approach and thus, most of these aspiration remained unfulfilled.

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