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Editorial

Human Development and Education – missing links in North Eastern Region

North Eastern states are among the highest literate states in our country. If we take a glance at the literacy rates of these states, it becomes a self satisfying impression for ourselves without any tangible and appreciable effect on our lives and more particularly if we consider the standard of our human developments. Mizoram, one of the states of our region has literacy rate of 91.58 (2011) much higher than the national average of 74.04. Except for Arunachal Pradesh (66.95) and Assam (73.18) all other states of the north eastern region viz., Manipur (79.85), Meghalaya (75.48), Nagaland (80.11), Sikkim (82.20) and Tripura(87.75) have higher literacy rates than the national rate. On the other hand, except Assam (0.336) the Human development index of the other north eastern states (0.473,1999-2000) are also higher than the national average (0.436), and is ranked 4th i.e., medium in status and Assam holds the 16th rank among the other states of India.

Considering such background on literacy and human development, some of the findings confuse us, such as - high percentage of school dropouts rate at elementary level is found in 6 out of 8 states of north east, high variation of total literacy rate within states, for example the Mokokchung district of Nagaland has the highest literacy rate of 92.68, whereas its Mon district has literacy as low as 56.60, a gap of 36.08 percentage points. In the areas of human health, despite high abundance in vegetables and fruits production , the states of Assam, Tripura and Sikkim have high anaemic women ; consistently higher maternal mortality ratio in Assam compared to the national averages, defy the notions of human development. Such notions of development are also challenged by the number of unemployed youths (Assam itself with approximately 13.5 lakhs) and the number of insurgent groups (approx. 40) at large in the region.

Exploring the missing links between literacy – human development syndromes on one hand and unemployed youths and unending growth of insurgency outfits on the other- it is high time to see the policy gapes in implementations. Deeper understanding of the problems of north eastern states and more focused remedial actions and targeted interventions are the demand of the time. For this, what is felt required is more serious introspections on the part of civil society , educational planners, political leaders and more particularly by researchers of the region, which will pave the way for a balanced growth of the region, thereby creating a stable social environment which will become the fulcrum of development .

Dr. Joysankar Hazarika,
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Tezpur

Science Section

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Diallel Experiment Involving Three Genetic Groups of Rabbit in Respect of Body Weight at Weaning and 60 Days of Age

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ABSTRACT

Complete diallel experiment provides a means for estimating the general combining abilities (GCA) of different lines (i.e. genetic groups under consideration) and specific combining abilities (SCA) of different crosses, besides testing for the presence of reciprocal effect (RE), if any. The investigation under report deals with the study of combining ability effects as well as RE in respect of body weights at weaning and 60 days of age in a complete diallel experiment involving three genetic groups of rabbits under the agro-climatic conditions of the north eastern hilly state of Meghalaya.

Key Words : body weight, Diallel experiment, general combining ability, specific combining ability, reciprocal effect.

INTRODUCTION

Rabbit farming is gaining its momentum in State like Assam, India. Rabbit, compared to other livestock species requires low investment at the same time are highly prolific, attains maturity at an early age, grows rapidly and efficient in conversion of feed into meat. In addition, the rabbit meat is white in color, easily digestible, low in cholesterol and sodium content. These potential of rabbits can be well utilized at a commercial or small scale level to address the problems of food scarcity of the country. Only limited studies have been conducted on the performance of rabbits in tropical countries, where climate, diet, management and stock resources can differ markedly from those in temperate countries. It is evident that the body weight and growth rate of weaned rabbits depend on various factors viz., age and weight of dam at kindling, litter size at birth, season of kindling, sex of litters etc. (Rojan *et al.*, 2013, Kabir *et al.*, 2014). The present investigation under report deals with the study of combining ability effects as well as of reciprocal effect (RE) in respect of body weights at weaning and 60 days of age in a complete diallel experiment involving three genetic groups of rabbits under the agro-climatic conditions of the north eastern hilly state of Meghalaya.

MATERIALS AND METHODS

Records of body weight at weaning and at 60 days of age that were generated in a complete diallel experiment involving three ge-

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netic groups of rabbit viz., indigenous rabbit of Meghalaya(I), Soviet Chinchilla (SC) and New Zealand White (NZW) breeds were used in the study. The animals were maintained at the Rabbit Research Farm, Indian Council of Agricultural Research (ICAR) complex for North Eastern Hill Region, Barapani, Meghalaya, and were housed in cages under uniform managemental practices. Weaning was done at 42 days of age. Records of body weights were subjected to the diallel analysis in order to partition the between cross variance into GCA, SCA and reciprocal effect components. Eisenhart's Model I (fixed effect) as described by Griffings (1956) and as explained by Singh and Kumar (1994) was utilised for this analysis. Prior to diallel analysis of data, the records were corrected for significant effects of season of birth and sex of the animal by use of least squares constants (Harvey, 1975).

RESULTS AND DISCUSSION

Prior to diallel analysis data were corrected for effect of season of birth on 60 day's body weight, which was found significant. The effect of sex on body weight at weaning and 60 days and season effect on weaning weight were not observed to be significant.

Body weight at weaning: Analysis of variance revealed that genetic group variation in body weight at weaning was highly significant ($P<0.01$). The average body weight at weaning for the 3 pure lines SC, NZW and I were 608.22, 629.17 and 522.48 g respectively The average weaning weight of various cross combinations including direct and reciprocal crosses also showed considerable variations. In general, the performance of the crosses involving New Zealand White appeared to be relatively better (Table 1).

Table 1. The mean of crosses involving Diallel Experiment in respect of Body Weight at Weaning and at 60 days,

Sire Breed	Dam breed	Body weight(g) at	
		Weaning	60 day
SC	SC	608.22	1013.59
NZW	NZW	629.17	1008.86
I	I	522.48	787.89
SC	NZW	636.61	1037.50
SC	I	540.03	894.45
NZW	I	376.45	1012.23
NZW	SC	652.35	1053.07
I	SC	583.53	968.94
I	NZW	648.04	1007.06

SC = Soviet Chinchilla NZW = New Zealand White I =Indigenous

Table 2. Results of analysis of variance for Combining Abilities in respect of Body Weight at Weaning and at 60 days

Sources of variation	Body weight at			
	Weaning		60 days	
	D.F.	M.S.S.	D.F.	M.S.S.
GCA	2	6099.00**	2	19430.00**
SCA	3	635.83**	3	7143.00**
RE	3	1210.98**	3	1665.59**
Error	1585	95.87	1576	376.44

**P<0.01

Table 3. GCA of different lines, SCA of different Crosses and RE in respect of body weight at Weaning and 60 days

Combining ability effect			Body weight at	
			Weaning	60 days
μ			599.65	983.73
GCA :	g_1		5.17	13.12
		g_2	28.98	49.19
		g_3	-34.15	-62.32
SCA :	s_{12}		10.67	-0.77
		s_{13}	-8.89	-2.84
		s_{23}	17.77	74.04
RE :	r_{12}		-7.87	-7.78
		r_{13}	-21.75	-37.25
		r_{23}	-35.79	-32.41

N.B. Suffixes 1, 2 and 3 means SC, NZW and I respectively

Results of analysis of variance for combining abilities also showed that the effect of GCA was highly significant on body weight at weaning. The GCA (Table 3) was found to be highest in NZW (28.98) followed by SC (5.17) and indigenous (-34. 15). The results suggest that in respect of weaning weight, NZW ought to perform better when crossed with other lines including itself. The variances of body weight at weaning due to SCA and reciprocal effect were also highly significant. In regards to this trait, in the crosses of SC and NZW (S_{12}), and in NZW and I (S_{23}), the SCA was found to be relatively high and positive while in the crosses of SC x I (S_{13}), the SCA was found to be negative. Thus, favourable non-additive gene action is evident in the cross of NZW with the other two pure lines. The reciprocal effects were found to be negative in all the three reciprocal crosses viz. SC x NZW (r_{12}), SC x I (r_{13}), NZW x I (r_{23}), the estimated effects were substantially high in the later two crosses.

The highly significant reciprocal effect as observed in the present study in respect of body weight at weaning indicates presence of maternal effect. In order to exploit the non-additive gene action as well as the maternal effects to the maximum it would be better to

cross females of the superior exotic breeds viz. SC and NZW with the males of indigenous breed. The fact that the GCA effect of NZW was found to be the highest and that SCA of crosses involving NZW were all positive and high, it may be opined that NZW will be a better choice compared to SC when crossing with indigenous rabbits. However, as already indicated, male of Indigenous will have to be crossed with the female of NZW to take advantage of the reciprocal effect.

Comparable to the present findings Sakaguti *et al*.(1998) also reported significant effect of GCA, SCA as well as reciprocal effect in respect of body weight at weaning in a 3 x 3 diallel experiment involving NZW, Californian and SC breeds of rabbit.

Body weight at 60 days: The effect of genetic group on body weight at 60 days was also found to be highly significant justifying diallel analysis for this trait. The averages for body weight at 60 days as observed in the three pure lines SC, NZW and I were 1013.59, 1008.86 and 787.89 g respectively. Variances due to GCA, SCA as well as reciprocal effects were all found to be highly significant on 60 days body weight.

Significant variation in body weight at 70 days of age due to GCA was reported earlier by Carregal *et al.* (1984) in a crossbreeding experiment involving Dutch, NZW, Californian and Buscat Giant rabbits. In the present study, similar to the body weight at weaning, the GCA effect was found maximum in the body weight at 60 days also for NZW(49.19), followed by SC (13.12) and Indigenous (-62.32). The results show that the two pure breeds viz. NZW and SC would perform better in crosses when compared to Indigenous. The SCA effect also shows similar trend to that of body weight at weaning, with highest SCA in NZW x I (74.04) followed by SC x NZW (-0.77) and SC x I (-2.84). The reciprocal effects were found to be profound in crosses of SC with I (-37.25) and NZW with Indigenous(-32.41). An overall appraisal of the GCA, SCA and reciprocal effect would show that in respect of 60 days body weight crosses of Indigenous male with NZW females would result in best cross performance.

The present findings showed that combining ability effects as well as reciprocal effects on body weight at weaning and at 60 days of age were significant. The significant RE was thought to be due to maternal effect – which may not be carried over to adulthood.

CONCLUSION

Records of body weight at weaning(42 day) and at 60 days of age generated from a 3 X 3 complete diallel experiment involving three genetic groups of rabbit viz., indigenous rabbit of Megahalaya(I), Soviet Chinchilla (SC) and New Zealand White (NZW) breeds were used to estimate GCA, SCA and RE (reciprocal effect). The animals were maintained at the Rabbit Research Farm, Indian Council of Agricultural Research (ICAR) complex for North Eastern Hill Region, Barapani, Meghalaya, and were housed in cages under uniform managemental practices. Eisenhart's Model I (fixed effect) as described by Griffings(1956) and as explained by Singh and Kumar (1994) was utilised for this analysis. Effects of GCA, SCA and RE were all found to be highly significant ($P<0.01$) on both the body weights. NZW had the highest GCA followed by SC and I. The fact that the GCA effect of NZW was the highest and that SCA of crosses involving NZW were all positive and high, it was opined that NZW will be a better choice compared to SC when crossing with indigenous rabbits. Further, it was observed that the males of Indigenous will have to be crossed with the females of NZW to take advantage of reciprocal effect.

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Conservation threats of the Gangetic Dolphin *Platanista gangetica gangetica* in River Kulsi, A Tributary of Brahmaputra, Assam, India

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ABSTRACT

A site-specific threat assessment of the gangetic dolphin was carried out in river Kulsi. Threats were identified by extensive literature survey and direct observation in field. Twelve threats were identified after the study. The study was a fervent attempt to identify the threats and prepare a detailed list of these threats faced by the cetacean in Kulsi. The study reiterates that Kulsi is one of the last refuges of the gangetic dolphin and that the threats faced by the animal in this river are to yet to be acknowledged by the concerned authorities in order to conserve this species.

Keywords: Brahmaputra, Conservation threats, Gangetic Dolphin, Kulsi, Site-specific threats

INTRODUCTION

Kulsi is considered as one of the last refuges of the gangetic dolphin in the state of Assam. River Kulsi, though burdened with sand mining and a fast changing environment, still acts as a potential habitat for the gangetic dolphin. Wakid (2005) reported a best estimate of 27 dolphins in Kulsi, in 2008 his team in the same river stretch, recorded a best estimate of 29 dolphins. Earlier studies in Kulsi on the gangetic dolphin have been limited to population assessment, abundance estimate, etc. Studies did aim to identify threats faced by the cetacean in this river, but results showed no detailed list of disturbances or threats. Considering its current state, river Kulsi was assessed to ascertain the threats concerning the river dolphin conservation. Since, endangered species conservation requires many lines of inquiry to provide the evidence required for a holistic approach to conservation planning (Sutari, 2009), the findings of the site-specific threat assessment of the river dolphin in river Kulsi are reported here.

METERIALS AND METHODS

Conservation efforts should be globally planned; local databases and information are vital for effective conservation work plans. The study was an attempt to identify treats faced by the gangetic dolphin in river Kulsi so as to provide a basis to make an

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effective conservation work plan. The identification of threats combined two approaches, (a) Extensive literature survey: To gather information on ecology and threats of the river dolphin, an extensive literature search in Google Scholar and the Gauhati University library was conducted.

(b) Field surveys: The field team fragmented the whole river into six sample sites, namely Satpakehli, Kukurmara, Gumi, Samaria, Champupara and Nagarbera. All surveys were land based surveys. This included observation from high platforms on the banks of the river and walking along the river bank. Surveys were daylong and 12 surveys were carried out in total.

RESULTS AND DISCUSSION

The study was year long and hence all the stresses that were identified were spread around the year. This means that some of the stresses were concerning only in certain seasons. For example, receding water levels. Two main types of stresses were identified i.e., Natural and anthropogenic. Twelve site-specific threats to the Gangetic dolphin were identified during the year long study (Table 1). All these stresses were not observed in all the sample sites. Some sites faced more stresses than other sites (Table 2). Table 1 lists all the stresses and threats identified during the study (i.e in literature survey and field observations). Some were not observed during the field survey but are obvious threats as indicated by literature (e.g. we did not encounter any dolphins entangled in fishing nets or poached by human). It is evident that all these threats are indeed present in Kulsi. A related disturbance observed during the study was the deteriorating condition of the adjoining wetlands. It is said that wetlands are more precious than trees to maintaining global warming. These are the heart of rivers. Kulsi is surrounded by a large number of wetlands. These serve as prey resource for the dolphin. The degradation of the adjoining wetlands is also reported by Goswami and Ali (2009).

Table 1. Showing the identified threats/disturbances in river Kulsi

Nature of disturbances	Types of disturbances	Code
Natural	River bank erosion	E
	Receding water level	R
Anthropogenic	Fishery by-catch	F
	Sand mining	S
	Overfishing	F_o
	Motor boats	B_m
	Vessel strikes	V
	Siltation	S_i
	Dams, barrages, embankments	D
	Introduction of invasive species	I
	Poaching	P
	Pesticide Use in Riparian Areas	P_e

Table 2. Showing the observed threats in the sample sites respectively

Sample Sites	Observed threats (Code)
Satpakheli	E, R, F, S, F_o, P_e
Kukurmara	E, R, F, S, F_o
Gumi	R
Samaria	E, R, F, F_o
Champupara	E, F
Nagarbera	E, B_m,

Code Source : Table 1.

Out of all the sites surveyed, Satpakheli was burdened with the most of number of disturbances viz., river bank erosion, receding water level, over fishing, sand mining, wooden canoes operating the sand mining and use of pesticides in the riparian areas. The study reiterates that the stretch from Ghoramara to Kukurmara is crucial from the conservation point of view. This stretch needs immediate attention.

Concerning natural phenomenon observed in Kulsi are river bank erosion and receding water levels during the pre-monsoon period. Field surveys show that the river in the pre -monsoon season becomes so shallow that the team literally crossed the river on foot in certain areas. These sample sites were Samaria and Satpakheli. Most of the tributaries namely, Boko river, Botha river, Singra river dry up completely in this season risking the very survival of the dolphin in these areas. However in the monsoon season, handsome number of dolphins were observed in these sites.
The threats are discussed below in detail:

Receding water levels: All freshwater cetaceans require adequate water flow and water quality within their range; these are the basic elements of a suitable habitat and are needed by the animals to support their physical health, mobility and ability to forage efficiently. It is important to determine which habitats are preferentially used by dolphins during the low-water season so that conservation efforts can be focused in these locations. In the dry season, channel constrictions, confluences and channels with high cross-sectional areas are all high-use dolphin habitats that could benefit from management as discrete dolphin conservation zones (Sinha & Kannan, 2014).

River bank erosion: River bank erosion is also concerning in all the sample sites except Gumi. The erosion causes siltation. Felling of trees on the river is not only a disturbance for the dolphins but also concerns the whole of the aquatic ecosystem. It stops the normal flow of the river, in some cases it might even change the direction of the flow.

Sand mining: Mohan *et al*. (1998) reported sand mining as the greatest threat to dolphins in Kulsi river. He reported that the population was declining from 1992 to 1995 at a rate of 14－29%. Another disturbing fact is that the major livelihood of the villagers in this area is sand mining, not fisheries as is the case in all other dolphin habitats of Assam. Although the high rate of sand mining is one of the major disturbing factors to the dolphins of Kulsi, Wakid and Braulik (2009) in their report are of the opinion that it has had the effect of maintaining or possibly increasing the depth of the river which may have a positive effect on the dolphins. Whether sand mining is a threat or a hidden bliss for the river is still under question.

Dams, barrages and embankments: Dams, barrages and embankments are also evident threats to the river dolphins. Kulsi multipurpose project is proposed to have a 42 m high dam with installed capacity of 29 MW by Brahmaputra board, Ministry of Water Resource. The Kulsi Multipurpose Project envisages construction of an earthen dam across the river Kulsi at about 1.5 km downstream of Umkiam village in Assam. This dam construction will destroy all the resources including dolphin and fish of the river (Goswami & Ali, 2012). Construction of at least 50 dams and barrages within the known or suspected historical range of the Ganges dolphin (Smith et al. 2000) has dramatically affected its habitat, abundance, and population structure during the last 45-50 years. Dams and barrages restrict the movement of dolphins, rendering them isolated into separate sub-populations. Embankments cause sediment deposits in the riverbed instead of in floodplains, thereby eliminating or reducing the extent of the eddy-counter currents, where dolphins are generally found (Smith et al. 1998). The embankments also restrict access of riverine fishes to the floodplain habitat critical to their reproduction and growth (Boyce, 1990). The cumulative effects of these projects/activities compromise the ecological integrity of the riverine ecosystems, especially the small tributaries where the suitable habitat is limited and disproportionately vulnerable to local disturbance. Declining flows in the rivers have received little attention for a long time. The newly established National Ganga River Basin Authority by the Indian government in 2009, an apex body under the chairmanship of the Prime Minister of India, has the mandate of "*Aviral Dhara Nirmal Dhara*" (uninterrupted quality flow). Such efforts may help restore the riverine environment (Sinha & Kannan, 2014).

Pesticide dumping: Rivers are generally in close proximity to human activities and, therefore, are ultimate sinks for the discharge of sewage and industrial wastewater that emanates from human activities. In Kulsi most riparian zones are agricultural fields where use of pesticide was common. These pesticides make their way to the river ultimately. It was found that gangetic dolphins have a low capacity to metabolize some toxic pollutants. The proximity to intense pollution sources and low capacity to metabolize pollutants make the gangetic dolphins vulnerable to the effects of chemical pollution. Several studies have shown that some freshwater aquatic mammals, such as mink and river otter, are very sensitive to the effects of chemical pollution (Kannan et al. 2000). Thus, studies are needed to assess the impact of pollutants on the health of river dolphins. In addition to the contaminants that arise from sewage pollution and diseases in river dolphins should be examined in future studies.

Fishery by-catch and poaching: These are disturbing activities in Kulsi, as well. Fishery by-catch is incidental whereas poaching is deliberate. Mortality from fishing gears, especially monofilament nylon gillnets, is a severe problem for the gangetic dolphins throughout their range (Sinha, 2002). Dolphins are particularly vulnerable, because their preferred habitat is often in the same location as the fishing grounds. A specific problem is that, because dolphin oil is highly valued as a fish attractant, fishermen have a strong incentive to kill any dolphin found alive in their nets and even to set their nets strategically in the hope of capturing dolphins, which is termed "assisted incidental capture" (Sinha, 2002). Meaningful quantitative data on the magnitude of catches, either deliberate or incidental, are unavailable and unlikely to become available in the absence of organized fishing in the river system. Most of the riverine villagers

in remote areas believe that dolphin oil has medicinal value and they use it to treat different rheumatic diseases (Wakid, 2005).

Motor boats: The operation of motor boats was observed in Nagarbera, close to the confluence of river Kulsi and Brahmaputra. The effects of motor boats on river dolphins are not yet well understood, but they do cause a lot of noise pollution. gangetic dolphins in some parts of Ganga show longer surfacing time-intervals than normal in presence of motor boats, i.e. they remain under water for longer (Kelkar, N. pers. comm. September 2014). Jelil (2013) reported that sites with noises of motor boats or other machines such as motor water pipes showed a decreased number of or no dolphins in river Brahmaputra.

Exotic species: Presence of potentially harmful exotic co-predators of the dolphins are reported by Goswami and Ali (2012) in Kulsi. Abundant number of the Thai Catfish or locally called *Thailand magur* (*Clarius garripinius*) are present in Kulsi. Other exotic fishes reported by Goswami and Ali (2012) are common carp (*Cyprinus carpio*), Grass carp (*Ctenopharyngodon idella*), Silver carp (*Hypophthalmichthys molitrix*), Big head carp (*Hypophthalmichthys nobilis*) and Japani kawai (*Oreochromis mossambica*). The presence of exotic co-predator species such as the Thai Catfish proves the presence of inter-specific competition, which could become rigorous in scarcity of various resources that they equally depend upon. Thai Catfishes are reported to injure turtles in Hajo Pond, Assam, biting off flesh from the hindlimbs and forelimbs. (Malakar, P. pers. comm. June 2012). This exotic species may harm the dolphins as well, which are much more fleshier and vulnerable than the turtles. So they not only compete for the same resources as the dolphin but can also potentially injure/harm them physically.

CONCLUSION

The study identified a total of 12 threats faced by the dolphins in river Kulsi. Six sites were surveyed in this study. Studies carried out in different sites than the sample sites of this study may reveal new and more threats faced by the dolphins. Regular monitoring may also increase the list of threats. Concerned authorities must take note of all these threats. The need of the hour now is to come up with a conservation plan to stop or at least decrease the magnitude of the effects of these threats.

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Improvement in Economic Traits of the Eri Silkworm, *Samia ricini* (Donovan) by supplementation 1 & 2% Protein as a Diet

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ABSTRACT

Nutrition plays a crucial role in sericulture by improving the viable characters of silkworm. Silkworm being a monophagous insect derives almost all the nutrients required for its growth from the Castor leaves *Ricinus communis*) itself. Additional supplement of protein can act for the production of good qualified cocoon and silk. The nutritional supplement of 1% & 2% protein concentration may influence the larval growth of eri silkworm *Samia ricini* D. which eventually reflects in the economic traits. Larvae fed with castor leaves enriched with 1 & 2% protein showed significant enhancement in morphometric growth rate in larval, pupal and cocoons along with feed efficiency as well as tensile properties of the silk fibers although *Ricinicus* leaves treated with protein (2%) fed larvae recorded a maximum effect over control The present investigation was therefore commenced to study the effect of protein on the quantitative traits of *S. ricini*.

Key words: morphometric growth, nutritional supplement, *Ricinus communis*, *Samia ricini,* tensile properties

INTRODUCTION

Nutrition plays a key role in sericulture by improving the viable qualities of silkworm. Eri silkworm *Samia ricini* D. derives almost all the nutrients required for its growth from the castor leaf itself (Ito, 1978). The intake of nutrient by the larvae is also proportional to the availability of feed. The silkworm nourishment is considered as a major area of research in sericulture (Legay, 1958; Sampath *et al.*, 2013). Nutrition study on silkworm is an essential precondition for its proper profitable management. Nutrition can act as a sole factor for improvement of quality and quantity of silkworm (Laskar and Datta, 2000). Sannapa *et al*. (2002) and Etebari *et al*. (2004) has made attempts with nutrients such as proteins, carbohydrates, vitamins hormones antibiotics etc. for better performance and to get high yield and quality cocoons. Jeyapaul *et al*.(2003), Hemmatabadi *et al.* (2014) and Sheeba *et al*. (2006) have tried to give addition feed supplements along with castor leaves to enhance economic characteristics of the silkworm. The present investigation was therefore, undertaken with an aim to study the effect of additional supplement with protein 1% & 2% on the quantitative traits of *S. ricini* D.

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MATERIALS AND METHODS

The present study was carried out in the sericulture room of Pragjyotish College, Guwahati..from the month of February to April 2015. Fresh disease free laying was procured from Eri Silkworm Seed Production Center Azara (Assam) under Central Silk Board (GOI). Protein at different concentrations of 1% & 2% were prepared from the stock solution. Fresh Castor leaves were cleaned. Weighed quantities of leaves (depending on larval stage) were dipped separately with 1% & 2% protein of different concentrations. The treated leaves that were dipped in 1% & 2% protein concentrations were allowed to dry in shade for 15 min prior to feeding. The third instar larvae were fed with treated leaves and control were given untreated leaves. Rearing was done as per the method of Krishnaswami *et al*. (1973). Larval weights were recorded regularly for both control, and treated (1 & 2%) protein groups. Observations on larval weight, cocoon weight, pupal weight, shell weight and shell percentage were recorded both for all the treatment. Consumption and growth parameters were measured on dry weight basis (Waldbauer, 1968; Kumar *et al*., 2009). Fibres were acclimatized in standard conditions of humidity (65%) and temperature (25^0C) for 24 hours. The deniers (linear density) of all the fibres were measured out separately. The fibres of the control and 1% & 2% protein treated eri silkworm were tested for breaking tenacity, percentage elongation at break, All the values were statistically analyzed and are presented as Mean±SD.

Table1. Feed efficacy data of *Samia ricini* fed in different treatments

Experimental Groups / Concentration		Food Consumption Rate (gm)	Food Utilization Rate (gm)	Food Digestibility (%)	Food Consumption Index (%)	Co-efficient of Food Utilization (%)
3rd Instar	Control	27.10±1.15	23.34±0.14	65.11±0.31	17.41±1.04	64.39±0.56
	Protein 1%	27.27±1.05	23.87±0.11	65.23±0.09	17.71±1.12	64.45±0.15
	Protein 2%	27.48±1.08	24.09±0.31	65.44±0.11	17.94±1.11	64.66±0.30
4th Instar	Control	29.61±0.89	27.36±1.69	69.49±1.11	11.52±1.19	69.24±0.83
	Protein 1%	29.76±0.11	28.95±1.01	69.59±0.19	11.99±1.15	69.58±0.09
	Protein 2%	29.96±0.21	29.75±1.11	69.76±0.12	12.19±1.25	69.76±0.19
5th Instar	Control	25.51±0.78	23.12±1.19	64.24±0.25	13.77±1.48	62.73±0.53
	Protein 1%	24.62±0.16	24.19±1.22	64.38±1.15	14.02±1.11	62.94±0.15
	Protein 2%	24.83±0.19	25.36±1.49	64.49±1.10	14.52±1.09	63.04±0.13

Values are Mean ± Standard Deviation of six observations

Table 2. Growth rate of of *Samia ricini* fed in different treatments

Experimental Groups / Concentrations		Larval length (cm)	Larval weight (gm)
3rd Instar	Control	2.12±0.21	2.41±0.07
	Protein 1%	2.39±0.12	2.46±0.10
	Protein 2%	2.55±0.11	2.56±0.09
4th Instar	Control	3.05±0.16	5.45±0.24
	Protein 1%	3.41±0.12	5.66±0.07
	Protein 2%	3.76±0.10	5.76±0.12
5th Instar	Control	4.54±0.35	6.85±0.38
	Protein 1%	4.66±0.10	7.28±0.11
	Protein 2%	4.75±0.12	7.58±0.19

Values are Mean ± Standard Deviation of six observations.

RESULTS AND DISCUSSION

The results of present investigation indicated the impact of protein on growth and economic parameters of *Samia ricini*. Different concentration of protein (1 and 2%) fed to the III Instar larvae of silkworm shows changes in growth and economic parameters of silkworm *Samia ricini* (Prabu *et al.*, 2012). The feed efficiency as observed was found highest with 2% protein treated group but food consumption rate, food utilization rate, food digestibility, food consumption index and co-efficient of food utilization decreased in the fifth instar, probably because of greater expense of energy due to the approach of maturity (Table 1). Larval length and larval were found increasing (Venkatesh Kumar *et al.*, 2014) from 3rd to 5th instar but highest result was observed at 2% protein treated larvae (Table 2). Characteristic of Pupa in terms of length (2.38±0.10 cm), width (1.19±0.09cm) and weight (1.22±0.08gm) was found highest at 2% protein (Table 3). Average length of cocoon was found highest at 2% protein (3.46±0.10), followed by 1% (3.38±0.09) and control (3.31±0.35) (Table 4). Filament length was recorded maximum in 2% protein treated group with 1.99±0.09m in length (Table 5). The highest feed efficacy data was observed in 2% of protein. It was evident from the experiments that, protein treated leaves fed larvae showed a significant enhancement in reeling performance (Devi and Yellamma, 2013, Sundaramahalingam *et al.*,

Table 3. Growth rate of *Samia ricini* larvae produced pupae

	Growth Parameter of Pupa (insert)		
Experimental Groups / Concentration	**Length (cm)**	**Width (cm)**	**Weight (gm)**
Control (C)	2.12±0.31	1.08±0.11	1.01±0.11
Protein 1%	2.25±0.12	1.14±0.07	1.18±0.09
Protein 2%	2.38±0.10	1.19±0.09	1.22±0.08

Values are Mean ± Standard Deviation of six observations.

Table 4. Morphometric data of control and Protein 1 & 2% treated castor leaves fed *Samia ricini* larvae produced cocoon

	Parameter of Cocoon		
Experimental Groups/ Concentration	**Length (cm)**	**Width (cm)**	**Weight (gm)**
Control	3.31±0.35	2.09±0.11	3.67±0.09
Protein 1%	3.38±0.09	2.22±0.11	3.81±0.09
Protein 2%	3.46±0.10	2.31±0.10	3.99±0.07

Values are Mean ± Standard Deviation of six observations

Table 5. Tensile properties of the fibers of *Samia ricini* (D) treated with 1 & 2% Protein with castor leaves.

Experimental Groups / Concentration	**Tenacity (g/den)**	**Denier(g/m)**	**Filament length (m)**	**Elongation (%)**
Control	2.05 ±0.04	450.00 ±5.098	1.08 ±0.02	0.19 ±0.09
Protein 1%	2.45 ±0.10	506.00±2.168	1.56±0.09	0.38 ±0.09
Protein 2%	2.85 ±0.10	516.00±2.168	1.99±0.09	0.65 ±0.09

The values are Mean ± Standard Deviation of 5 replication

1998). Maximum cocoon length (3.46±0.10) was observed in 2% protein fed (Table 4). The cocoon length of 3.31±0.35 was recorded in control. The results were found to be statistically significant.

Filament length is considered to be more important for the reeling parameters. The result indicated that, the treatment with supplementation of 2% protein showed maximum length (1.99±0.09m, Table 5). In the present study, denier was calculated for the filament produced by control and treated worms. Denier was found to be the maximum in worms treated with 2% protein supplement (516.00±2.168g/m). It was followed by larva treated with 1% of supplementary food (506.00±2.168g/m) which clearly indicated that yarn quality was found better in 2% protein treated group as fabrics with a high denier count tend to be thick, sturdy, and durable. The higher denier count may have a relationship with the quality of silk protein (Nath *et al.*, 2013, Iizuka,. 1998 and Rao, 1978). The percentage of change over control is highly significant in all the treatments.

The highest Food Consumption rate, food digestibility rate was observed in 2% concentration of protein for V Instar larvae, followed by 1% and then by control, the same was also observed for IV Instar larvae and III Instar larvae when compared with control. An analysis of food consumption index showed significant difference with highest (17.94±1.11) was noticed in 2% concentration of protein for III Instar larvae when compared with the control (17.41±1.04, Table 1).

Co-efficient of Food Utilization was highly significant in III and IV Instar 2% treated worms. There was a tremendous increase in the weight of the larvae in treated groups in all the Instar stages (Table 2). Highest weight gain was observed in 2% concentration of protein in III Instar treated larvae (2.56±0.09g) against control (2.41±0.07 g) followed by IV Instar treated larvae (5.76±0.12 g) against 5.45±0.24g in control and 6.85±0.38g was recorded in V Instar control larvae against the 2% protein treated larvae (7.58±0.19g). The results of the present study recommend supplementation of protein along with castor leaves for feeding *Samia*. It also indicated that 2% protein (Kedir *et al.,* 2014) is the optimum dose for the better performance of rearing and reeling parameters of silkworm *Samia ricini* (D).

CONCLUSION

The results of the present study recommend supplementation of protein along with Castor leaves for feeding *Samia ricini* (D). It also indicated that different protein concentration can act for the better performance of rearing and reeling parameters of silkworm *S. ricini*. The treated group was found to produce better quality fiber as seen from the results of the tensile parameters. Although the feeding habit, life cycle etc. was similar the additional supplementation may have given rise to the differences found in the tensile properties possessed by the silk fiber produced by them. This finding will be helpful in accessing the quality parameters of the eri fiber as well as to adopt better strategies to improve the properties of the silk produced.

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Extending Social Protection through Microinsurance: A Study in the Indian Context

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ABSTRACT

Death, illness, unemployment, disability and similar other occurrences bring to the life of the victim as well as his/her family members severe economic perils in the form of unforeseen loss of income or financial expenditure. The exposure is perceived to be higher for the economically vulnerable working class pertaining to the informal sectors of the developing countries, more or less excluded by the state social security schemes. Social protection consists of policies and programmes designed to reduce poverty and vulnerability by promoting efficient labour markets, diminishing people's exposure to risks, and enhancing their capacity to manage economic and social risks, such as, unemployment, sickness, disability etc. Although, the formal social security schemes of the state have similar objectives, but, in the context of widespread informal economy, as in case of India where more than 90 percent of the workforce is engaged in the informal sector, the formal social security arrangements are almost absent for the vast majority of the working population. Therefore, other ways must be developed to realize the vision of social protection for all. In the recent past, the social protection strategies of the governments of many developing countries including India have stressed on Microinsurance as an instrument to extend social protection to the economically disadvantaged. Hence, this paper attempts to study why and how microinsurance is used to extend social protection to the poor and its role in the social protection strategy of the Government of India. The study is based on secondary data.

Keywords: economically vulnerable, informal sector, social protection, social security, microinsurance, strategy

INTRODUCTION

'Social security' and 'social protection' are the buzz words in the recent times. Social security is based upon a concept set forth in Article 22 of the Universal Declaration of Human Rights which states, *Everyone, as a member of society, has the right to social security and is entitled to realization, through national effort and international co-operation and in accordance with the organization and resources of each State, of the economic, social and cultural rights indispensable for his dignity and the free development of his personality.* In simple terms, the signatories agree that society in which a person lives should help them to develop and to

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make the most of all the advantages (culture, work, social welfare) which are offered to them in the country.

According to International Labour Organization (2000), social security is the protection which society provides for its members through a series of public measures:

- To compensate for the absence or substantial reduction of income from work resulting from various contingencies (notably sickness, maternity, employment injury, unemployment, invalidity, old age and death of the breadwinner),
- To provide people with healthcare
- To provide benefits for families with children

Social protection refers to a set of benefits available (or not available) from the state, market, civil society and households, or through a combination of these agencies, to the individuals/households to reduce multi-dimensional deprivation. This multi-dimensional deprivation could be affecting less active poor persons (such as the elderly or the disabled) and active poor persons (such as the unemployed). Social protection, as defined by the United Nations Research Institute for Social Development, is concerned with preventing, managing, and overcoming situations that adversely affect people's well-being. Social protection consists of policies and programs designed to reduce poverty and vulnerability by promoting efficient labour markets, diminishing people's exposure to risks, and enhancing their capacity to manage economic and social risks, such as, unemployment, exclusion, sickness, disability and old age.

This broad framework makes this concept more acceptable in developing countries than the concept of social security. Social security is more applicable in the conditions, where large numbers of citizens depend on the formal economy for their livelihood. Through a defined contribution, this social security may be managed. But, in the context of widespread informal economy[1], formal social security arrangements are almost absent for the vast majority of the working population. Besides, in developing countries, the state's capacity to reach the vast majority of the poor people may be limited because of its limited infrastructure and resources. The framework of social protection thus holds the state responsible for providing for the poorest populations by regulating non-state agencies. In some countries, governments are strongly involved in the provision of social protection, following a development model, in which social protection is seen as a tool to promote economic growth. There are also nations which are characterized by dualism, in which there is state-provided protection for those who work in the formal sector, but little to no protection for those who work in the informal sector. Finally, there are nations in which the economy is largely agrarian, and a great majority of the population works in the informal economy. In those countries that have only residual social protection coverage and weak state capacity, social protection is mainly provided by non-governmental means such as kin, NGOs, and individual philanthropic donations. Thus, social protection includes, apart from public security schemes, private and non- statutory schemes with similar objectives. Other organizations such as World Bank and Asian Development Bank use a broader term -Social Risk Management (SRM) which is inclusive of the concept of social protection.

This broader view includes promotional interventions to increase assets or economic opportunities (such as microfinance programmes, price supports or commodity subsidies) besides protecting mechanisms.

"*Right to equality*" – three words that represent a right for the human kind, granted to it

by the Article 7 of the Universal Declaration of Human Rights, the Constitution of almost all the countries worldwide. In the context of social security, the right to equality has two important interpretations-

i. States must take measures to guarantee this right to their respective populations;
ii. Equitable access to such social security measures without exception or discrimination.

However, the international picture describes a different scenario. Although Article 22 of the United Nations Declaration of Human Rights (1948) states that, "every member of the society has the right to social security," approximately 75 percent of the world population is inadequately protected, and approximately 40% lack even basic protection. Confronted with these figures, the recommendation of the ILO Social Protection Floor Initiative (SPF-I) calls for a pragmatic step-wise approach to social protection, defining some minimum social security benefits that should be extended to the underserved as soon as conditions allow.

In many developing countries, the social security measures cover only a small proportion of the entire population. In the sub-Saharan Africa and South Asia, only 5 to 10 per cent of the population is covered by a statutory social security scheme, primary old age pension schemes and access to healthcare. Till the end of the 20th century, social protection strategies were based on the assumption that the *formal economy* would progressively take over the traditional economy and therefore social security would progressively cover a larger proportion of the work force. But this has not happened. In many developing countries, most of the jobs created in the last decade have been in the *informal economy.*

In India itself the proportion of informal employment amounts to 93 percent. Although some states have been constantly trying to extend the coverage of social security measures to workers in the informal economy, they are still far lagging behind.

It is therefore the need of the hour to find other ways to realize the vision of social protection for all. This is where the concept of insurance, more precisely, micro-insurance comes in. Microinsurance schemes are often initiated by civil society organizations. Increasingly, these organizations cooperate with formal social security schemes, public institutions (e.g. departments of health, labour and social affairs) and service providers (insurance companies, health care providers etc.). Sometimes even municipalities or local authorities are involved in offering micro-insurance.

The microinsurance mechanism need not vie with or displace public social protection. Such an approach would overload the scope of protection microinsurance can offer with its limited benefits and would be politically problematic as it cannot comply with the three social protection principles of universality, equity, and solidarity. Their potential as tools to extend social protection is increased when the governments recognize their interest and include them as a key dimension in their national strategies of extension of social protection, linking them to other components of the social protection systems in order to create a progressively more coherent, efficient and equitable system of social protection for all. But looking at the huge protection gap and following the realistic recommendation of a step-wise approach to social protection, microinsurance can have significant advantages for uncovered or under-covered people.

Microinsurance can also provide enhanced protection for the near-poor, as well. These people are just above the eligibility criteria in most of the social assistance and poverty reduction programmes, thus remaining unprotected despite their vulnerability. Microinsurance would also be useful for those low-income

people that earn above the threshold amount for accessing current targeted social protection benefits, yet earn too little to buy insurance products from commercial insurers. It has vast potential for seasonal and internal migrant workers and could even be useful for people working in enterprises which officially fall under formal economy laws but are not officially registered and, hence, do not provide statutory benefits to their employees.

REVIEW OF LITERATURE: Before initiating the present study, an extensive survey of the relevant studies and contributions by the past researchers, authors and organizations has been undertaken. The most important and influential among them are briefly discussed below:

Wiechers (2001) conducted case studies of a few countries to analyze the role of microinsurance within the respective countries' social protection systems. The study concluded that very few countries have formally discussed or even defined the role of microinsurance within a social protection system. The study established that governments, usually, aim for a social protection system that achieves universal coverage by a single, public scheme, e.g. government-run social health insurance. Case studies of Rwanda, Cambodia and Brazil were undertaken to identify the instances where microinsurance has been used as an element of social protection framework.

In a study conducted by Ahuja and Guha-Khasnobis (2005), an analysis of the factors leading to the development of microinsurance in India has been undertaken. Besides the study also highlights the issues in extending insurance to low-income people; focusing on two specific issues, namely the effect of flexibility of insurance premium and of combining micro-insurance with micro-finance. The study establishes the fact that the poor have an irregular and uncertain income stream, and therefore, flexibility in premium collection is needed to extend the micro-insurance net far and wide. Moreover, MFIs were found playing a significant role in improving the lives of poor household and linking micro-insurance with microfinance makes better sense as it helps in bringing down the cost of lending. On the basis of the findings the study recommends that, the link between micro-insurance and micro-credit should be strengthened further.

The review of a book edited by Churchill (2006) brought in to light the basic concepts and key issues relating to the social protection perspective on microinsurance through a chapter contributed by Jacquier, Ramm, Marcadent and Schmitt-Diabate. The chapter mainly focuses on the positive contributions and limitations inherent in the extension of social protection through microinsurance. Besides, through examples of initiatives taken by the governments of a few countries such as Cambodia, Senegal, India etc. an effort has been made to discuss how microinsurance can be used to extend social protection.

KPMG (2013) prepared a report on the prospects of the Indian insurance industry emphasizing specifically on the country's microinsurance potential. The study encompasses a critical analysis of the Indian microinsurance industry and the regulatory framework within which the industry operates. Moreover, the study recognized the various issues and challenges impeding the growth of microinsurance in the country and recommended a few ground level measures for scaling-up microinsurance business and further microinsurance penetration.

Ramm and Ankolekar (2014) conducted a study on the social protection strategies of the governments of six countries. The paper synthesizes the key messages of the country studies (Bangladesh, Brazil, Cambodia, India, Rwanda, and Vietnam), formulates lessons learned, and provides recommendations for bet-

ter integration of microinsurance with social protection

GAP IN EXISTING LITERATURE: In course of the review many studies, articles and reports were found addressing the social protection dimension of microinsurance. Particularly, the case studies of the social protection strategies of the various countries including India elicited a lot of relevant literature which have enriched the researchers' knowledge in the concerned area of study. However, the researchers are of the view that a more detailed study relating to the application of microinsurance in India's social protection policies would be a valuable addition to the existing body of knowledge. Hence, the present study attempts to carry out, in a more detailed manner, an analysis of the initiatives taken by the Indian government in extending social protection across the economically vulnerable masses applying the microinsurance instrument.

OBJECTIVES OF THE STUDY: Keeping the gap that exists in the literature available, the present study has been designed with the following objectives.

1. To elucidate the social protection standpoint of micro insurance; and

To study the scope and application of microinsurance in the social protection strategy of the Government of India.

RESEARCH METHODOLOGY: The present study is exploratory and descriptive in nature. It is based on the data collected from secondary sources. The facts presented in the paper have been collected from reliable sources, which include Annual Reports and publications of IRDA and various reports and journals.

DISCUSSION

Micro insurance as a social protection instrument: Micro insurance as defined by Churchill, "is the protection of low-income people against specific perils in exchange for regular premium payments proportionate to the likelihood and cost of the risk involved"

Within the context of social protection, microinsurance is one possible instrument to mitigate risks and reduce vulnerability of poor and low income households, particularly in the informal economy. Microinsurance is not conceptualized as a mechanism that competes with or replaces public social protection. It is most effective when embedded into a comprehensive social protection framework that goes beyond public social protection measures and includes informal, private, and other public risk management strategies of preventive measures, mitigation, and suitable coping strategies. The respective governments of six countries, namely, Bangladesh, Brazil, Cambodia, India, Rwanda, and Vietnam have recognized the need for social protection, especially for vulnerable people in the informal sector, and these six countries established:

- Some universal programmes for all citizens, such as basic education, skills training, and basic health care;
- Statutory social protection for the formal economy, civil servants, and the military;
- Social assistance and other targeted poverty alleviation programmes for the poor and vulnerable around the poverty line, special groups (such as people with disabilities), and ethnic groups, and other relief programmes for affected people.

Some countries have employed the following strategies to integrate microinsurance into their social protection policies:

- Using microinsurance as a transitory instrument towards universal health insurance;
- Creating separate social protection legislation (including microinsurance) for

the informal economy;

- Defining the role of microinsurance in the context of social protection.

The strategies employed by the six countries are, as expected, diverse. Also important to note is that whilst explicit government policies on microinsurance are absent in certain countries,[7] other methods of extending social protection coverage to the informal economy exist. Perhaps, as it appears from the study on the social protection strategy of the above mentioned counties, one of the most important methods in micro insurance.

Why Microinsurance for Social Protection?

- *Protection from major risks with little money:* In the developing countries, like India, an important feature of the poor is constant economic insecurity and lack of financial reserves or savings making them more vulnerable to the various forms of personal and environmental risks which drive them deeper into poverty, such as illness, accident, death of breadwinner, loss of economic assets etc. The common and traditional forms of protection include loans from moneylenders, village community and the public social security arrangements. However, such loans from moneylenders of village community are provided against some form of security, with a very high probability of loss of the security by the victim due to inability to repay the loan, further making them poorer. The formal security schemes of the Government can and do prevent the impoverishment of people with no or little income, but there are severe questions relating to the outreach of such schemes and their implementation, with specific regard to deserving and actual beneficiaries.
- *Micro insurance is one way of hedging the impact of general risks such as illness, old age, and death:* It provides people with low income an opportunity to buy appropriate insurance for small premium. By providing better protection against risks, microinsurance supports poor people's initiative to escape from poverty through their own efforts. People with low income have a chance to invest more in their productive assets and in education and health, provided they have affordable protection against unpredictable risks.
- *Life and Accident microinsurance- a ray of hope in the darkness of misery:* Death of a family member before age, that is due to some form of illness or accident of always a painful experience. And if today's dead was the family's breadwinner till the day before, it calls for severe economic perils and impoverishment for the entire family. Life or accident micro insurance that is tailored to the needs of low-income people cannot take away families' grief, but it can help them overcome financial crises in hard times.
- *Reducing the risks of impoverishment due to illness*: 93 per cent of India's workforce pertains to the informal sector (ILO, 2011). This means that they have no health insurance through their jobs or from the government. Although the public hospitals in the country provide free medication and cure, for more severe forms of illness the poor too have to resort to better but costly medical services. If there is no insurance, entire families often go into debt when someone falls ill. On the other hand, inadequate medical treatment (or no treatment at all) may result in a person's los-

ing their ability to work and thus, in permanent income loss. So the reimbursement of payments for basic services such as treatment, drugs and hospitalization is of crucial importance. Therefore, micro insurance or micro-health insurance, to be precise, has a definite role to play in extending protection to the poor population against the health related hazards.

- *Protection against weather related risks*: The natural calamities such as floods, earthquake, droughts, storms etc. besides exposing the poor to the aforementioned vulnerabilities to life also causes severe damages to their economic assets which in most cases are the only source of their livelihood such as crops, livestock etc. Under such circumstances, a low premium micro-insurance policy stands indispensible in indemnifying their losses and thereby providing them an opportunity to survive such acts of God.

Applicability of specific Micro-insurance Schemes:

There are a variety of microinsurance schemes that have developed over time to cater to the various activity and group specific needs of the poor. Each of such schemes has some distinctive advantages and provides protection against some specific types of risks. But when it comes to the extension of social protection, some microinsurance schemes may be considered more relevant. Some micro-insurance products, such as, asset, livestock, housing, and credit linked insurance that only covers the outstanding loan balances, do not provide social protection coverage in the strict sense. On the other hand, products such as life, health (hospitalization, primary health care, maternity, etc.), old age pensions, and disability insurance may be considered more relevant, as they directly address the nine contingencies specified in the ILOs Social Security Convention (No. 102).

Social protection strategy of government of India:

The Constitution of India through the following Articles, as a part of the Directive Principles of State Policy, provides for the basis for the social protection programmes and initiatives of the Government of India:

- Article 38 - securing a social order for the promotion of welfare of the people;
- Article 39 - certain principles/directions of State policy;
- Article 41 - right to work, education and public assistance in certain cases;
- Article 42 - just and human conditions of work and maternity relief;
- Article 43 – adequate or living wage in all sectors of economic activity, healthy working conditions, promotion of cottage industries in rural areas etc.

The growth strategy of the country is featured by a number of social assistance, welfare and social sector development programmes and schemes. They are cross sectorial and have been developed for a wide range of different occupations and specific groups, involving various ministries, welfare boards and departments.

Overview of the Social Protection System of India:

The social protection system prevalent in India can be classified into three broad categories on the basis of the specific groups targeted, as illustrated by the following table:

Table 1. Social Protection System of India

Target Groups	Social Protection	Benefits
All citizens	Basic social/ human development funded by the public exchequer	Universal literacy, schooling (including fundamental right to education for children between 6 and 14 years), health care, drinking water, and sanitation, technical training, etc.
Formal economy People	Employees' State Insurance	Health cover, maternity, unemployment, invalidity, and survivor benefits
	Employees' Provident Fund	Old age, gratuity
Informal economy People	Unorganised Sector Workers' Social Security Act (intended for every unorganized worker, but currently only for those below the poverty line and some marginally above)	Health and maternity, death and disability, old age, but can be extended at a later stage (not yet fully provided)
	Subsidised and contributory Microinsurance	Health (including RSBY), death, disability, weather-related risks/ agriculture insurance
	Several welfare funds	Housing, medical care, water supply, education of children, and others
	Indian National Pension System (including NPS lite)	Old age security
	Targeted social and human development schemes (social assistance)	Examples: the Public Distribution System, National Social Assistance Programme, Integrated Child Development Scheme, Employment Guarantee Scheme (MGNREGA)

Source: Ramm & Ankolekar. Situating Microinsurance in Social Protection- Lessons From Six Countries.

It appears from Table No.1 that microinsurance has been incorporated in the country's social protection strategy as an instrument to mitigate risks and reduce vulnerability of poor and low income people, particularly in the informal sector. The Government of India through the insurance regulator of the country, namely, Insurance Regulatory and Development Authority (IRDA) has been playing a proactive role in providing insurance to the low income and below poverty line target groups through the following measures:

***Insurance Regulatory and Development Authority (Obligations of Insurers to Rural and Social Sectors) Regulations, 2002:** With the introduction of these regulations IRDA enforced new obligations pertaining to the rural areas and the social sectors of the country, for both new and existing players in the Indian insurance market. In terms of these regulations, insurers are required to cover year-wise prescribed targets (i) in terms of number of lives under social obligations; and (ii) in terms of percentage of policies to be underwritten and

percentage of total gross premium income written direct by the life and non-life insurers respectively under rural obligations. During the year 2012-13, all the insurance companies both life and non-life, fulfilled their rural obligations, except Sahara Life Insurance, all other insurance companies complied with the minimum obligations.

***Consultative Group on Micro-Insurance Constituted by Government of India (GoI):** In 2003, GoI constituted a Consultative Group on Micro-Insurance to examine existing insurance schemes for rural and urban poor with specific reference to outreach, pricing, products, servicing and promotion and to examine existing regulations with a view to promoting micro-insurance organizations with specific reference to capital requirements, licensing, monitoring and review, etc. The report of the consultative group brought out the following key issues:

#Micro-insurance is not viable as a standalone insurance product.

#Micro-insurance has not penetrated rural markets. Traditional insurers have not made much headway in bringing micro-insurance products to the rural poor. (In addition, the Committee feels that micro insurance has not penetrated even among the urban poor).

#Partnership between an insurer and a social organisation like NGO would be desirable to promote micro-insurance by drawing on their mutual strengths.

#Design of micro-insurance products must have the features of simplicity, availability, affordability, accessibility and flexibility.

***Insurance Regulatory and Development Authority (Micro insurance) Regulations, 2005:** While there was always a consensus that low cost and low value insurance should be made available to the rural people as a mass consumption good, a large proportion of the rural poor always stayed outside the cover of insurance as the task of distributing low value insurance products costly and troublesome for the insurers. Another challenge was that the rural people living in areas far off from the district headquarters trust an organization that has been doing good work for them, that is, the civil society organizations such as NGOs, SHGs, etc. rather than the insurance companies and their branches. In view of such circumstances, IRDA came out with the notification called Insurance Regulatory and Development Authority (Micro-Insurance) Regulation, 2005 in which it has not only defined microinsurance but has also stated unambiguously as who qualify as microinsurance agents and what role insurers have to play in the area of microinsurance. The regulation clearly says that a micro-insurance agent means either a Non-Governmental Organization (NGO) or a Self-Help Group (SHG) or a Micro Finance Institution (MFI) who is appointed by an insurer to act as a micro insurance agent. The Authority has recently permitted several additional entities like District Co-operative Banks, Regional Rural Banks, Individual owners of Kirana shops, etc., who are Banking Correspondents to be appointed as Micro Insurance Agents facilitating better penetration of Micro insurance business. Moreover, through the Regulations the IRDA also issued specific product guidelines that a life/ general insurer may offer. According to the Regulations, a **General micro- insurance product** means a health insurance contract/ any contract covering the belongings, such as hut, livestock, tools, instruments/ any personal accident contract, of a personal group (i.e., at least 20 persons) as per the terms specified in the following table:

Table 2. Non-life products: Sum assured, plan and term

	Type of Cover	Min. Amt. Cover (Rs)	Max Amt. Cover (Rs)	Min. Term of Cover	Max. Term of Cover	Min. Age of Entry	Max. Age of Entry
1	Dwelling or contents, or livestock or tools or other named assets/or crop ins.	5,000	30,000	1 year	1 year	NA	NA
2	Health insurance (Individual)	5,000	30,000	1 year	1 year	Insurer's Discretion	
3	Health insurance (family) – (option to avail limit for individual/float on family)	10,000	30,000	1 year	1 year	Insurer's Discretion	
4	Personal accident (per life/ earning member of family)	10,000	30,000	1 year	1 year	5	70

Note: The minimum number of members comprising a group is at least twenty for group insurance.
Source: IRDA (Microinsurance) Regulations, 2005

Life micro- insurance product any term insurance contract, with /without return of premium/any endowment insurance contract/ health insurance contract with/ without an accident benefit rider, either on individual or group basis, as per the terms stated below:

Table 3. Life products: Sum assured, plan and term

	Type of Cover	Min. Amt. Cover (Rs)	Max Amt. Cover (Rs)	Min. Term of Cover	Max. Term of Cover	Min. Age of Entry	Max. Age of Entry
1	Terms insurance with or without re-turn of premium	5,000	50,000	5 years	15 years	18	60
2	Endowment insur-ance	5,000	30,000	5 years	15 years	18	60
3	Health insurance (Individual)	5,000	30,000	1 year	7 years	Insurer's Discretion	
4	Health insurance (family)	10,000	30,000	1 year	7 years	Insurer's Discretion	
5	Accident benefit as Rider	10,000	50,000	5 years	15 years	18	60

Note 1: Group Insurance products may be renewable on a yearly basis
Note 2: The minimum number of members comprising a group shall be at least twenty for group in surance

Source: IRDA (Microinsurance) Regulations, 2005

***Unorganised Sector Workers' Social Security Act, 2008:**

Through the Unorganised Sector Workers' Social Security Act, the Central Government officially incorporated microinsurance into its social protection strategy. Microinsurance schemes, namely, AABY, JBY and RSBY have been designated as social security schemes for the unorganized workers.

Performance of Indian insurance industry:

In view of the IRDA (Obligations of Insurers to Rural and Social Sectors) Regulations, 2002, and IRDA (Microinsurance) Regulations, 2005 various insurance companies, both in the public and the private sector have launched a host of microinsurance products, in addition to products falling within the parameters prescribed under the regulations, launched prior to the said regulations. Some of such products launched by the Life insurers are tabulated below:

Table 4. List of Microinsurance products of Life Insurers*

Insurer	Name of Product	Date of Launch	Name of Product	Date of Launch
	Individual Category		Group Category	
Aviva	Gramin Suraksha	12th June, 2007	Credit Plus	6thAugust, 2002
Bajaj Allianz	Bajaj Allianz Jana Vikas Yojana	4th April, 2007		
	Bajaj Allianz Saral Suraksha Yojana	4th April, 2007		
	Bajaj Allianz Alp Nivesh Yojana	4th April, 2007		
Birla Sunlife	Bima Dhan Sanchay	31st August, 2007		
	Bima Suraksha Super	31st August, 2007		
Canara HSBC OBC			Sampoorna Kavach Plan	15th January, 2009
DLF Pramerica	DLF Pramerica Sarv Suraksha	30th March, 2009	Sarv Suraksha	30th March, 2009
Edelweiss Tokio	Raksha Kavach	29th October, 2012		
	Dhan Nivesh Bima Yojana	20th December, 2012		
HDFC Standard	Gramin Bima Kalyan Yojana	24th January, 2011		
	Sarvagrameen Bachat Yojana	24th January, 2011		
IDBI Federal			Group Microinsurance Plan	16th December, 2008
ICICI Prudential	Sarva Jana Suraksha	15th July, 2008		
ING Vysya			Generic Group Term Insurance for Social Sector	27th March, 2002
			ING Saral Suraksha	30th November, 2007

PNB Met Life	Met Vishwas	15th July, 2008		
	Met Grameen Ashray	29th July, 2010		
Sahara	Sahara Sahayog	26th June, 2006		
SBI Life	Grameen Bima	15th February, 2013	Grameen Shakti	6th December, 2007
			Grameen Super Suraksha	6th December, 2007
Shriram			Shri Sahay- SP	19th March, 2007
			Shri Sahay- AP	15th May, 2007
Star Union			SUD Life Paraspar Suraksha Plan	
Tata AIA	Tata AIG Life Ayushman Yojana	8th August, 2006		
	Tata AIG Life Navkalyan Yojana	8th August, 2006		
	Tata AIG Life Sam-poorn Bima Yojana	8th August, 2006		
	Tata AIG Sumangal Bima Yojana	2nd September, 2008		
LIC	Jeevan Madhur	28th September, 2006	Janashree Bima Yojana (JBY)**	10th August, 2000
	Jeevan Mangal	3rd September, 2009	Aam Aadmi Bima Yojana (AABY)**	2nd October, 2007
	Jeevan Deep	27th August, 2012		

*All Micro Insurance products and products falling within the parameters prescribed under the IRDA (Micro Insurance) Regulations, 2005, but launched prior to the said regulations

**W.e.f. 01.01.2013 erstwhile JBY & AABY Schemes stand merged and the new scheme is renamed as AABY.

Source: IRDA Annual Report, 2012-13

Microinsurance products in Non- Life Insurance Sector:

There are a number of products offered by all registered general insurance companies targeting low income segment of the population. These include Janata Personal Accident Policy, Gramin Personal Accident Policy, Cattle/ Livestock insurance etc. Further there are a number of tailor-made group micro insurance policies offered by private and public insurers for the benefit of these segments.

Trend of New Business under Micro Insurance Portfolio:

The growth of business under Micro-insurance portfolio in the insurance industry has been tremendous. The year –wise new business generation in the individual category has been consistently increasing over the years. However, in the group category the growth has not been consistent. The table below depicts the trend of new business under micro insurance portfolio both in the individual and group categories:

Table 5. New Business Under Micro-Insurance Portfolio

Year	Individual		Group		
	Policies	Premium (in Rs. Lakhs)	Schemes	Lives Covered	Premium (in Rs. Lakhs)
2007-08	9,37,768	1,823.10	7,598	1,22,42,027	20,127.46
2008-09	21,52,069	3,656.55	6,897	1,25,51,809	20,595.34
2009-10	29,83,954	15,822.29	5,207	1,68,42,070	24,341.81
2010-11	36,50,968	13,040.85	5,469	1,52,59,001	15,522.81
2011-12	46,20,443	11,567.71	5,573	1,01,94,904	10,982.30
2012-13	50,36,139	10,967.59	5,476	1,39,81,322	21,802.65

Source: Individual years' Annual Reports, IRDA

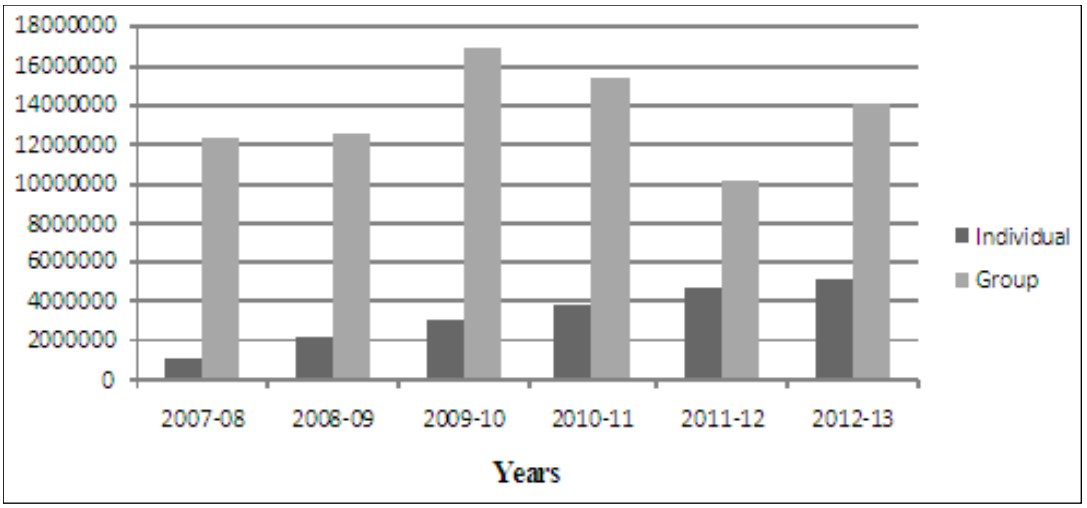

Fig. 1: Lives Covered under Micro Insurance Schemes

Source: Table No. 5: New Business under Micro-Insurance Portfolio

Factors inhibiting the growth of Micro-insurance in India:

Although some major steps have been initiated by the Government in the last decade to promote microinsurance as a means of extending social protection among the economically vulnerable masses of the country, there are certain grave complications inherent in the very nature of the various participants in the mechanism of delivering micro insurance products to the target beneficiaries, as exhibited by the table below:

Table 6. Challenges from the Perspective of Key Stakeholders

Un-insured target customer	Distribution intermediary	Insurance company
Low product awareness Aversion to purchase of an intangible asset Perception of insufficient benefits Product not suitable for specific strata or business needs Time for claim settlement too long as compared to the urgency when required Lack of trust in the insurer to honour claim	Hinterland population spread over a large area Lack of sufficient incentives to cover operations cost Lack of training and understanding of product fitment to customer needs Risk of losing respect in the local community if the insurer does not honour a claim	High transaction cost against low ticket size Poor documentation (such as Identity card, age, address proof) Largely un-banked target customers Risk of adverse selection Lack of actuarial data for risk analysis and pricing High distribution and transaction expenses Limited health infrastructure in rural areas, makes health insurance difficult to sell Low renewal rate Rural and micro-insurance coverage limited to fulfillment of rural or social obligations

Source: KPMG, "*Insurance Industry-Road Ahead", 2013*

Therefore, for microinsurance to succeed in India, demand has to be generated through building awareness, creating specific and simple products, and above all, by simplifying the processes of underwriting and claims management.

CONCLUSION

Given the large number of government programmes and microinsurance products, there is a need to overcome fragmentation and enhance the consistency of benefit packages. The current diversity results in a confusing number of national and state supported schemes of which people are unaware. Even if they do know their entitlements, the benefits are spread too thin to significantly improve the situations of poor and low-income people. Despite the positive action taken by the Indian government and the regulator, further efforts are required to enhance the outreach of microinsurance and its awareness to the relatively more remote parts of the country and resultant inclusion of a larger proportion of the economically vulnerable of the country.

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[1] The informal sector may be broadly characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. These units typically operate at a low level of organization, with little or no division between labour and capital as factors of production and on a small scale. Labour relations – where they exist – are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements

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Fishing Communities in Ancient Indian Civilization: An Analytic Study

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Abstract:

This research paper aims at analysing some narratives from epics which narrate the existence of fishing communities in ancient Indian civilization. Numerous epic sources directly or indirectly declare fishing communities as the ancestors of mankind. Epics like the Ramayana, the Mahabharata and the Matsya- Purana narrate stories of Indian civilization, associated with fishing communities. This research paper intends to analyse some of these narratives in order to see how these narratives depict fishing communities in our glorious civilization.

Key Words: Fishing Communities, Indian Civilization, Epic Sources

INTRODUCTION

Fishing Communities in India remain significant with their tradition and culture. Like any other folk group, their culture includes knowledge, beliefs, and other habits, acquired by them while living and leading their lives. (Taylor: 1)

Fishing communities in many parts of India believe that they are the descendants of deities, sages and races that existed in ancient civilization. Reference to this occupational community in various narratives from epics tends them to believe in this way. These narratives, available in some epics like the *Ramayana*, the *Mahabharata* and the *Matsya- Purana*, illustrate how this occupational community plays a decisive role in ancient Indian civilization.

Objectives of the Study:

- This study tries to focus on:
- Narratives and Occupational Identity
- Narratives from the *Ramayana*
- Narratives from the *Mahabharata*
- Narratives from the *Matsya-Purana*
- Conclusion

Review of Related Studies:

Authors and scholars have already discussed fishermen's beliefs in their books, articles and research papers. Some authors and scholars have also narrated fishermen's rites and rituals, social customs, performances and festivals in their respective society. Some of such books are as follows:

In *Fishermen and Fishing Ways*, Peter F. Anson narrates folk beliefs of fishing communities of British Isles. Anson also narrates some folk beliefs of the fishermen, living in different parts of the world. Moreover, the author discusses how their lives are dominated by superstitions and religious beliefs and practices,

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available in their society.

Craig T. Palmer explains ritual taboos of fishermen in his work, titled *The Ritual Taboos of Fishermen*. In it, the author narrates the 'anxiety-ritual theory' with reference to the ideas, developed by Bronislaw Malinowski. Based on his questionnaire survey, the author narrates apparent correlation between amount of ritual behavior and extended trip fishing.

Dakhin Kamrup Gaolia Koivarta Gyati Samajor Sangbidhan, a book, edited by Kanankchandra Das, throws light on social systems, prevailing in the society of the fishermen, living in South *Kamrup* area of Assam. This book also discusses the role of fishermen's society in settling disputed points. The editor offers a precise note on the society of the fishermen, discussing how their society works for the integrity and social discipline among them.

A detailed study of these books shows that authors and scholars have already focused folk beliefs, rituals and customs of the fishermen, living in different parts of the world. Yet, there is hardly any book or article that reveals narratives from epic sources, describing the existence of the fishermen in ancient civilization. Hence, this research paper may be considered as a maiden effort to analyse some narratives from epics in which fishermen and fish play significant role and form our ancient civilization.

METHODOLOGY

This study relies on primary and secondary sources and brings out a comparative analysis of collected resources.

A. Primary Sources:

Epics like the *Ramayana*, the *Mahabharata* and the *Matsya - Purana* have been studied in depth in order to observe how some narratives of these epics tell stories about fishermen. After collecting these narratives, field survey has been conducted in some villages and information has been collected from informants about their association with certain narratives from epic sources. Informants have associated their occupation with two narratives from the *Ramayana*. Similarly, they have associated their occupation with two other narratives from the *Mahabharata* and one from the *Matsya- Purana* that reveal the existence and importance of fishing communities in ancient Indian civilization.

B. Secondary Sources:

Library work has been undertaken in some libraries like Krishnakanta Handique Library, Gauhati University, State Library, Assam and District Library, Guwahati, Assam. Some other narratives have also been collected from field survey and books with a view to gathering knowledge about fishlore and folk life of the fishermen, living in Assam.

Analysis:

Occupational identity of an occupational group may be considered as its life force. The beginning part of this section deals with narratives and occupational identity of fishing communities. Then, this research paper, in this section, offers a detailed description of some narratives that refer to fishermen and their affinity with some kings, sages, deities and races.

A. Narratives and Occupational Identity:

Fishing communities, being a significant occupational community, is characterized by their tradition and culture, available in their respective society. Their tradition and culture form their occupational identity and this identity is based on some narratives, drawn from epic sources. These narratives refer their occupation of catching fish, fishing contraptions, waterbeds and their tutelary gods. Naturally, fishing communities can easily identify themselves with these narratives that help them in glorifying their occupation. Here are some narratives from the *Ramayana*, the *Mahabharata* and *Matsya- Purana* that declare the existence of fishing communities even in ancient Indian civilization.

Narratives from the *Ramayana*:

Various narratives in the *Ramayana* deal with relation/affinity of the fishermen and fish with some magnificent kings and sages. Two such narratives are discussed below to see how fishing communities play an important role in our civilization.

a) Narrative of King *Janaka* and *Astabakra*:

Janaka, the king of *Mithila*, met *Astabakra* who was a sage. Although young, the sage proved his talent. *Janaka* wanted the sage to prove his widespread talent. The king asked:

King king supto nimishoti king swijatong na sopati
Kosya shidhyadoyong nasti king swidhegon bordhote

This means:

'Who does not close its eyelid when sleeping?
Who does not breathe during birth, who does not have a heart?
Who grows at a great speed?'

Astabakra replies:

Matsya supte nimishtyadong jatong na sopati
Oshmano hridoyong nasti, nodi begen bordhote

This means:

'The fish closes its eyelid when it is sleeping,
The egg does not breathe during birth, Hard-hearted man is heartless
River stimulates with a great speed' (Bezbaruah: 73)

This narrative, as stated above, proves that fish is always considered as a strange creature that does not close its eyelid even though it is sleeping. This reference also proves that fish fascinates human life from the beginning of human civilization. In this way, fish, an integral part of the occupational life of the fishermen, finds a significant place in ancient civilization.

B) Narrative of King *Bhagiratha* and *Ganga*:

Ganga is considered by fishing communities as their mother. They believe that the river *Ganga* is the embodiment of goddess *Ganga* that nurtures their life and occupation. Several myths and narratives go on to explain how this river, personified as the mother of fishing communities, came to this earth. One such narrative is as follows:

King *Sagara*, the mighty king of *Ajodhya*, decided to perform horse sacrifice. A horse was selected for the purpose. But, it was stolen. The king was furious at the loss of the horse. He asked his sons to go and search for it. They could not find the horse on the earth. So they went to the nether world. Finally, they found it standing near *Kapil*, a sage known for his austerity. The sons of *Sagara* thought that as the horse was standing near the sage, it must have been stolen by him. So they charged him of theft. Being falsely accused, the sage was furious. He burnt all the sons to ashes by his glance.

King *Sagara* was worried for his sons as they had not returned. Finding no clue about them, he sent his grandchild *Angsuman* in search of his missing sons. *Angsuman* went to the nether world and saw the ashes of the mortal bodies. He was upset thinking that the souls of the deceased could not achieve heavenly solace. At that time, *Sumati*, the brother of *Garurh*, appeared before him and informed that the souls of the dead would achieve heavenly solace if their ashes were purified with holy water of the *Ganga*, the river goddess who dwelt in heaven. *Angsuman* informed this to king *Sagara*. The king was terribly upset at this and succumbed to death very soon, thereby failing to bring the water of the holy river to purify ashes of his sons. After his death, *Angsuman* became the king of *Ajodhya*. He was succeeded by *Dilip.* Both these kings failed to bring the river to the ashes of their dead ancestors. *Bhagiratha* became the king after them and he decided to bring the river goddess for the purification of the souls of his great grandfathers. He pursued a long course of austere penance. Finally, *Brahma* appeared before him and asked what he wanted. The king informed the deity that he wanted to bring goddess *Ganga* to the

underworld to purify the souls of his dead great grandfathers. *Brahma* fulfilled the desire of *Bhagiratha.* In this way, *Ganga*, came to the underworld to sprinkle water upon the dead. On her way, she purified the earth too. In the words of Griffith, a reputed scholar of Indology:

'Soon as the flood their dust bedewed,
Their spirits gained beatitude,
And all in heavenly bodies dressed,
Rose to the skies' eternal rest.' (Griffith : 68)

Fishing communities in Assam worship *Ganga* as a deity. They may not see the river *Gangas*. Yet, they worship *Ganga*, the river goddess. This narrative suggests the belief of fishing communities who think that goddess *Ganga* came to the earth and became their tutelary goddess.

c) Narratives from the *Mahabharata*:

Like The *Ramayana*, the *Mahabharata*, another great epic, reflects our ancient Indian civilization. In this epic also, there are some narratives which deal with traditional beliefs of fishing communities. Two such narratives are as follows:

a. **Narrative of the Serpent King and *Krishna*:**

Fishing communities depend on fresh and pure water to catch fish. Desire for freshness and purity of water adds dimension to some sacred thoughts. This sacredness and purity of waterbeds may have been drawn from some ancient narratives. One such narrative, drawn from the *Mahabharata* is as follows:

Kaliya was a serpent king. He had been occupying the river *Yamuna* and poisoned its water level. The nearby forests had been dried up by the poisonous air that *Kaliya* breathed. *Krishna* realized the damage, made by the serpent king. He jumped into water but was caught in the coil of the serpent king. *Krishna* finally set himself free from the coil with the help of his divine power. He started dancing on the hood of the serpent. *Kaliya* was really afraid of *Krishna* and he prayed for mercy. His wives also implored *Krishna* to spare their husband. *Krishna* released the serpent and ordered him and his family to leave the shores of the river. The snake king was thus liberated and sent into the sea. (Garrett: 307-308)

Krishna is considered as an incarnation of Lord *Vishnu*. As fishing communities yearn for cleanliness and freshness of water, fishermen believe that *Krishna* defeated the serpent king so that fishing communities and others could get fresh and pure water.

b. Narrative of King *Shantanu*, *Ganga*, *Devabrata* and *Satyavati*:

Every folk group glorifies their past by associating themselves with famous race or dynasty. The root of fishing communities can also be traced to a famous race, popularly known as the *Bharata* race or the lunar dynasty. The following narrative may be mentioned in this regard.

Shantanu was the king of *Hastinapur*. One day, he went for hunting. On his way, he saw a beautiful woman, sitting beside a river. The king was fascinated by her exotic beauty and proposed to marry her. The woman agreed on condition that the king would not ever question her actions. The king agreed. After some years, she gave birth to a child. But she threw it into the river. King *Shantanu* could not say anything as he was bound by promise. Thereafter, she threw all her newborns into water. Finally, their eighth child was born and as the queen approached the river to throw the newly born baby, King *Shantanu* could not restrain himself anymore and prevented her from throwing it into water. The queen smiled and reminded the king of his promise. She gave the child to the king and disappeared. The king finally came to know that his wife was actually goddess *Ganga*. The king brought up his son and named him *Devabrata*.

King *Shantanu* was happy with his son. Yet he could not tolerate the absence of his wife. One day, when he was wandering on the

banks of the river *Yamuna*, he smelt a beautiful fragrance. He tried to find out the origin of the smell and discovered that it was coming from a beautiful woman. When asked, the king came to know that she was *Satyavati*, the daughter of a fisherman. *Shantanu* wanted to marry her and he went to her father to get his consent. The father, when asked, agreed to give his daughter's hand in marriage if *Shantanu* gave kingship to her future child. *Shantanu* was disappointed with such condition as he considered *Devabrata* to be the fittest king of his country. So, he decided not to marry *Satyavati*. He returned with a broken heart. After some days, *Devabrata* came to know about it. *Devabrata* went to *Satyavati's* father and promised that he would never demand the kingship of the country. The cunning father of *Satyavati* then told *Devabrata* that his son might claim the throne though he would not demand the kingship. On hearing it, *Devabrata* assured the father that he would never marry. *Shantanu* finally got married to the daughter of the fisherman and their sons and grandsons became the kings of the country and shaped the famous *Bharata* race.

Fishing communities always find a close association with this narrative. As *Satyavati* was originally the daughter of a fisherman, fishermen consider *Bharata* race as the descendants of fishing communities.

d) Narratives from *Matsya- Purana*:

Apart from the narratives drawn from the *Ramayana* and the *Mahabharata*, there are many other narratives in Indian epics and scriptures which deal with the existence of fishing communities in ancient civilization. In this regard, one narrative from *Matsya- Purana* can be mentioned. It is as follows:

a. **Narrative of the Fish God and *Manu*:**

Fishing communities believe that fish is the incarnation of Lord *Vishnu* and this belief may be identified with the narrative of *Matsya Avatara*, as depicted in the *Matsya - Purana*.

One day *Brahma* was asleep. A powerful demon, *Hayagriva* stole the *Vedas*, emerging from his mouth. On the other hand, a royal saint *Satyavrata* attained the rank of a *Manu*. *Vishnu* had seen the demon stealing the *Vedas* and decided to slay it. He assumed the form of a very small fish for this purpose and glided himself into the hands of *Manu*. The fish became bigger and bigger and the saint understood that this fish must be Lord *Vishnu*. *Vishnu* revealed to *Manu* the imminence of a deluge. He also told him that a large vessel would appear to him in which he was to embark together with the seven *Rishis*, taking with him all the plants and all the seeds of created things. As advised, *Manu* obeyed the behest of the Lord. When the water covered the surface of the earth, *Vishnu* again appeared to him in the shape of a golden fish with a single horn. *Manu* attached his vessel to its horn. While *Manu* was floating with his vessel, attached to the horn, the fish god taught *Manu* the doctrines and the science of the supreme spirit. When the deluge subsided, the fish god killed *Hayagriva* and restored the *Vedas*. (Garrett: 389)

Fishing communities often believe that Lord *Vishnu* always bestows favour to all his worshippers. The Lord, they believe, assume the form of fish so that fishermen can catch fish and run their source of livelihood. Fishermen believe that the golden fish, an incarnation of Lord *Vishnu*. first came to this earth who created all other fishes for fishermen.

CONCLUSION

A detailed analysis of all these narratives from epics suggests the fact that fishing communities associate themselves with these narratives in order to narrate their origin in this earth. Moreover, they justify their occupation and equalize their position with other castes and classes with the help of these narratives in which they are linked with some benevolent deities, noble sages and famous races. There is no denying the fact that these narratives from epics declare the presence of fishing communi-

ties in ancient civilization, signifying their importance in formulating our culture and tradition.

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Electronic Media and Rural Development in Assam: An Impact Study of Agriculture and Health Programmes of All India Radio and Doordarshan in Kamrup Rural District

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Abstract

Electronic Media is one of the most powerful, influential and attractive mass media these days. A manual for news agency reporters brought out by the Indian Institute of Mass Communication (IIMC) defines development as 'The removal of poverty, the lessening of disparity between regions and classes, the building up of technological infrastructure, modernisation of society through shedding feudalism, tribalism and superstitions, the gradual achievement of economic self reliance. In very simple terms, Rural Development refers to the development of the rural areas and raising the standard of life of the rural masses.. Improvement in health, education, drinking water, energy supply, sanitation and housing coupled with attitudinal changes also facilitates their social development. Rural Communication and Agriculture Communication are often confused to be synonymous, but in reality Agriculture Communication is not the whole of Rural Communication, although it constitutes the heart of it. Agriculture Communication stands for the process by which we try to disseminate the research findings to the farmers and teach them regarding how to apply them in practice. Thus, it is the utmost responsibility of the society to transfer these research findings and other development aspects to the farmers in villages. Electronic media, both television and radio with their Farm Broadcasts, can really prove to be catalytic agents in the process of agriculture communication, and thereby, agriculture development in the villages. The two Public Service Broadcasters, i.e. All India Radio and Doordarshan can play a pivotal role in this context. Again, 'Health Communication', an integral part of rural communication, stands for dissemination of information regarding health related issues such as various health related schemes taken up by the government and various ministries like the Ministry of Health and Family Welfare, to the masses across the country by means of both mass media and traditional and folk media. Health Communication incorporates the various health related programmes like 'Swasthya Bharat' of Doordarshan Kendra, Guwahati and 'Dr. Online' and 'Nidan' of All India Radio(AIR), Guwahati. The central objective of the study is to examine how best the potential of Radio and Television can be utilised for developing the rural base of Assam in terms of enhanced agricultural productivity and improved health status in Kamrup Rural and in the village Satdola and some adjoining ones under Hajo Police station. This research paper aims at examining the Farm and Health broadcasts of AIR, Guwahati and DDK, Guwahati in this regard also the actual development needs of the masses in the survey area.

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Key Words: Media, Electronic Media (Radio and Television), Development, Rural Development (Agriculture Development and Health Development),Public Service Broadcasts (Farm Broadcasts and Health Broadcasts).

INTRODUCTION

Statement of the Problem:

Concept of Development:

A manual for news agency reporters brought out by the Indian Institute of Mass Communication (IIMC) defines development as 'The removal of poverty, the lessening of disparity between regions and classes, the building up of technological infrastructure, modernisation of society through shedding feudalism, tribalism and superstitions, the gradual achievement of economic self reliance(Ganesh:83). It implies that development is not just restricted to the mere upliftment of the economic status of a nation, but involves a whole gamut of issues relevant to the well being of a group of individuals and the society at large. The term development has been interpreted in several ways by sociologists, economists, development planners etc. To some it means modernisation, to others it means social change and to some others it means enhancing the quality of life or sustainable development. Development is a complex of social, cultural attitudes and economic changes for which we should strive for the fulfilment of the basic needs of the people (Todaro). Thus, development encompasses economic, social, political, cultural and educational aspects of the society and it is the sum total of all round, balanced and planned growth

During the late 1940s and 1950s, most development thinkers stated that the problem of underdevelopment or backwardness could be solved by a more or less mechanical application of the economic and political systems of the West to the third world countries and they assumed that the difference was of degree and not of kind. This resulted in the 'Modernisation and Growth Theory of Development' which saw development as a unilinear, evolutionary process and defined the state of underdevelopment in terms of observable quantitative differences between the so called poor and rich countries on the one level, and the traditional and modern societies on the other hand (Servaes et. al. 31).Thus, there have been different understandings given to the word 'Development'.

Concept of Rural Development:

In very simple terms, Rural Development refers to the development of the rural areas and raising the standard of life of the rural masses. The eighth five year plan gave a comprehensive definition of the term Rural Development: 'Rural Development implies both the economic development of people as well as greater social transformation, increased participation of the people in the rural development process, decentralisation of planning, better enforcement of land reforms and greater access to credit with better prospects for economic development. Improvement in health, education, drinking water, energy supply, sanitation and housing coupled with attitudinal changes also facilitates their social development' (Gupta,V.S.,2000). Different scholars view the concept differently. The concept of rural development has two components, i.e. rural and development, in which rural denotes area which is characterised by a non urban lifestyle, occupational structure, social organisation and settlement pattern, whereas development means qualitative as well as quantitative socio-economic change, not only relative but also subjective change (Jain,M.,2011). Rural development can be defined as a process of enabling the villagers to fulfil their needs especially social, physical, economic and intellectual. The aim of rural development is to better the conditions of the villagers to enable them to be self reliant and self confident for improving their conditions at their own initiations. It stands for desired change in economic, social, technological and natural atmosphere of a rural community. Ac-

cording to Copp, 'Rural Development is a process through collective efforts are aimed at improving the well being, self realisation of people living outside the urbanised areas. It implies not only the total change in the present agriculture techniques but also a change in the living and thinking habits, a redistribution of agrarian property, a remodelling of the village structures and a reorganisation of the present method of cultivation. The question of sanitation, water, rural education, community development, agriculture credit and so on are in reality, the specific aspects of the area of rural development and modernisation of rural life(Jain,M.,2011).In a nutshell, the primary goal of rural development is to provide an opportunity to the masses of low income population residing in the rural areas on self sustaining basis.

Concept of Agriculture and Health Communication:

The concepts of Rural Communication and Agriculture Communication are often confused to be synonymous, but in reality the Agriculture Communication is not the whole of Rural Communication, although it constitutes the heart of the process of Rural Communication. In simple terms, the term Agriculture Communication stands for the process by which we try to disseminate the research findings to the farmers and teach them regarding how to apply them in practice. The fact is that the agriculture universities, veterinary colleges in almost every state of the country as well as the Indian Council of Agricultural Research (ICAR) based in Delhi have been carrying out the diverse research activities in the field of agriculture and veterinary for the last several decades. For example the researchers in these institutions may be engaged in finding out high yielding variety seeds for better productivity, seeds which may grow even in very adverse conditions, livestock and poultry which may yield better quantity of milk, meat etc. But the problem is how to make such knowledge to be available to the farmers and the other villagers who may actually be benefitted by these findings. These findings are meant for the farmers residing in the remote and rural areas of the country who are mostly illiterates, underprivileged, devoid of any proper and effective information for taking up something innovative in their profession. Apart from that the farmers in the remote villages of the country are mostly oblivious about the development schemes taken by the government from time to time. Thus, it is the utmost responsibility of the society to transfer these research findings and other development aspects to the farmers in the remote and rural areas of the country. This is the basic concept of 'Agriculture Communication' where mass media can play a big part. Especially, electronic media, both television and radio with their Farm Broadcasts, can really prove to be catalytic agents in the process of agriculture communication, and thereby, agriculture development in the villages of the country. The two Public Service Broadcasters, i.e. All India Radio and Doordarshan can play a pivotal role in this context.

Again, the term 'Health Communication' stands for dissemination of information regarding health related issues such as various health related schemes taken up by the government as well as various ministries like the Ministry of Health and Family Welfare, to the masses across the country by means of both mass media and traditional and folk media. The projects such as National Rural Health Mission (NRHM) and the various programmes can be promoted amongst the rural masses by means of puppetry, streetplay and also by the various mass media. In short, health communication connotes the dissemination of information for the improvement and safety of the health of the masses across the country. It may be about the tips on cleanliness drives, safe maternity practices, vaccination and immunisation, treatment of diseases, malnutrition of child, infant mortality, family planning etc. The concept of Health Communication incorporates the various health related programmes like 'Swasthya Bharat' of Doordarshan Kendra, Guwahati and some other health broadcasts like 'Dr. Online' and 'Nidan'

of All India Radio(AIR), Guwahati. So, in short, the health communication means to disseminate informations to the masses across the country for the improvement and safety of their health and this category of communication is particularly useful for the rural masses and so, Health Communication is an integral part of Rural Communication.

Concept of Electronic Media:

Electronic Media is one of the most powerful, influential and attractive mass media and it is considered as the most flourishing industry in the world these days. In other words, electronic media help the audience to access the content in the form that has audio and visual and what is transmitted from a single point can be accessed at several points. In other words, electronic media combines text, graphics, sound, video etc. into a single message. Although most of the new media are in the form of digital media, but electronic media can be both in digital and analogue format. In simple terms, the Electronic Media stands for those media which are operated upon electronically.

Now what is Public Service Broadcaster? Prior to that we have to know the meaning of the term Broadcasting. According to the section 2 (c) of the Prasar Bharati (Broadcasting Corporation of India) Act,1990, 'Broadcasting means the dissemination of any form of communication like signs, signals, writing, pictures, images and sounds of all kinds by transmission of electromagnetic waves through cables intended to be received by the general public either directly or indirectly through the medium of relay stations and all its grammatical variations and cognate expressions shall be construed accordingly'(Aggarwal & Gupta,2002). The term Public Service Broadcaster stands for All India Radio(AIR) and Doordarshan (DD) which are under Prasar Bharati(Broadcasting Corporation of India) and they have to broadcast those programmes which are meant to serve the masses and to develop the society to the optimum possible level. The Public Service Broadcasting is any broadcasting for the benefit of the public and not primarily for profit. The Public Service Broadcasters whose role in Rural Development in Assam is the topic of this study, are the non profit making media entities which are to follow the Prasar Bharati Codes and Guidelines.

So,in a nutshell, it can be stated that both All India Radio(AIR) and Doordarshan (DD) are playing the role of two catalytic agents in India for the development of the social, economic, cultural, science & technology, rural, agriculture, health, human resources and other relevant aspects.

OBJECTIVES OF THE STUDY

The central objective of the study is to examine how best the potential of Radio and Television can be exploited and utilised for developing the rural base of Assam. The specific objectives of the study are-

a) To examine whether the Agriculture and Health Programmes of All India Radio (AIR), Guwahati and Doordarshan Kendra (DDK), Guwahati are useful and valuable for the farmers and the general rural masses in Kamrup Rural in Assam;

b) To identify the development needs of the people in terms of agriculture and health in the survey areas in Kamrup Rural in Assam and to examine whether the Agriculture and Health Programmes of All India Radio, Guwahati and Doordarshan Kendra, Guwahati are catering to these development needs of the people in the survey areas;

c) To examine whether there is need for improvement in the quality as well as increase in the number of the Agriculture and Health Programmes of All India Radio, Guwahati and Doordarshan Kendra, Guwahati on the basis of the response of the respondents in the survey areas;

d) To explore the extent of popularity of these programmes amongst the rural people in the survey areas in Kamrup Rural in Assam;

e) To analyse the critical parameters of response regarding these programmes in the survey areas in Kamrup Rural in Assam.

HYPOTHESIS

H1: Electronic Media is playing an effective role in improving the Agriculture and Health sectors in the rural areas of Assam.

H2: Radio is playing a more proactive role in improving the Agriculture and Health sectors in the rural areas of Assam.

SCOPE OF THE STUDY

India is a country with over 1 billion population and 70% of its population are still residing in the rural areas where the predominant occupation is agriculture. So, electronic media can play a vital role in case of rural development. This study will be an in depth research on the impact of the Agriculture and Health programmes of All India Radio (AIR), Guwahati and Doordarshan Kendra (DDK), Guwahati on the rural masses in Assam in the last two decades and this study is confined to Kamrup Rural where the reach of radio and television has been there during the period of the study and also the two Public Service Broadcasters, i.e. All India Radio and Doordarshan are very much accessible to the people belonging to various age groups, caste, religion, economic and educational background in the selected survey areas in Kamrup Rural. The scope of this study will be limited to the Farm and Health programmes meant for the farmers and the general rural masses of the selected villages in Kamrup Rural. This study, however, excludes the other development programmes such as educational programmes, youth programmes, programmes related to consumer awareness etc. broadcast by All India Radio, Guwahati and Doordarshan Kendra, Guwahati apart from the Agriculture and Health Programmes. Within the scope of this study will be the various Farm Broadcasts of All India Radio, Guwahati and Doordarshan Kendra, Guwahati such as Farm Hint programmes, Programmes on seasonal crops, programmes on vegetable crop husbandry, field crop husbandry, fruit and plantation crops, poultry farming, dairy, pisciculture, horticulture, rainwater harvesting etc.

Again, amongst the health programmes, the awareness programmes on cleanliness drives, vaccination and immunisation, safe maternity practices, various diseases and their treatment, rural women, child health, family planning etc. will be within the scope of the study. The farm broadcasts of Doordarshan Kendra, Guwahati *Krishi Darshan* and health broadcasts such as *Ayushman Bharat* have been taken for the study. And from the AIR, Guwahati, the programmes such as *Dr.Online*, *Nidan, Krishi Jagat* etc. have been taken for the study.

SIGNIFICANCE OF THE STUDY

Over the years and particularly so during the preceding two decades, India had developed a fairly extensive electronic media infrastructure and this penetration of Radio and Television has begun into the rural areas across the country. This penetration has been in Assam also during this period.

Radio is supposed to be a perfect medium of rural development as it is a friendly medium for the poor and illiterate or the lowly educated rural masses who can grab the teachings of radio quite easily. Television is also not lagging far behind in this regard. Its importance as a medium of rural development is particularly vast in a developing country like India where the reach of print media is not very wide to the rural areas and so Television with its visual appeal can really benefit the rural masses to a great extent. Again India is a country with an agrarian and rural economy where the predominant occupation is agriculture and 70% of the population are still residing in the rural areas. The development of a country like India vastly depends on the rural development factor, especially the development of the agriculture and health sectors and in this regard the electronic media have got a big role to play.In Assam also the All India Radio and Doordarshan started their journeys in the years 1948and 1980 respectively. The All India Radio, Guwahati was started in 1948 as the Shillong-Guwahati Station which was shifted from Shillong to Guwahati in

1953 and the Doordarshan Kendra, Guwahati was started in the year 1982. Since then various rural development programmes are being broadcast by these two public service broadcasters. So, this study will highlight all these aspects of All India Radio, Guwahati and Doordarshan Kendra, Guwahati and also will make an analysis of the viewers' and listeners' opinion and thereafter, their feedback will get evaluated. Although the Agriculture and Health programmes of All India Radio, Guwahati and Doordarshan Kendra, Guwahati mean a lot for the purpose of rural development in Assam, but very little has been studied so far in this regard. So, this study will throw some light on the various aspects of the Farm and Health broadcasts of All India Radio, Guwahati and Doordarshan Kendra, Guwahati and a good assessment about the quality of these programmes will be made by means of this study and also the response of the rural target audiences about the Farm and Health programmes of All India Radio, Guwahati and Doordarshan Kendra, Guwahati will be examined by means of this research comprehensively. Assam is a state which is still very much lagging behind in terms of agriculture and health status in comparison to many other states of the country. The state is not self sufficient in terms of agriculture productivity even in the 21st century and the farmers are still mostly unaware about the advanced methods of agriculture such as mechanical tilling, use of various modern fertilizers, insecticides, pesticides on crops, high yielding varieties of seeds, captive breeding, rain water harvesting and many more issues related to the development of the farming sector. Similarly, the proper development of a society depends to a large extent on the improvement of the health sector. In this regard also the state of Assam is very much lagging behind especially in the rural areas. The infant mortality rate is very high in the state especially in the villages where the illiteracy rate is very high. Apart from that in terms of safe maternity practices, child health, nutrition level, awareness about the various ailments and their treatments and many other aspects related to the health sector the rural base of Assam is woefully lagging behind even in the 21st century. It is pathetic to know that even in the 21st century, in many villages of Assam, the practice of taking the pregnant women to the so called village *Dhais* instead of a doctor is very much prevalent.So it is utmost need of the hour to eradicate these sorts of unsafe and unhygienic maternity practices from the rural societies of Assam. So in this context, the electronic media especially the Public Service Broadcasters have a big role to play by means of the Farm and Health Broadcasts. So, this study will be able to highlight these important aspects of these programmes and will examine whether in the truest sense of the term the Farm and Health programmes of All India Radio, Guwahati and Doordarshan Kendra, Guwahati have been successful or not in bringing rural development in Assam and what the rural audiences think in this regard.

METHODOLOGY

The methodology adopted for the study has been an explanatory methodology because in this study the relationship between the electronic media & rural development has been studied and also the exploratory study has been done to know the reaction of the respondent farmers and the other rural masses in the survey areas in Kamrup Rural in Assam. Again the research has been based on both qualitative and quantitative research techniques. The public opinion survey of the farmers and the general rural masses has been quantitative, i.e. structured in nature and the observation regarding the changes in the Agriculture and Health sectors in the survey areas in Kamrup Rural has been qualitative, i.e. unstructured in nature. The random sampling method has been adopted for this study and out of the universe in the survey areas the samples have been selected randomly.

And the various sources of data collection used in this research are both the Primary and Secondary data collection sources or tools.

In the primary data collection process, the interview method has been adopted extensively. Here, the survey of the viewers' and listeners' opinion has been done by circulating the questionnaires amongst the respondent farmers and the other rural masses in the survey areas. In addition, prominent persons from the fields of mass media, medical science, agriculture science and some other related fields will be interviewed during the course of the study. Again for the collection of secondary data, the researcher has visited different libraries and has used internet as a source extensively, especially for the purpose of literature review. Because the researcher has browsed the websites of various universities of the country to search for the relevant literatures for the study. More so, visits to All India Radio, Guwahati and Doordarshan Kendra, Guwahati have been a part of the study so far. Apart from that other media houses including some other divisions of All India Radio and Doordarshan have to be visited during the future course of this study.

SURVEY AREA

The survey has been confined to the villages nearby Hajo in Kamrup Rural in Assam. The various villages to be coming under the purview of the study are Satdola, Tokradia, Boromboi, Kulhati, Bagta, Bhoma, Kalitakuchi etc. and during the future course of the study the number of these villages may increase. The number of farmers in these villages is very high and are using the various aspects of agriculture which have been mentioned in the scope of the study. More so, the literacy rate is still not very high in these villages. The health status is also not very sound in these villages, i.e. the problems like malnutrition especially amongst the children, lack safe maternity practices, minimum awareness about the health schemes taken up by the government and also about the cleanliness drives, relatively less knowledge about the need of immunisation and vaccination etc. are very much prevalent in these villages. That is why there is enough scope of such a research in these villages in Kamrup Rural in Assam.

ANALYSIS AND INTERPRETATION OF THE DATA

The general analysis and interpretation of the study is that the farmers and the general rural masses in the survey area have been greatly benefitted by means of them Farm and Health broadcasts of AIR, Guwahati and DDK, Guwahati.After the field survey so far it has come to notice that apart from improved agricultural practices and enhanced agricultural productivity, the health status of the people has also come to be improved.The health problems like malnutrition amongst the children, infant mortality rate , unsafe maternity practices have come down considerably in the survey area. Also the masses have come to know about the various schemes of development taken up by the government and also about the cleanliness drives, immunization and vaccination drives of the govt. Similarly the more advanced farm practices such as use of mechanical tilling, use of scientific fertilizers, pesticides, insecticides etc. have been adopted by the farmers in the survey area. More so, the aspects such as captive breeding, animal husbandry, vegetable crop husbandry, poultry farming, dairy farming, etc have been learnt immensely by the respondents in the survey area. More so majority of the respondents have opined that radio farm and health broadcasts have been more beneficial for them in comparison to the television programees. They have opined that the advantages of radio such as lack of electricity barrier, cost effectiveness, ability to listen while working on the paddy fields, simplicity in language and style of presentation etc have contributed to more impact of radio as rural medium in comparison to television in the survey area. However, television also found to be effective in terms of bringing development in the survey area amongst a few of the respondents.

Both hypotheses taken for the study have got tested positive.

FINDINGS AND CONCLUSION

A total of **107** samples were taken out

of the total population in the survey area. Amongst them the male female ratio was 60: 40. Out of these 107 samples taken by means of random sampling technique, 95 % are of the view that the Farm and Health broadcasts of AIR, Guwahati and DDK, Guwahati have proved to beneficial for them and majority of the respondents were of the opinion that Radio is a more convenient mode of communication for them regarding the agricultural and health programmes. These majority of the respondents were found to be very much inclined towards the farm and health broadcasts of AIR and DDK,Guwahati. Although radio had the upper hand in this regard owing to its simplicity and intimateness. Particularly the female respondents were found to be more inclined towards radio as a medium of development. Because they stated that the programmes of AIR could provide a intimate touch in comparison to the programmes of DDK, Guwahati.

So, in a nutshell, it can be summed up by stating that the farm and health broadcasts of both AIR and DDK, Guwahati could produce the desired changes in the survey areas of Kamrup Rural taken for the study.

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Food Processing Industry and Prospect of Contract Farming in Assam

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ABSTRACT

Contract farming and food processing are two inter related concept. Food processing is a large sector which includes the activities of agriculture, horticulture, fishery, animal husbandry and plantation. Food processing industry has grown up to offer the mankind with the tastiest and finest food items. The growth of food processing industry depends upon the plenty of raw material and physical and specialized infrastructure. Contract farming has great significance in the supply of raw material. The establishment of Mega Food Park at Tihu of Nalbari district in Assam carries a ray of hope to the farmers as well as to the processors. The processing industry has faces some challenges too. This paper tries to discuss the present status of the industry in the state and prospect of contract farming for the development of food processing industry in Assam.

The study also includes the challenges that it had faced on the basis of secondary data from different published and un published sources.

Keywords: Contract farming, Economic development, Food processing, Food Park. Status. Infrastructure

INTRODUCTION

Food processing is mainly defined as a process of value addition to the agricultural and horticultural product by various methods like grading, mixing, storing and packaging etc. In a developing country like India the food processing industry is increasingly becoming an important sector for its role in generating employment, income and attracting foreign investment. The industry grew at the rate of 87 percent in developing nations in the period 1980-91as compared to only 20 percent in developed country. Food processing industry largely depends upon the agricultural and horticultural product. Regular supply of raw material is essential for success of the industry. For this regularity in supplying the raw material to the processors contract farming may plays an important role. It can be define as the agreement between the farm producers and processors for supplying raw materials with pre- negotiated terms and conditions.

The strong agricultural base of our country and infrastructural facilities holds a significant potential for the food processing industry. It provides a strong link between agriculture and direct consumers. Food processing is a large sector which includes the activities of agriculture, horticulture, fishery, animal husbandry and

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plantation, India's position in producing fruits and vegetables lies second in the world after Brazil and China. But sometimes the procurement of raw materials create severe problem to the processors. In such a situation the contract farming may be a measure to solve the problem.

Processing may be of primary, secondary or tertiary. Primary processing includes cleaning, grading, sorting. Milling and powdering. Secondary processing includes basic value addition and the process includes mixing with other ingredient, heating, temperature control and then stacking for packaging and the product are tomato puree ground coffee, processing of meat products etc. In the same way the tertiary processing which is nothing but the high value addition includes the same process of secondary processing and the products are Jams, Jelly, sauces, biscuits and other bakery products, beverages, juices, concentrates, pulps, slices,

There are several sub sectors in of food processing sector and produces different products. They are discusses in a nutshell.

a) Fruits and Vegetables : In this sector Beverages, Juices, Concentrates, Pulps, Slices, Frozen & Dehydrated products, Wine Potato Wafers/Chips etc. are produce.
b) Fisheries: It includes Frozen & Canned products mainly in fresh form
c) Meat & Poultry: This includes the frozen and packed mainly in fresh form, Egg Powder etc.
d) Milk & Dairy: This sector produces Whole Milk Powder, Skimmed milk powder, Condensed milk, Ice cream, Butter and Ghee.
e) Grain and Cereals: Flour, Bakeries, Biscuits, Starch Glucose, Cornflakes, Malted Foods, Vermicelli, Pasta Foods, Beer and Malt extracts, Grain based Alcohol.
f) Consumer Industry: Chocolates, Confectionery, Soft/Aerated Beverages/Drinks
g) Plantation: Tea, coffee, cashew, cocoa, coconut etc

This type of industry has great contribution to the economic development of a country. In effective utilisation of agricultural product food processing industry plays a vital role. It helps in reducing post harvest losses, create employment. Contract farming is essential for regular supply of raw material to the processors. The demand for processed food is large and the industry contributes to human welfare and economic development. The importance can be studied as follows. Firstly it reduces post harvest losses and helps in diversification of agricultural food grains. Secondly it is labour intensive and very high employment potential (direct and indirect) with significantly lower investment and also enhances the return to the farmers. Thirdly food processing industry induces overall development through its linkages with other sectors and change wage structure cropping pattern and intensity. Fourthly the industry is highly investment attractive. Fifthly utilization of food processing waste and ancillary industry is another area of development and it saves the foreign exchange used in food import. Last but not the least is the Mega Food Park Scheme (MFPS) of Ministry of Food Processing industry (MOFPI), Govt. of India raised the importance of Food processing industry for creating employment and raising income.

Failure of continuous supply of raw materials is one of the important problems faced by food processing industry in Assam. Contract farming is one of the important techniques with the help of which the supply of raw materials can be kept constant. It is a two way mechanism. A grower of crops on the one side and the processor on the other side enter into an arrangement to maximize returns on investment for both of them by reducing market risk. It may be defined as an arrangement in which a buyer purchase the crop product from independent farmers at pre- negotiated terms and conditions. Roy (1963) defines contract farming as the contractual arrangement between farmers and companies specifying one or more conditions of production and marketing of an agricultural product. But the technique sometimes creates problems to the farmers and the processors.

In Assam the technique of contract farming may be encouraging or discouraging for the processors as well as for the farmers. In some cases the contract may be break by the processors or by the farmers which one is most powerful. Moreover the general people (farmers) may not accept the agreements in fear of losses or in possibilities of breaking the agreement by the processors in the middle of the terms.

Objectives: The main objectives of the study are given below-

a. The first objective of this paper is to discuss the condition of food processing industry in Assam.
b. Second objective is to analyze the prospect and advantages of contract farming for the development of food processing industry in Assam.
c. Another objective of the study is to discuss the challenges that contract farming has to face.

To suggest some policy measures to solve the problems.

METHODOLOGY

The analysis is based on secondary data. The data are mainly taken from secondary published sources. Notable among these sources are Annual Report of the (MOFPI) Ministry of Food Processing Industries, directorate of industries (GOA), ministry of agriculture, Economic survey of Assam, Statistical hand book of Assam and the data published in different books and Newspapers.

RESULTS AND DISCUSSIONS

Food processing industry in Assam

Assam is rich in agricultural and horticultural production. The value of production of agro based and food processing industry during 2010-11was Rs. 17574.85 lakh, total sales Rs.19859.82 lakh, employment 12, 3000 and wages Rs. 9926.51 lakh. The production of fruits and vegetables processing sector in Assam during 2010-11 and 2011-12 was Rs 73.20 lakh and total sales Rs.80.40 lakh. Moreover there are several achievements in case of food processing sector. Some of these are discussed here.

a) Number of processing units:

As per record of directorate of industries (GOA) total numbers of food processing units in Assam up to March 2013 are 7291and out of these there are 3054 rice processing units, 1107 atta chaki mills, 153 supari units, 854 bakery units, 26 meat processing units, 244 fruits and vegetables, 118 noodles making units, 116 ice making units, 206 tea packaging units, 158 bhujia and dalmug, 338 spice, 70 milk, 631 oil, 43 confectionary, 10 cashew nut, 14 gur, 9 dry fish and 140 other types of food processing units. All these units are represented by the following bar diagrams in figure 1. Though there are 7291 units are recorded in the office record yet in practical situation the numbers are less then these. Most of them either closed down or could not trace out.

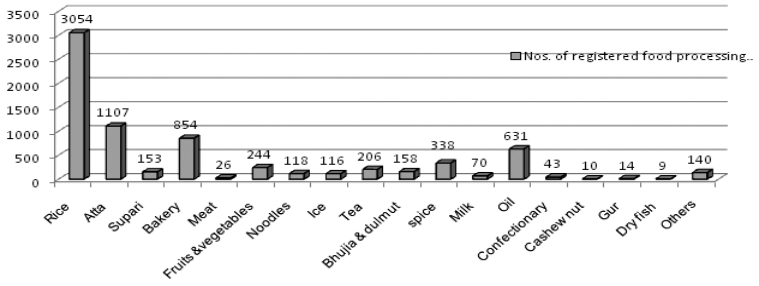

Figure1. Number of food processing units in Assam up to March 2013
Source: Directorate of industries (Government of Assam)

b) Trend of registered food processing units in Assam from 1st January to October 2014

Year	2010	2011	2012	2013	2014 (October)
Total units in FP sectors	85	103	165	192	225

Source: diccassam/admin

The above record of food processing industry can be represented with the help of bar diagram Figure-2

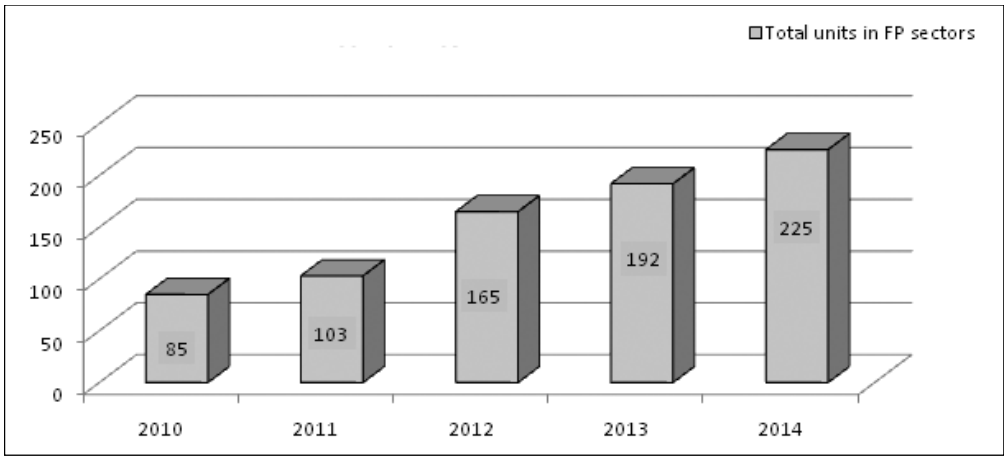

Figure 2. Total units in FP sectors

c) Assam alone contributes more than half of India's tea production. The estimated production of tea in Assam was 508.7 thousand tons in 2011. There are more than 50000 small tea growers in Assam.

d) Mega Food Parks: Ministry of Food Processing Industry (MOFPI) has approved one Mega Food Park project in the state. The project is located in Tihu town of Nalbari district and it is currently under implementation. The Park will have a Central Processing Centre (CPC) at Nathkuchi, Tihu covering 50 acres of land supported by a network of Six Primary Processing Centre (PPC) and 19 Collection Centre (CC) spread across the entire NE Region. The PPCs are Badarpur, Tinsuikia, Nagaon, Chaygaon, Barapani and at Kajalgaon. The collection centers collect the product from different remote areas from self help groups, farmers group and individual farmers.

e) *Banana Parks:* A banana park has been set up at Industrial Growth Centre, Matia of Goalpara district to facilitate value addition and marketing of Banana fresh and Banana derivatives. A Banana Export Development Centre is being set up in the state to encourage commercial cultivation of Banana and to facilitate production of fresh and processed Banana.

f) Agri Export Zones (AEZ): For fresh and processed ginger Agri Export Zones have been proposed in various parts of the Assam. Different district namely Kamrup, Nalbari, Barpeta and Nagaon are important among others.

g) Several investors showing their keen interests in Bhot Jolokia (Capsicum), Assam Lemon or Nemu (Citrus lemon), Carombola or Kordoi, Passion fruits or Lota bel , Olive or Jalphai, Elephant Apple or Ou-tenga, Birds Eye Chilli or Kon Jolokiya, Bamboo shoots or Bahor Gaj, Ginger, Turmeric, Black Pepper, Orchids etc. which are traditional product of Assam.

Number of persons employed under food processing industry in Assam and some other states are shown below.

Table 1.
Share of various states in employment in food processing industry (2010)

Sl.No.	Name of the state	Share of employment in %
1	Andhra Pradesh	14.1%
2	Assam	4.9%
3	Haryana	3.3%
4	Madhya Pradesh	2.3%
5	West Bengal	4.7%
6	Uttar Pradesh	12.0%

Source: study on mapping of human resource skill gap in India, New Delhi

This can be represented in the following diagram.
Figure-3
Share of employment in some states

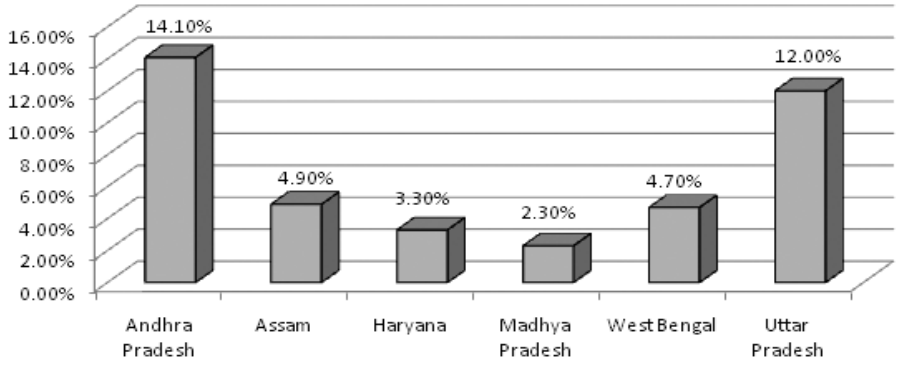

Figure 3. Share of employment in percentage

Prospects and necessity of contract farming:
The irregular supply, seasonality and heterogeneity (size, weight, maturity) of horticultural product creates problem in the regular supply of agricultural product. Contract farming may solve this problem to some extent and it has several other advantages.

a) Contract farming allows exploitation of full potential of land. It creates a competitive mind among the producer to supply the product.
b) Secondly it tries to build smooth linkages through the value chain – linking the farmers directly with the processors and the marketers.
c) The system provides the remunerative prices to the farmers reducing the over production.
d) It helps in economic development of farmers and entrepreneur.

With the improvement of technology that the industrial partner may bring the efficiency in processing will increase giving further benefits to the farmers.

In Assam due to several factors like natural factor (flood, drought etc), seasonal production by the farmers, lack of transport facilities, migration of workers from agriculture to other prestigious job, transfer of horticulture production to other product like tea reduces the supply of raw material for processing purposes. The introduction of BPL and APL card which provide the rice at cheap rate (Rs. 2.00 or Rs 6.00) to the people reduce the work culture and the production of horticulture reduces. There-

fore the contract farming is necessary for the development of food processing industry.

In India several states namely Karnataka, Andhra Pradesh, Tamilnadu, and others introduces the system of contract farming for production of high value, more labour intensive crops. In Assam a beginning has been made by NABARD with bamboo farmers. National Bamboo Mission had identified the state for bamboo production on contractual basis. They are encouraged to grow specific bamboo with contractual arrangement from the Cachar Paper Mill and Nagaon Paper Mill. There are tremendous scope for cultivation of ginger, pineapple and other horticultural crops in contract agreement in Assam. Moreover it also offers scope for animal husbandry to grow through contract farming which help the farmers as well as the processors.

Major challenges for food processing industry and contract farming in Assam:

Various constraints have been indentified orin Assam as well as for North east India. The main reasons for poor food processing in the North-eastern India are:

a) Lack of plain land for production of plenty of horticultural and other products may create problem in processing as well as for contract ted parties.
b) Lack of awareness about the rich potential of different processing industry like fruits and vegetables industry for employment and economic upliftment of the region.
c) Lack of awareness about the potential of fruits and vegetables and other raw materials.
d) Lack of arrangement in processing, glut situation occurs which become a disincentive for production
e) Lack of quality standards and HACCP practices narrow down the quality of fruits and vegetables products
f) Lack of awareness/training about the quality standards among the consumers and sweet makers reduces the scope food processing
g) Lack of connectivity from city to city in hilly and forest coverage
h) Power supply: Generation and supply of power is a serious problem in Assam. The main problem is low power generations due to several causes. Some project has low generation capacity as given below in table 2

Table 2. Reasons for low generations of power

Generators	Reasons for low Generations
Kathalguri TPP	Average supply of gas, Gas compressor problem
Namrup TPS	Inadequate supply of gas
Doyang HEP	Inadequate raw water level at site
Ranganadi HEP	Inadequate raw water level at site
Kopili-1 HEP	Average raw water level at site
Koplil-11 HEP	Average raw water level at site
Khandong HEP	Average raw water level at site
Loktak HEP	In adequate raw water level at site
Lakwa TPS	Inadequate supply of gas
Karbi-Langpi HEP	Average raw water level

Source: - North Eastern Regional Load Dispatch Centre (NERLDC) & State Load Dispatch Centre) SLDC, Assam

i) Natural problems:
Most of the entrepreneur faces the problem of regular supply of raw material during the rainy season. The monsoon, the flood damage the crops and break the supply chain from field to industry. Even the drought creates problem to the entrepreneur to collect the raw materials. These factors make week supply chain network between supplier and the processing units.

j) Financial problems:
Finance is a major problem faced by the fruit

and vegetable based units of Assam. To examine the extent to which the growth of Food Processing Industry is aided by support of financial institutions we collect the opinion of the entrepreneur during field study.

In several cases large number of processing units does not receive any institutional finance either for starting the industry or for running the processing activities. On the other hand some units have received financial assistance but the amount is very negligible for the development of the unit.

k) Marketing problem: Several marketing problems arise in case of food processing industry in Assam. These are given below.

Marketing research**:** Lack of market research hinders the processors in case of availability of raw materials, market for food products.

Lake of up-to-date marketing information, up to date information about the market is necessary for the development of food processing industry. But the absence of up to date information of the processor hinder the development of the industry in Assam.

Problems on marketing due to lake of knowledge, experience etc**.** lack of information and knowledge about the structure of processing sector create problems. On the other side the Government has no transparent norms for establishment and run the enterprise.

Policy Implications:

In Assam in order to encourage the adoption of contract farming the Government should develop suitable policy measures and increase the confidence level of the farmers. As the state has been identified for development of ginger product by APIDA and bamboo by National Bamboo Mission, it would be necessary for the Government to come forward with specific policy measures for use of contract farming for these crops in Assam.

Most of the produces go waste during the production due to lack of processing and storage facilities and inadequate infrastructural facilities. There is great potential of processing these products and interactions with food processing units in Northeastern region. Government should offer special measures to remove this problem for the development of the industry. Efforts have been made by APEDA to build external market linkage for food processing units in Northeastern region with major players in food sectors like Hindustan liver, Dabur, ITC and other companies, APEDA is also setting up model organic farms for Joha rice and sugarcane in Assam, passion fruit in Manipur and pineapple in Tripura

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The Intersubjective Ideal of Knowledge and the Critique of the Empiricist Science

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ABSTRACT

The controversial relation between philosophy and science has many faces and many more historical phases. Conceptually, philosophy always confronted science as a method of establishing knowledge distinct from primeval epistemic concerns by questioning its foundations epistemologically and metaphysically. Science, on its turn, challenged (I use both the words philosophy and science in the broad sense as nomenclatures designated to represent two distinct methods of search for truth) the philosophical orthodoxy by projecting the empiricist methodology of science as superior to the idealist or metaphysical or speculative method. Thus the philosophy-science interface most often as located in the philosophy of since historically poised a divide in understanding the concept of knowledge, favoring the idea of 'science as knowledge appropriate'. Till it was forced to take a new turn along with the post empirical scenario in scientific enterprises, which was inspired mainly by the relativity theory, quantum mechanics and subatomic physics against the Newtonian mechanics, non-Euclidian geometry against the Euclidian geometry, and developments in molecular biology and, genetic engineering etc., the conception of knowledge proper and the legitimacy of acquiring it was sanctioned by the empiricist concept of knowledge. The post-empirical concept of knowledge/the post-empirical gist of science was later discussed elaborately by philosophical, critical theories on science by Thomas Kuhn, Imre Lakatos, Roy Bhaskar, Saul Kripke and Paul Feyrabend, to name a few of them, in a major way.

The paper, however, is in line with the view that the post empirical theoretical necessities sanction more urgently and systemically the need to associate the cleavage between philosophy and science as something which is to be more prominently addressed from the point of view of multi-vocal frames of knowledge and in what follows tries to address two issues: Firstly, science as knowledge and secondly, how to impart knowledge pedagogically.

Like the sciences, philosophy continues to focus on questions of truth; but unlike them, it maintains an intrinsic connection to law, morality, and art. It investigates normative and evaluative issues from the internal perspective of those domains themselves-

Juergen Habermas

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THE CONCEPT OF KNOWLEDGE AND THE EMPIRICIST CONCEPT OF SCIENCE :

A common definition of knowledge is that it is justified true belief. Knowledge is the awareness and understanding of facts, truths or information gained in the form of experience or learning. Knowledge is an appreciation of the possession of interconnected details which, in isolation, are of lesser value. Knowledge is a term with many meanings depending on context, but is (as a rule) closely related to such concepts as meaning, information, instruction, communication, representation, learning and mental stimulus. More prominently, perhaps more concretely, knowledge is defined as processed information.

The fundamental question that comes up in this regard is what information is and how it can be processed. The contemporary and arguably the most convincing precept on processed information which rolls up the dominant perceptions and perspectives on knowledge to make it into a discourse names it science and its method empirical observation. In other words, knowledge is equated with information processed empirically, which allows some kind of verifiability.

The verifiability intent and claim of empirical scientific method declares that 'any knowledge claim is testable by experience (observation or experiment). It rules out knowledge-claims about beings or entities which cannot be observed. Scientific laws are statements about general, recurring patterns of experience. To explain a phenomenon scientifically is to show that it is an instance of a scientific law. This is sometimes referred to as the 'covering law' model of scientific explanation. If explaining a phenomenon is a matter of showing that it is an example or 'instance' of a general law, then knowing the law should enable us to predict future occurrences of phenomena of that type (Beton *et al*., 2001). Here what we see is the mutual reduction of knowledge and empirical science by each other by way of testable, verifiable objectivist and positivist ideal of knowledge. Both strong and weak verifiability criterion of empirical scientific method was questioned by later developments both in science and philosophy of science as the growth of science as knowledge was demanding more extended purview of operational domain and reflectivity (Thomas *et al*.). In this context it is put across to us that science as a multi-faced project of knowledge has been communicated to us in many ways: As a handmaid of society, a neutral source of knowledge, a benevolent master, a dominating dictator and so on (Richard, 1983).

I attempt here to carry on the discussion further along with the second generation critical theorist Juergen Habermas, whose conceptual intervention into the philosophy of science was with his critique of scientism and positivism (Habermas, 1971). He puts forward a common frame to locate and situate science as knowledge, which is to be subjected to critical scrutiny by the intersubjective critique of knowledge. Habermas' concept of knowledge transforms epistemology into social theory through a mutual overcoming of positivism with hermeneutics and hermeneutics with a theory of intersubjectivity (Habermas, 1971).

JUERGEN HABERMAS' CRITICAL PARADIGM OF KNOWLDGE/SCIENCE :

Habermas does not align himself with the presuppositions held by Relativism as he rejects the stances of Realism and Naturalism. Habermas positively recognizes the Kuhnian theory of paradigm change and its insight that actual languages and conceptual schemes change, but rejects its relativist idea of science. Habermas's 'consensus theory of truth' and the

concept of 'ideal speech situation' make his stance strictly an anti-relativist one. He remains a different kind of social constructivist with a distinct concept of reconstructive science and objective science and proposes a critical paradigm for science.

Critique of Scientism and Positivism:

The leitmotif of Habermas's critique of positivist philosophy' says Thomas McCarthy, 'is formulated tersely in the preface of Knowledge and Human Interests: 'that we disavow reflection is positivism" (McCarthy T., 1978). The classical epistemological question that how reliable knowledge possible was vanished in the height of positivist philosophies of the late nineteenth and early twentieth century, as knowledge was identified with science and its empirical method. So, Habermas says that 'Positivism marks the end of the theory of knowledge. In its place emerges the philosophy of science' (Habermas J., 1971). Positivism lacks the investigative dimension into the 'constitution of the possible object of casual – analytic knowledge' since it 'prejudges its answer' and which in the process immunizes sciences against philosophy (Ibid p.67). So, the 'questions about the conditions of possible knowledge were answered with a universal genetic history' and it is flattened to the status of mere methodology instead of being epistemology with a conceptual idea of the constitution of the objects of possible experience (Ibid, p.67).

EPISTEMOLOGY AS SOCIAL THEORY-HUMAN KNOWLEDGE AND INTEREST

Habermas makes an inquiry into the foundations of knowledge, human interests and language to put forward a theory of tripartite mould of knowledge and corresponding human interests, supported by the theory of 'Universal Pragmatics' and the 'Theory of Communicative Action/Rationality', which, according to Habermas, proves the human interests in autonomy, rational consensus, responsibility etc, 'for they can be apprehended a priori. The positivistic / scientistic misappropriation of knowledge was that despite of all the epistemic and theoretical difference within, it conceives and postulates knowledge as a definable single field. In his effort to go beyond this objectivistic illusion of single categorical reduction, Habermas recognizes how knowledge is constituted by human interests. He writes:

There are three categories of process of enquiry for which a specific connection between logical methodological rules and knowledge constitutive interests can be demonstrated. This demonstration is the task of a critical philosophy of science that escapes the snares of positivism. The approach of the empirical –analytical sciences incorporates a technical cognitive interest; that of the historical –hermeneutical sciences incorporates a practical one; and the approach of critically oriented sciences incorporates the emancipatory cognitive interest that, as we saw, was at the root of traditional theories (Habermas J.1971).

The Consensus Theory of Truth:

The 'consensus theory of truth', as part of the theory of communicative competence, tries to answer the problem of the mutual understanding between speakers. Truth, for Habermas, is a quality of prepositional assertions contained within language use. Truth as validity claim is generated and associated with the factual content of statements. Truth is not representational but an agreement reached through critical discussion/discourse. Without the consensus concept of truth a speaker cannot have a concept of communicative competence (which is the ability to make the justifiability of a statement of the theme of a discussion) and vice versa, according to Habermas, since mutual agreement is the

need and nature of rational agreement. Habermas' intersubjective critique of the correspondence, coherence, pragmatist, semantic and redundancy theories of truth, come to the conclusion that 'universal consensus under ideal conditions is the ground or criterion of correct truth claims and truth is constituted by this criterion'. So, truth for Habermas is that which is agreed on ideal conditions of communication or intersubjective agreement (Strawson *et al.*). The concept of truth without the notion of rational agreement fails to understand the paradigmatic belongingness of truth claims to the assertive speech acts. '… the ability to raise a truth claim requires an awareness of and the ability to understand possible demands for its defense(as well as the point of making such demands), truth on this account to be understood as a kind of warranted assertibility (Habermas *et al.,*1984).

The above initial theoretical positions of Habermas are elaborated into the notion of universal pragmatics, the Habermasian theoretical programme of rational reconstruction of human understanding.

The Universal Pragmatics:

'The task of Universal Pragmatics', according to Habermas, 'is to identify and reconstruct universal conditions of possible understanding (Habermas,1979). Demanding improvement on the earlier theoretical versions of 'performative aspects of speech', such as of late Wittgenstein, Austin and Searl, Habermas searches for a rational basis in which the illocutionary force of the speech acts is guided to recognize four distinguishable validity claims, such as, intelligibility, truth, truthfulness/correctness, sincerity, which constitute the consensus background of language. Every communicatively competent speaker must possess pragmatic or dialogue constitutive universals to 'produce grammatically well formed' sentences. These universals are intersubjective, a priori elements which enable the speaker in producing speech act and to produce the general structures of the speech situation.

CRITIQUE OF HABERMAS' STANCE

This conceptual position of Habermas, which could be called a critical paradigm for science (and Knowledge), has been criticized mainly for the lack of realist objectivity or the deliberate absence of an objective criterion for the current discussions in the philosophy of science. Mary Hesse, in one of such critical discussions of Habermas' theory of science, begins her assessment of Habermas with the comment that Habermas' response to the discussions on philosophy of science in the analytical tradition, particularly in the post Kuhnian and post Feyerabend debates on truth and meaning, instrumentalism, realism and relativism that are primarily associated with Davidson, Kripke and Putnam, by all means is inadequate (Hesse M., 1982). Habermas, says Hesse, after the initial discussion of Knowledge and Human Interests makes a shift to a post 'Interests' phase and to a new paradigm of the distinction between 'Discourse' and 'Action'. Hesse points out that the 'action – discourse' distinction implies a pragmatic theory of meaning and a consensus theory of truth, which emphatically states that 'the empirical meaning of a sentence is not determined, as in verifiability theories of meaning, by the conditions under which the sentences would be said to be true, but rather by the conditions under which utterances are acceptably produced in the language community, including the conditions of learning to use the language to refer to that in the surrounding reality which is categorized as particular kinds of objects and events for technical purposes (Ibid p.99). Habermas's stance of non realism – non relativism here, which functions on a pragmatist theory of

meaning to discuss the concept of 'theory- ladenness' and 'meaning variance', ultimately rests on the insight that ultimately theoretical science is part of reflective and intersubjective self-understanding. As Hesse herself summarizes Habermas says , " Theoretical science is part of the human goal of reflective and intersubjective self-understanding which embraces the hermeneutic and critical sciences as well as the empirical, and involves norms and value judgments as well as empirically constituted facts. Theories are indeed a reflection of contemplative interest, not in the sense of old fashioned realism, but in the sense of Durkheims' symbolic representations, which unify humanity's understanding of itself and its interaction in relation to both its natural and social environment (Ibid p.105).

This position of Habermas is called 'transformed transcendentalism' (quasi-transcendental), which, according to Hesse, is evasive and uncertain. It is so, primarily because Habermas fails to explain 'why the human species can only reproduce itself through the medium of truth'. Secondly, Hesse criticizes, Habermas's distinction between the empirical and reconstructive sciences rests in part upon the thesis that the data of empirical sciences are always open to reinterpretation by theory, whereas the data of science depend upon ordinary language are not. Here Hesse complains that there is a prejudice in Habermas in calling reconstructive sciences pure and ideology free than the empirical theories.

Habermas's response to the criticism of Hesse was once again an endorsement of his position of transforming epistemology into social theory through a mutual overcoming of positivism with hermeneutics and hermeneutics with a theory of intersubjectivity and communication (Habermas J.). The paper makes the moderate observation here that Habermas's communicative ethics makes the uncertainties or incompleteness of Haberma's theory (consensus) of truth and the concept of reflective-reconstructive science significant through the substantiating idea that knowledge involves a formal commitment of communication or communicative necessity as social dialogue.

IMPARTING KNOWLEDGE AND PEDAGOGY – TEACHING SCIENCE

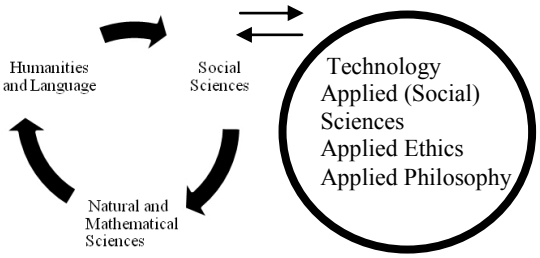
If knowledge is justifiably intersubjective, education/pedagogies should register it as dialogically and communicatively poised. Critical engagements which problematize the mainstream or popular idea of knowledge caution us that empirical science or similar positivist-scientist knowledge claims fall into 'disciplinary delimitation' and 'disciplinary narcissism. Disciplinary delimitation constructs and proliferates knowledge as 'dis-communicative' (non-communicating and structurally refusing to communicate) system of disengaged methods when the function of education is reduced to a mere commodity due to various dynamics of power plays

Knowledge as disengaged containers of different disciplines, refuses to initiate a socio-cultural understanding and contextual auditing of the knowledge claims as the claims of education, which is essential for communicating knowledge. In other words, when it comes to communication among established subjects/ academic disciplines at the level of higher education/University level education, both conventional and contemporary, they become disciplines with delimited horizons. Disciplinary narcissism is disciplinary fundamentalism. It is like religious fundamentalism or ideological fundamentalism. Fundamentalism is reificatory universalization of a particular period/phase/epoch of religio-cultural or socio-political ideals or ideologies. The major fault of any fundamental-

ism is that it is anti democratic, anti dialogic and by virtue of being so denies any form of reflective self-understanding and communication. Disciplinary fundamentalism and its spin-offs such as disciplinary solipsism and dehumanized technologization are instrumental in creating a scenario of practically nonexistent public sphere, civil and knowledge societies and effective democracy.

THE INTER-TRANSDISCIPLINARY NATURE OF KNOWLEDGE

Ideally, communication is in the telos of language as an intersubjective institution. The critical engagement is to reflectively map it and to make it part of the communicative and dialogical willingness. Similarly, the history of knowledge shows us that knowledge as its different branches interacts and interpenetrates to move from paradigm to paradigm. Therefore, it goes without saying that the true nature of knowledge is interdisciplinary, crossdisciplinary or multidisciplinary. As it is shown below it's a continuous process in the history of knowledge.



Knowledge as the product of disciplinary interaction keeps on generating new disciplinary modules. Contemporary examples are numerous and some of them are: Biochemistry, Biotechnology, Bioinformatics, Econometrics, Environmental Economics, and Ecosophy, to name a popular few. As the above diagram shows the interdisciplinary response to disciplinary knowledge offers us innumerable research and learning modules which challenge disciplinary decadence and narcissism. However, as it has been highlighted, the current status of disciplinary knowledge does not easily allow them to be part of our higher education due to the built-in disciplinary narcissism. In other words and from the angle of the broad concept of knowledge, the point that I would like to raise here is that all these seemingly Interdisciplinary or Crossdisciplinary new disciplinary modules fall into the same delimiting disciplinary boundaries unless there is a corresponding Transdisciplinary dimension created in correspondence with every new disciplinary construction.

I would like, therefore, to approach such an inter-trans disciplinary nature of knowledge as interactively burgeoning of language as intersubjective engagement of making meaning and truth. The process can be understood as happening through the following stages, such as, Natural–ordinary language which is being abstracted to subject-discipline specific symbolic languages in order to be advanced to a meta-language in the form of inter-trans disciplinary language which will be forced to be amenable to a further translation to the Natural–ordinary language and to the life-world. This can be called the movement of knowledge from within.

The growth of knowledge, as we have seen, is in harmony with 'inter', 'cross' and 'multi', 'trans' disciplinary modes from within and without. The major question that we face now is how we can make use of it to challenge the disciplinary narcissism which is more of an academic, discipline-wise malady and what would be the reflective engagement to respond to it with a new competence of interpreting it. Let us try to take our discussion forward by initiating certain counterfactual definitions.

INTER/TRANSDISCIPLINARITY AND THE INTER/TRANSDISCIPLINARY COMPETENCE

A normative and pragmatic communicative willingness which is constructed to border cross, both the structural and functional, self - imposed boundaries of the above discussed disciplines-related delimitation, I call 'Transdisciplinarity'. By doing so 'Inter/ Transdisciplinarity' aims at critical contexualization of the mainstream knowledge, dialogical undoing of the distance between the educator and the educated and locating the power structure between the teacher and the taught and the learned.

Inter/transdisciplinarity impregnates 'inter/transdisciplinary competence' which can be understood after the concepts of 'linguistic competence' and 'communicative competence'. 'Linguistic competence' according to Noam Chomsky 'is the system of linguistic knowledge possessed by native speakers of a language and the 'ideal' language system that makes it possible for speakers to produce and understand an infinite number of sentences in their language (Noam C.,1965). 'Communicative competence' is the competence of a speaker to possess pragmatic or dialogue constitutive universals to 'produce grammatically well formed' sentences which are intersubjective (that which acts as *a priori* elements which enable the speaker in producing speech act and to produce the general structures of the speech situation) (Habermas J. 1979). Hence, I frame Inter/Transdisciplinary competence as basically the competence to approach knowledge critically, dialogically and contextually.

CONCLUSION

The significance of the intersubjective philosophical challenge of scientism in the contemporary scenario of pragmatically constituted disciplinary activities and knowledge society is that it constitutes knowledge as multi-dimensional, multi-vocal and as the pattern of acknowledging the relationship between the Self and the Other. The intersubjective philosophical critique of the scientist concept of knowledge aims at bridging the gap between the generalized and those that are left out as singularities by the systemic claims of the empirical/natural, mathematical and social sciences. In other words, the philosophy of intersubjective knowledge offers a transdisciplinary dimension to contextualize knowledge. Such a stance attempts to universalize the non-universalizability of all kinds of knowledge assertions.

Therefore, the inter/transdisciplinary competence recognizes and aims to attain self transcending, self critical, liberative dimension of knowledge. It intends to overcome and border-cross the disciplinary delimitations by translating knowledge into contextual and intercultural moulds of the disciplines to situate it within the life-world. Inter/Transdisciplinary competence creates a space beyond the borders of disciplines on context to context basis through consensual and dissenting dialogue to nurture continuity to it by frequently searching for the moral-ethical implications it has on the various knowledge claims.

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Richard Stewart's analysis of the manifestation of science from a sociological and ethical point of view dealing Philosophy and Sociology of Science, London, Basil Bbalckwell , 1983 with science as scientism, science influenced by evolutionary and ecological ethics and socio-ethically regulated science is a good example for such discussions (Philosophy and Sociology of Science, London, Basil Blackwell , 1983).

The questioning of the Newtonian paradigm in physics by the theory of Relativity theory and quantum mechanics, developments in molecular biology, genetic engineering and the post empirical critical theories of Thomas Kuhn, Imre Lakatos and Paul Feyrabend in Philosophy of Science are relevant examples.

The well- known, second generation Frankfurt School, critical theorist, Juergen Habermas's discussion of philosophy of science was mainly centered around his early works like 'Knowledge and Human Interests', 'Warheisten Theorien', and his contributing articles to the 'The Positivist Dispute in German Sociology'.

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Role of ESIC as a Social Security Measure: A Study

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ABSTRACT

Social security is the security, which the society especially the state and the employers furnish through appropriate organizations to the individual members of the society who are exposed to certain risk. Among this risk the most important is the risk of medical emergencies. But the social security for medical emergencies is not so prominent to the Indian ethos till date The 11th Five Year Plan document presents a well thought out and comprehensive structure for health care in rural areas. The Indian health insurance scenario is a mix of mandatory Social health Insurance (SHI), Voluntary Private Health Insurance and Community-Based Health Insurance (CBHI). The Social Health Insurance (SHI) is based on income-determined contributions from mandatory memberships. The existing mandatory health insurance scheme in India is – Employees' State insurance Scheme (ESIS) and Central Government Health Scheme (CGHS). The execution and administration of ESI schemes is vested with ESI Corporation which was set up by the Government of India on 24th February 1952. Despite all the endeavours made by the Corporation for the effective functioning of the ESI Scheme in the country, public discernment of the Corporation has not been very positive regarding the quality of services and benefits provided to the insured persons and their dependents. It is assumed that no adequate steps are being taken to improve the effective of the Scheme among the insured persons and employers. Therefore, this paper examines the effectiveness of the working of various mechanisms of the Corporation for the administration of the ESI schemes in both factory and establishments registered under the ESI scheme.

Key Words: *Health Insurance, social security, Factory & Establishments, insured persons*

INTRODUCTION

Every human being of a society needs some sort of protection against providential mishaps over which common masses has no control. Social security is the security, which the society especially the state and the employers furnish through appropriate organizations to the individual members of the society who are exposed to certain risk. Among this risk the most important is the risk of medical emergencies. But the social security for medical emergencies is not so

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prominent to the Indian ethos till date. The International Labour Organization (ILO, 1942) defines social security as "the security that the society furnishes, through appropriate organizations, against certain risks to which its members are exposed. These risks are essentially contingencies against which the individual of small means and meager resources cannot effectively provide by his own ability or foresight alone, or even in private combination with his fellows these risks being sickness, maternity, invalidity, old age and death. It is the characteristics of these contingencies that they imperil the ability of the working man to support himself and his dependents in health and decency." India's rural population, mainly consisting of middle and low-income groups, necessitate the provision of social security, although their capacities to pay insurance premiums are very low.

EMPLOYEES' STATE INSURANCE (ESI) SCHEME AND EMPLOYEES' STATE INSURANCE (ESI) CORPORATION

This was the first social insurance measures to be introduced in India. The ESI Act encompasses certain health related eventualities that the workers are generally exposed to, such as sickness, maternity, temporary or permanent disablement, occupational disease or death due to employment injury, resulting in loss of wages or earning capacity- total or partial. Social security provisions made in the Act to counterbalance or negate the resulting physical or financial distress in such contingencies are, thus, aimed at upholding human dignity in times of crisis through protection from deprivation, destitution and social degradation while enabling the society the retention and continuity of a socially useful and productive manpower. The administration of the ESI Scheme as per the ESI Act has been entrusted to the Employees' State Insurance (ESI) Corporation. At the national level, The ESI Corporation administers the ESI Scheme.

REVIEW OF LITERATURE

According to Haber and Cohen (1948), social security is a controversial and dynamic topic with many aspects: Philosophical, Theoretical and Humanitarian, Financial, Administrative, Social, economic and Political, Statistical, Medical and Legal.

International Labour Organization (ILO, 1957) monograph concerned primarily with the five principles of social security schemes, now in force in Great Britain, these consist of National Insurance, Industrial Insurance, Family Allowances, National Assistance and the National Health Service.

Choudhuri, Sunil Rai (1962), examined a comparative study of the social security schemes in two countries, i.e., India and Britain. He studied the two Indian Schemes, i.e. Workmen's Compensation Act and Employees' State Insurance Act regarding industrial injuries and of their achievements and failures and also studied the present British Industrial Injuries Scheme and its working since 1948 and further attempted to show which of the principles underlying the British Scheme would be adopted in India.

Sarma, A. M. (1981) studied the social security scheme in detail and different social security legislations in India including comprehensive selection of recent cases law bearing on the subject. His study stated that the ESI Scheme neither covered all risks nor was it applicable to all the working population.

Speaking on the occasion of the golden jubilee celebration of the Employees' State Insurance Scheme, Atal Bihari Vajpai (2002), the

then Prime Minister emphasized the need to increase the reach of social security to the large number of workers in the unorganized sector. He stated that the Employees' State Insurance Scheme should endeavor for providing social security umbrella to the poorest of the poor workers and people in the unorganized sector for achievement of national goals set by Mahatma Gandhi.

THE OBJECTIVES

The main objective of this paper is-

a. To study the effectiveness of the benefits provided to the Insured Persons (IPs) registered under the ESI scheme.
b. To offer some suggestions for the proper and suitable implementation of the scheme.

METHODOLOGY:

For the purpose of the study, Primary data are collected from the enterprises registered in the **Guwahati Branch Office** by field survey through questionnaire. Discussions with the officials of ESI Corporation as well as discussion with the leaders of various trade unions and office bearers are also done. Again related secondary data are collected from Library work, Visiting dispensaries and offices, collecting information from internet sources, consulting persons of related matters etc.

To examine the effectiveness of benefits provided to the insured persons under the ESI Scheme, the following ***variables*** were taken into consideration –

1. Awareness of the ESI benefits
2. Knowledge about the formalities of clamming the ESI benefits
3. Level of satisfaction in the Services of the Doctors in ESI Dispensaries

SAMPLE SIZE

The sample for the study consists of 50 enterprises covered under the ESI Scheme and 150 insured persons selected from the respective enterprises.

FINDINGS & ANALYSIS

In the study an enquiry was made among the insured persons to know about their awareness and knowledge about the ESI Scheme and also to assess their level of satisfaction in the services of the doctors they get from the ESI dispensaries. Their responses are discussed below:

AWARENESS OF THE ESI BENEFITS

The ESI benefits to be effective, first of all, there should have awareness among the insured persons about the various benefits provided by the Corporation under the ESI Scheme. The level of their awareness is shown in the following **Table1-**

Table1. Awareness of the ESI Benefits as perceived by the Insured Persons

Responses	Factory		Establishment		Total	
	No.	%	No.	%	No.	%
Fully Aware	26	29	20	34	46	31
Partially Aware	65	71	39	66	104	69
Total	91	100	59	100	150	100

Source: Field Study

The above **table 1** reveals that only 31% of the insured persons were fully aware of the ESI benefits and most of them, i.e. 69% IPs were partially aware of the ESI benefits. Enquiry was also made through the questionnaire about their non-awareness of the ESI benefits, but the results shows that somehow they were aware of the ESI benefits.

KNOWLEDGE ABOUT THE FORMALITIES OF CLAMMING THE ESI BENEFITS:

From the study it was found that most of the insured persons were not well equipped with the knowledge about the formalities of clamming the ESI benefits. **Table 2** below shows the results-

Table2. Knowledge about the formalities for claiming the ESI Benefits by the Insured Persons

Responses	**Factory**		**Establishment**		**Total**	
	No.	%	No.	%	No.	%
Fully Aware	07	10	15	19	22	15
Partially Aware	51	72	43	54	94	63
Not Aware	13	18	21	27	34	22
Total	71	100	79	100	150	100

Source: Field Study

From the table above it is seen that most of the IPs were only partially aware about the formalities for clamming the ESI benefits. It stood for 63%, followed by 22% totally not aware about the knowledge for clamming the benefits and 15% were fully aware about the knowledge for clamming the ESI benefits as perceived by the IPs.

LEVEL OF SATISFACTION IN THE SERVICES OF THE DOCTORS IN ESI DISPENSARIES:

The responses of the insured persons regarding the level of satisfaction in the services of the doctors provided under the ESI Dispensaries are not satisfactory as revealed by the study. Most of the insured persons (both from factory and establishments) opined that they were dissatisfied with the ESI Dispensaries regarding the various services, among which, the services of doctors are the prime ones. The responses of the insured persons regarding the level of satisfaction are given below in **Table 3**

Table3. Level of satisfaction in the Services of the Doctors in ESI Dispensaries as perceived by IPs

Responses	**Factory**		**Establishment**		**Total**	
	No.	%	No.	%	No.	%
Extremely Satisfied	-	-	04	08	04	05
Satisfied	02	05	05	10	07	08
Neither Satisfied Nor Dissatisfied	06	17	08	16	14	16
Dissatisfied	22	61	29	56	51	59
Extremely Dissatisfied	06	17	05	10	11	12
Total	36	100	51	100	87	100

Source: Field Study

Table 3 reveals that most of the IPs, 59% combined from the factories and establishments were dissatisfied with the services of the doctors in the ESI Dispensaries, followed by 12% extremely dissatisfied. A sizeable number, i.e. 16% of the respondent were also neither satisfied nor dissatisfied. Satisfied and extremely satisfied came only 8% and 5% respectively.

SUGGESTIONS:

From the above analysis it is found that the insured persons in factories and establishments are not properly aware and their level of satisfaction is also poor. Therefore, the following suggestions are advanced so as to make the Employees' State Insurance Scheme as well as the Corporation more effective -

- Efforts are to be made on the part of the Corporation to enhance the level of awareness among the insured persons and the employers about the ESI Scheme and the Corporation as well.
- The Corporation has to relax the eligibility conditions and simplify the formalities to enable the benefits under the ESI Scheme.
- The Corporation can also consider extending IT facilities like computerization of different sectors.
- Constant education and community involvement – in both implementing and monitoring – are key to ensuring that benefits actually reach the poor.
- The Corporation should also make sure that all the insured persons and the employers covered under the ESI Scheme are getting the printed educational material about the Scheme in a language Known to them. Besides the print media, the Corporation can also consider press publicity, electronic media, seminars and workshops in this regard.
- Improve health service delivery quality in terms of services of Doctors, availability of quality medicines, adequate laboratory testing facilities. At least in some cases, specialist care should be provided with reimbursement facilities regarding some diseases, where the insured persons seek treatment of their choice hospitals.

CONCLUSION

"Health for All" in India with 1.26 billion people is indeed a tall order. But it also presents a great opportunity, as India is telling the world. Health Insurance programmes have the potential of transforming poor households' health and financial security and thereby can provide full range of social security measures. However the success of a health insurance programme depends on how effectively the benefits reach the poor. Constant education and community involvement – in both implementing and monitoring – are key to ensuring that benefits actually reach the poor. The same is also equally applicable to Employees' State Insurance Act, 1948, which is engaging in providing health protection to employees in the organized sector and their dependents in contingencies.

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