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Editorial

It is heartening to note that the current issue has seven articles and there are enough articles for the next issue as well. The editorial office of the journal has begun to receive articles for consideration of publication not only from India's Northeast but also from other parts of India. Unfortunately, we are not able to publish all of them either because they do not fall under the purview of the journal or are regretted by referees. The new challenge for the editorial office is to find referees who are both willing and competent on the subjects on which submissions are made. But a bigger challenge lies in the book review section. My fervent appeal sent through Internet to my colleagues at NEHU to send me reviews of any recent books they had read was apparently ignored. I cannot believe that they did not read any recent books during the past six months or so. I hereby appeal to them to send me a copy of their recently published books for review in our university journal.

This issue begins with a section of a longish essay on the megalithic culture of the Khasis written by David Roy. The second part of the authoritative essay will be published in the next issue and third part in the issue after that. This essay written by one of the most illustrious Khasi administrators cum scholars is neither going to be dated nor losing its significance when broken into three sections and published in three different issues of the journal.

The second article is also on the Khasis but written by a young scholar, Lorna Bang, who was awarded the doctorate degree recently on her work on reproductive health of the women in matrilineal Khasi society. This is followed by Jaynal Ud-din Ahmed's article on non-performing assets of commercial banks in Barak Valley of Assam, which the author argues, is responsible for the banks' inability to participate in the development programmes in the region more enthusiastically than it is seen now. The fourth article by Sanjoy Roy is a documentation of the status of NREGS in Tripura.

The next two articles are on engineering and chemistry and being published by our university journal for the first time in its history. Whether

spelt out clearly or not in the name of the journal, our university journal has always been given the identity of a social science and humanities journal by all those who know about it. As its editor for the past eight years, I wanted to break this image of our journal. Although it was not easy to find referees for these articles it was made possible to find at least one referee for each one of them with the help of my colleagues at NEHU. I shall feel gratified if more submissions come in the field of physical and life sciences in future.

This issue is different from all past issues on one other ground. It includes two discursive articles that I expect will initiate intellectual debates at NEHU, although the subject matters of the two articles have the potential to take the debate outside the university community as well. Even if the debates are restricted to NEHU faculty I shall feel more than gratified for having achieved something our university journal should have tried much earlier.

T. B. Subba

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The Megalithic Culture of the Khasis - I

DAVID ROY

Introduction

Upright stones, large and small, and horizontal table stones are to be seen all over the Khasi Hills, but full and precise information about them have never been recorded and are hard to obtain. I set myself the task of identifying the various kinds of stones and learning about the ceremonies connected with them from those persons who have knowledge of them. It has been necessary to describe the cremation and gathering of the *shyiang* (bones) and their placing under a *mawshyiang* (stone for the bones). The first cist called *mawkynroh* or *mawphew* is near the house of the deceased and for his or her bones alone. Later the bones are transferred to a second and larger *mawkynroh* where the bones of other members of the minimal matri-lineage are also placed. The third *mawshyiang* is called *mawbah* (big stone) or *mawniam* (stone of the religion or more accurately, of religious ceremonial) and it is the final resting place of the bones of all the members of the clan. The other

David Roy was the only son of Rai Bahadur Roy Singh (Rai Shabong). He was born at Laban, Shillong on 23rd December, 1884. From a young age his father sent him for schooling at Doveton College, Calcutta and he completed his studies from Duff College, Calcutta. He served as a Magistrate in the Assam Civil Service and was posted in various places including the Naga Hills, Garo hills and the Lushai Hills. He took part in the Kuki Expedition in 1919. On his return to Shillong he served as Administrator of the Hima Myllem. He was a Sub-Divisional Officer at Jowai during the Silver Jubilee celebration of King George V in 1935. He was appointed as the Dewan of Hima Myllem and Hima Sohra during 1936-46 and through his efforts the affairs of these two Hima were set right and their economic positions revived. He was later conferred with the MBE (Member of the British Empire) by the British Government of the time.

After his retirement, Roy continued to assist the Hima Myllem and was closely associated with the Federation of Khasi States. He established the Pomlum High School at Pomlum and played a significant role in the formation of the Seng Syngkhong Jingtip of which he also served as President. He was a member of the Indian Science Congress and attended the meetings of the congress at Indore and its Silver Jubilee celebration at Calcutta in 1938 where he presented a paper entitled "Significance of Cowrie Shells in Khasi Ceremonies". He wrote extensively, particularly on Khasi customs, traditions and laws and his writings were published in various journals. He also collaborated extensively in the publication of Sir Keith Cantlie's Notes on Khasi Law and contributed some chapters of the book.

He passed away in Shillong on the 13th February 1966.

kinds of stones are also connected with the mortuary ritual though they are not repositories of bones. The *mawbyinna* (stones to mark and remember) is erected last of all, not less than a year and often much later after the bones were placed in the *mawbah* cist. The last *mawbyinna* known to me to have been erected were those for Ka Stem Mawri of Laitkor near Shillong about the year 1890. When I was writing this paper in 1930s I was greatly helped by U Bari Nongkhlaw of Umphyrnai village who described to me various rites and ceremonies and by U Mohon Kharkongor of Laitkor who told me especially about ceremonies at the erection of three *mawbyinna*. Both of them saw the erection of the *mawbyinna* stones for Ka Stem Mawri. I have been indeed fortunate in being able to record the ceremonial words for *mawbyinna*. In this paper the *mawbyinna* are treated as part of the full ritual without further mention being made of the present cessation of their erection, which may be revived by any Khasi family. What has been said about *mawbyinna* applies also to *mawksing* (also called *mawkait* and *mawja*). These stones are not distinguishable in appearance from *mawbyinna* and the term *mawbyinna* is often loosely used for them, but in the opinion of U Mohon Kharkongor the final stones are called *mawksing* when *mawlynti* (stones of the road described later in this article) have been erected; when *mawlynti* have not been erected the final stones are called *mawbyinna*.

The Khasi Family

In relation to the Khasi funeral ceremonies the most important social unit is the *iing*, the minimal matrilineage; the same term *iing* also means family and house. The Khasis are organized into matrilineal descent groups of different genealogical depth. The largest of these groups, the clan (*jaid*), is exogamous; its members trace their descent from a common ancestress. The clan usually consists of several *kpoh* or major lineages and each *kpoh* is composed of several *iing*, minimal lineages of about three generations' depth, the head of the *iing* being usually a grandmother.

Property passes from mother to daughters, the youngest daughter receiving a larger share of it as she is the ritual head of the family; the actual management of the property is in the hands of her maternal uncle or eldest brother. The office of the chief, however, is inherited not through the youngest, but through the eldest daughter.

The husband stays with his wife's family and he works on their fields; if he is the eldest brother in his own family, he manages the property and business of his younger sister, but never that of his wife. Some married

couples later settle in a house of their own and pool their resources, yet they remain members of different *iing* and clans, and the roles they have in the mortuary ritual depend on this membership. The kin of each individual is divided into three groups: all members of a clan call each other *kur*; the children of male members of the clan are called *khun-kha*; and relatives through men who married women of the clan are called *ki kha ki* men.

The ceremonies connected with the disposal of the dead are mainly the concerns of the *iing*. The bones are first transferred from the individual cist to the family ossuary and later they are brought into the *mawniam*, the ossuary of the whole clan. Though the *mawniam* is common to all the *kpo*hs which form the clan and the bones of all their members are at last deposited in it, this ceremony need not be necessarily performed by the whole clan. There is a Khasi phrase *ban da klo*i u *kur u jaid* – when *u kur u jaid* (clan) are ready, i.e., ready to perform the ceremonies. This means “when the members of the *iing* are ready” it does not mean when all the members of the clan are ready.

Cremation and Placing of the Bones in Individual Stone Cist

Khasi funeral ceremonies show the firmness of their belief in the connection between the living and the dead in a family and the influence of the dead on those they left behind. When a man dies the body is washed by his male relatives or friends. It is dressed in ordinary clothes and laid on a bed on which is put a raw egg in a dish, plantains and other fruits, Job’s tears (edible seeds of *Coix lacrima*) or maize, and betel-nut. All these things are taken to the place of cremation, which is a fixed place near the village. The cremation usually takes place on the second or third day after death. A level platform is prepared, logs are laid on it, and on them is placed a coffin of planks, which is open both at the top and at the bottom. Then a fire is lighted near the pyre to provide burning brands. The mourners bring the body and place it in the coffin; firewood is put into the coffin and burning brands are then pushed under it, first by the maternal relatives or the sons, and then by friends and helpers. Then the raw egg from the bed is thrown against the pyre and other offerings of food are poured from the dish onto the side of the pyre. Relatives and friends drop betel-nut on the pyre as they leave the place of cremation.

Normally the cremation ceremony is performed by the clansmen of the deceased. However, a married man may be cremated by his children, or even by his widow, if she does not contemplate remarriage; a wife who died without issue may be cremated by her husband. As soon as the body has

been completely consumed, water is poured on the fire to quench the embers. The bones are then collected by a man and received by a woman, who holds out a white cloth, which must not touch the ground. When the cremation ceremony is performed by the clansmen of the deceased, the bones are then collected by his mother’s brother, brother or sister’s son and received by his mother’s sister, sister, or the sister’s daughter. When a man is cremated by his children, the bones are collected by his son (or, if he has no son, by his wife’s brother or one of her other relatives) and are received by the widow provided that she does not contemplate remarriage. If she intends to remarry, her daughter, or even her son, receives the bones. Should a widow who has received the bones decide to remarry she must hand them over to the deceased’s clansmen before doing so. Normally a childless widow who intends to remarry does not perform the cremation of her husband. If there are no maternal relations capable or willing to undertake the task, she may arrange for the cremation of the body in an informal way unaccompanied by any ritual. But the bones should in any case be collected from the cremation place by the man’s maternal relatives.

If a widow does not contemplate remarriage, she may cremate her husband and may either take the bones and keep them in a *mawky*nroh until they are later handed over to the deceased’s maternal relatives after the performance of the ceremonies, or she may perform the ceremonies before the cremation. In the latter case the bones are collected by her and handed over to the maternal relatives of the husband immediately after the cremation, on the way to the house of these relatives.

A husband normally does not conduct the cremation of his wife; this is the task of her children and clansmen. A wife who dies without issue, however, may be cremated by her husband, even though he will not collect the bones, which are collected and taken by her relatives immediately after the cremation. The man whose formal duty is to gather the bones makes three trips in which he collects three or four of the small fragments from the middle of the body of the deceased man or woman and places them on a cloth, which is held by the woman who receives the bones. Other male helpers will then assist and sift the ashes till every remaining fragment of bone has been placed in the cloth. During this no ceremonial words are uttered. The ashes of the pyre are then put into a heap and the woman who receives the bones on a white cloth places it with its contents on top of the heap. Thereupon follows a sanctification ceremony (*jer*), which any knowledgeable man irrespective of clan-membership may conduct. The performer mixes rice, flour and water and takes a leaf of

the *dieng pyrshit* tree, and before putting these items on top of the bones on the pile he says:

*Ko ba duh me ka rynieng, me u Dieng wat buh khoh wat buh jaw.
Sneng lang me u Kni me u Kong, wat buh khoh wat buh jaw. Sneng
ryngkat me u long kha me u man kha, wat buh khoh wat buh jaw.*

O thou who hast lost thy stature, thou u Dieng¹ have no regrets, feel no bitterness. Give counsel together thou maternal uncle (*u kni*), thou maternal brother (*u kong*), have no regrets, feel no bitterness. Give counsel together thou *u long kha* (who causest to be), thou *u man kha* (who causest to grow) i.e., deceased relations of u Dieng's father's clan (paternal), have no regrets, feel no bitterness.

The sacrificer then places the rice-flour paste and a leaf of the *dieng pyrshit* tree on the bones. The ceremony is the same whether the deceased is a man or a woman. The cloth containing the bones is then lifted from the ashes and wrapped in another cloth, which is tied to the body of the person who carries the bundle. This person may be of either sex, but must either belong to the deceased's matri-clan or be one of the deceased's descendants. The carrier then sets out for the stone cist where the bones are to be deposited and must never look back on the way from the cremation place till the destination is reached. In front of the carrier walks a man, who may be of any clan, scattering at intervals along the path grains of rice and *dieng pyrshit* leaves. If a stream has to be crossed the leader scatters rice and *dieng pyrshit* leaves on the bank and immediately wading across scatters them on the other bank. Some also tie a thread from one side of the stream to the other. They proceed in this way until finally the cist, which is called *mawkynroh* or *mawphew*, is reached.

Relatives begin to erect the *mawkynroh* (*mawphew*) cist either in their own garden or on a hillock on the outskirts of their village as soon as the torch of fire is applied to the cremation pyre. This cist is a slab of stone of about a square foot size placed on the ground and enclosed by other slabs on three sides. A cover stone and stones to close the open side and flat stones to pile around are kept ready. As soon as these preparations are completed the builders fetch from the house of the deceased three loaves made of rice-flour and water, which the women bake as soon as the body left the house for cremation, a cooked egg, a gourd of rice-beer, some water and a *lakhar* leaf, some rice, rice-flour, fermented rice and half-cooked rice, and they bring all these things to the newly built *mawkynroh* cist. There the sacrificer, who

may be of any clan, spreads the *lakhar* leaf on the ground and sets up the gourd and lays all rice, egg, with one leaf of *dieng pyrshit* tree on the *lakhar* leaf. He then speaks as follows:

*Kane, phi u Dieng phi dang sah ha lum ha wah, phi ka Ramew
maw, ka Ramew nar, phin ai um ai dieng, phi ka Synshar maw phin
ai um ai dieng katba dang sah shi taiew ar taiew, shi bnai ar bnai.*

Here you u Dieng, you are (*sah* lit. remain) on the hill and the valley, you the Ramew² (earth's bowels) of stone, the Ramew of iron, you will supply water and wood, You ka Synshar (power) over the stone you will supply water, you will supply wood as long as (the bones) remain here whether it will be a week or two weeks, a month or two months.

When the sacrificer has ceased speaking, the offerings are removed and can be kept or thrown away – they are no longer of any importance. They now wait for the arrival of the bones. When reaching the place the carrier unfastens the cloth in which the bones are wrapped. The bones are placed inside the cist *mawkynroh* (*mawphew*) either by the carrier himself or by any man but never by a woman. There is nothing said or any ceremony performed when the bones are being placed in this cist. The cist is then closed with the *mawkhang* (door-stone). As soon as the stone is closed the sacrificer takes again a *lakhar* leaf, three loaves, a cooked egg, some rice, powdered rice, fermented rice and half-cooked rice, all of which have been brought again from the house of the deceased. He spreads the *lakhar* leaf on which he placed the gourd of fermented rice, the loaves and all the other offerings together with a leaf of the *dieng pyrshit* tree. He then says:

*Me u Dieng, me uba duh ka rynieng me uba duh ka rta jong me,
wat buhkhoh wat buh-jaw ia ka ing ka sem. Sneng lang me u Kni
me u Kong wat buhkhoh buh-jaw. Sneng ryngkat me u Long-kha
man-kha, wat buhkhoh wat buh-jaw.*

Thou, u Dieng, thou who hast lost thy stature, who hast lost thy age, have no regrets, feel no bitterness against thy house and family. Together favour him with thy kindly counsel thou brother, have no regrets, feel no bitterness. Together favour him with thy kindly counsel, thou who causest to be, thou who causest to be, thou who causest to grow, have

no regrets, feel no bitterness.

The mourners then depart. This concludes the first stage of the ceremonies. The bones remain there in the *mawkynroh* until the parents or the maternal relations have collected sufficient funds and are ready to perform the subsequent rites.

Collection of the Bones from the Individual Cists

No divination by egg-breaking is undertaken to determine when the *mawkynroh* of individuals should be opened and the bones collected into one cist. Whenever they can afford to pay for the ceremony, the parents or the lineage members and the children of the brothers and maternal uncles (who are known as *khun-kha khun-long*) agree on a date. They begin with the *mawkynroh* of the eldest of those whose bones are to be collected. A sacrificer carrying a gourd containing fermented rice mixed with water goes with the party to the *mawkynroh*. Anyone may open the *mawkynroh* and any male member of the matri-lineage of the deceased may take out the bones. These are received by a female member of the lineage in a white cloth, which she holds clear of the ground. She wraps the cloth securely round them and waits there while the sacrificer makes an oblation with the rice-beer from the gourd on the opened *mawkynroh* with the following words:

Kane mo ia phi u/ka Dieng ban kyntiew ing kyntiew sem.

Here now for you u/ka Dieng to bring thee up into the house, to bring thee up into the house, to bring thee up into the dwelling place.

The bones are then carried to the house where in the courtyard the party awaits the arrival of the bones from all the other *mawkynrohs*, where the same ceremony was performed. On this occasion the bones of those who have died in the house of their wives and have been cremated by their children are taken over from the children by the deceased's lineage members who meet them on the way from the house of the deceased's maternal relations, where the bones are being collected. This entails special ceremonies, which are described later in this article.

A mat is spread in the courtyard of the house to which the bones from the various *mawkynrohs* are to be brought. The bones of u/ka Dieng, who is the eldest of the deceased, are received first. The maternal kinswoman, who carries the bones of u/ka Dieng, holds the bones on the mat; she undoes the

cloth and onto the bones of u/ka Dieng parties who have already arrived and other deceased relations; and when all have been collected, the woman carries all the bones in the cloth inside the house where she places them in the cloth on a bed on which a *shlan* mat (*shylliah shlan*, a mat made of *shlan* reeds) is spread. The sacrificer then makes oblations (*suid*) with rice-beer on the floor in the *nongpei* (open space in the Khasi house in front of the hearth) and says:

Kane la kyntiew ing kyntiew sem ia phi u/ka Dieng

Here now u/ka Dieng thou hast been brought up into the house, thou hast been brought up into the dwelling place.

The sacrificer pours out a small quantity of rice-beer once more as oblation, saying:

Hei wat buh khoh wat buh jaw, to sneng Ryngkat phi u Kni phi u Kong.

Hei, do not repine do not be filled with regret. Give counsel thou maternal uncle, thou brother.

Again, he pours an oblation saying:

Sneng ryngkat phi u man kha long kha.

Give counsel, thou who causest to be, thou who causest to grow.

Thus it is three times that the sacrificer pours out libations. Only the name of u/ka Dieng, the seniormost of those whose bones have been collected, is mentioned, though the bones of other deceased lineage members have been brought.

This ceremony of taking the bones from the *mawkynroh* stones and bringing them to the house can be performed any time of the day or even at night, but on the completion of these ceremonies of gathering the bones home no other ceremonies are performed that night. The next morning the relations of those whose bones have been collected sacrifice a bull or a cow. The animal must be healthy, but it need not be of any special colour or marked in any particular way. They bring the animal to the courtyard near

the front door of the house; they do not tie it up, men just keep it from escaping. The sacrificer speaks as follows:

Mynta la kyntiew ing la kyntiew sem ia phi u/ka Dieng bad ryngkat ia phi ki 6 – 100 ngut.

Now this has been brought up into the house, has been brought up into the dwelling place, thou u/ka Dieng and ye (so many, say, 6 or 100) persons.

The total number of persons whose bones have been collected is given, but only u/ka Dieng, the senior, is named. The sacrificer then scatters rice over the animal eleven times, counting one, two, three up to eleven. He then gives orders to strike the beast with sticks. The animal is not killed by stabbing, cutting, or by shooting, but is clubbed to death with sticks by the villagers.

When the animal is thus killed the men of the village cut it open and remove the sacramental portions (*iashim dkhhot*). These are two portions from the liver, two from the heart, three from the rectus spinal, two from the small intestines, two from the kidneys, two from the lungs, two from the small intestines, one from the stomach, one from the spleen, and one from the meat of the neck, making eighteen in all. The sacred portions are separated into three heaps of ten, five and three portions. It does not matter how the pieces are grouped, care being taken only that all the portions from one part of the animal are not placed in the same heap. Some clans take as many as 24 pieces increasing the number of pieces from those parts of the animal mentioned above. Some clans, on the other hand, take only eight pieces, but these must include portions from the liver, rectus spinal, heart, large intestines and kidneys. Whatever the variation, these five pieces are essential and are called *dohiong*. One portion from the neck, one from the small intestines, and one from the lungs are called *dohpha*. The other remaining pieces, ordinarily ten, are called *khwang*. Along with the above, the frontal bone and the lower jaw are roasted on spits over the fire. While *dohpha* is cooked, *khwang* is not. Each of the five pieces of roasted *dohiong* is cut into three. So three piles of *dohiong* are made, each pile composed of the five different kinds. The frontal bone and the lower jaw and the *khwang* are put in the *nongpei* (inside the house near the front door). Then the sacrificer sits down near the door, facing outside and asks for water. Holding the five pieces of one pile of *dohiong* in his left hand and receiving water into the hollow of his right hand he says:

Kane ka um pyngad, ka um pynjang ba la kyntiew ing ia phi, u/ka Dieng, phin rngih phin rgon ba la hap u Dkhot u khyllai.

Here is refreshing water, invigorating water, for thou, u/ka Dieng, which has been brought into the house, thou wilt be content, thou wilt be satisfied now that pieces (*dkhot*) and sacramental portions (literally): kidneys have fallen.

Having said the formula the sacrificer sprinkles with the water in his right hand the pieces of *dohiong* in his left hand. He is then given the *skaw* (gourd) containing water and fermented rice into his right hand. Still holding the *dohiong* in his left hand, he gets up and goes to the bed on which the bones are. Placing the *dohiong* near the bones he says:

Kane mynta la kyntiew iing ia phi, u/ka Dieng, ryngkat ki 6 – 100 ngut (khlem ong kyrteng) ba la pang nud ki pyrsta ki para, ba la hap une u dkhhot.

Now u/ka Dieng thou hast been brought into the house with so many (giving the number of persons whose bones are brought, without mentioning names), that nephews, nieces, brothers and sisters have felt bereaved, that pieces and sacramental *u khyllai*. Portions have fallen (meaning “prepared for sacrifice”).

He pours liquor from the hole at the end of the narrow neck of the gourd over the *dohiong*. He then goes to the *madan rympei* (open space in front of the hearth) and picking up another group of *dohiong* he says again:

Mynta la kyntiew ia phi, u/ka Dieng, To sneng ryngkhat phi u Kni phi u Kong ryngkat ki 6 – 100 ngut.

Now that thou, u/ka Dieng hast been brought into the house give counsel together thou maternal uncle, thou brother, together with the 6/100 (giving the exact number of the dead without names).

He then lays the *dohiong* on the floor and pours an oblation over them. Taking the remaining *dohiong* from the dish he says:

Sneng ryngkat, phi long kha man kha ba la hap u dkhhot la hap u khyllai.

Give counsel together thou who causest to be, thou who causest to be, thou who causest to grow, now that the pieces of meat and sacramental portions have fallen.

These pieces too are placed on the floor before he pours a libation over them. When this ritual is completed, the *khwang*, the frontal bone and the lower jaw is taken from near the door and placed together with the *dohpha* inside the house. On the same day on which the bull or cow is killed and the sacramental portions are offered (not *dkhot*), a new *mawkynroh* (cist) is built either in the garden or in the open outside but not far from the house. As soon as the *mawkynroh* is ready, the mother or the sister or sister's daughter carries the bones in the cloth in which they were wrapped to the *mawkynroh*. There a male relation, a maternal uncle, brother or sister's son, takes the bones and deposits them inside the *mawkynroh*; he then tears the cloth in which they were wrapped up into two strips which he places on the *mawkynroh*.

When the bones are taken out of the house, the lower jaw, the frontal bone with the horns, the *khwang*, the *dohpha*, the gourd, a *lakhar* leaf, three *japha* loaves, fermented rice, a hard boiled egg, a bamboo stem filled with water, a *dieng pyrshit* tree, half-cooked rice, and rice-flour are also brought along to the *mawkynroh*. First of all the bones are placed inside the cist, then the cist is closed with the *mawkhang* (entrance stone) against which three big stones are put. The sacrificer pours water over the egg from the bamboo stem. He takes a pinch of each of the three loaves, cuts three pieces, one from each of the three portions of the *dohpha*, holds them in his hand and says:

Kane la kyntiew ing ia phi u/ka Dieng tang ba phin dang sah hi mynta ha lum khyllai ia phi, ryngkat phi ki 6/100 ngut (khlem ong kyrteng).

Here now thou u/ka Dieng hast been brought unto the house though wilt still remain on the hill and in the vale though *ha wah, tang ba la hap u dkhot u* pieces and sacramental portions have fallen unto you together with the (mentioning the number without the names).

The sacrificer then puts the sacramental offerings on the *lakhar* leaf near the gourd. The sacrificer again takes pinches of the loaves and puts off the three portions of the *dohpha*, saying:

Sneng ryngkat phi u long kha man kha ba la hap u dkhot la hap u khyllai.

Give counsel together thou who causest to be, who causest to grow, that the pieces and sacramental portions (fragments) have fallen.

The sacrificer places the offerings on the leaf near the gourd. The sacrificer takes the hard-boiled egg over which he has sprinkled water as described. He peels off the shell and cuts off a slice of the smaller end, giving the rest of the egg to the people around him. He takes up the gourd and makes an oblation (*suid*) pouring out *jyndem* (fermented rice mixed with water) from the gourd over the slice cut from the egg saying:

Phi u/ka Dieng ryngkat phi ki 6/100 Ngut lada phi buh khoh lup san kynti, lada phim but khoh liem shi kynti, lup shi kynti.

Thou u/ka Dieng together thou the 6/100 (whatever the actual number) if you repine and have regrets, appear on the reverse five times, if you have no regret appear on the obverse once and on the reverse once.

Then he throws the slice of the egg onto the *lakhar* leaf. If it falls showing once the reverse and once the obverse side, he pronounces that everything is favourable and puts away the slice of egg; if it does not fall thus, further ceremonies not described here have to be performed until he at last declares the auspices to be good.

After this the sacrificer again takes pinches from the three loaves and cuts again pieces from the three portions of the *dohpha*, and he takes up all the fermented rice, the half-cooked rice, the shell of the egg, and the other articles of food and he says:

Kane la kyntiew ing ia phi u/ka Dieng ryngkat ki 6/100 ngut. Kane la hap Bad jaot, bad dkhot bad khyllai bad Shynrong bad shyntaw.

Here thou u/ka Dieng hast been brought unto the house together with the 6/100, here have fallen (i.e., have been offered) the uncooked rice the pieces and sacramental portions and the shell and covering.

He places all these things on the ground near the stone (not on top of it) saying at the same time:

Ioh phi ong lang u shynrong u shyntaw, kane bad ka iad hiar ka iad bang.

Lest you say only the shell, the covering here is also the fermented liquor the invigorating liquor.

And he pours out an oblation (*suid*) on the lakhar leaf which has been spread near the gourd. The meat offerings, the gourd, the water, the bread, and all the articles of food are poured in offering (*noh*) at the entrance of the cist.

This completes the second stage of the journey of the dead towards the final resting place.

Notes

¹ *u Dieng* is the name of an imaginary deceased used in formulae throughout this paper. U Dieng is a man and ka Dieng a woman. In practice the actual name is used.

² The above invocation is the only one in which spirits other than those of dead relatives are mentioned. Ka Ramew is the power controlling the interior parts of the earth and ka Synshar means a ruling spirit or power.

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Reproductive Health of the Matrilineal Khasis of Meghalaya

LORNA B. BANG

Introduction

The study of reproductive health has gained popularity mainly under the initiative of certain international agencies, but there is no denying the fact that this is an important subject of research cultural anthropologists have virtually ignored for reasons best known to themselves. The subject is particularly important from the point of view of women, as there is growing awareness about the importance of reproductive health throughout the world.

Women bear by far the greatest burden with regard to reproductive health problems. They are at risk of complications arising from pregnancy and childbirth; they also face risks in preventing unwanted pregnancy, suffer the complications of unsafe abortion, bear most of the responsibility of contraception, and are exposed to contracting, and suffering the complications of reproductive tract infections, particularly STDs (Sexually Transmitted Diseases). Among the women of reproductive age, 36 percent of all healthy years of life lost are due to reproductive health problems such as unregulated fertility, maternal mortality and morbidity, and STDs including HIV/AIDS. By contrast, the equivalent figures for men are 12 percent to that of women (POPIN 2004).

Biological factors alone do not explain women's reproductive burden. Their social, economic and political disadvantages have a detrimental impact on their reproductive health. The reason why we chose to study the reproductive health in the context of matrilineal Khasi society is to examine the veracity of the common assumption that women in matrilineal societies have better reproductive rights and therefore better reproductive health. Issues related to sex and sexuality have never been dealt with openly in this society, and discussing some aspects of sex publicly are still considered to be taboo. However, such discussions may take place amongst close friends. Such matters are even considered to be a rebellion against the ethics and moral code of the

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Khasi people (*ka tipbriew tipblei*). For most of the people in Khasi society sex and sexuality are considered to be unclean and impure and it is meant for procreation purposes only.

This paper starts with a historical overview of the area of reproductive health. The definitions and concept of reproductive health as a human right are introduced in the following sections. A description of reproductive health as it applies to Khasi society is then presented, which is followed by a discussion on changes taking place in Khasi society.

Historical Overview

The concept of reproductive health emerged in the 1980s with a growing movement away from population control and demographic targets towards a more holistic approach to women's health (Sen 1994). It was not until the International Conference on Population and Development Programme of Action (ICPD) in 1994 and the Fourth World Conference on Women (FWCW) in 1995 that the concept gained international acceptance and was heralded as a turning point for women's health. The ICPD brought to international recognition two important guiding principles of Reproductive and Sexual Health (RSH):

1. Empowering women and improving their status are important ends in themselves and essential for achieving sustainable development, and
2. Reproductive rights are inextricable from basic human rights, rather than something belonging solely to the realm of family planning.

The FWCW reaffirmed and strengthened the consensus that had emerged at the ICPD.

The ICPD conference was instrumental in formalizing the paradigmatic shift in how women's health was conceptualized and how services were delivered. The way in which reproductive health was viewed began to change the focus from sexual morbidity to the promotion of healthy reproductive lives. Not only were there changes in the kinds of programmes that were delivered, but also in the intended recipients and manner of delivery of programmes. For example, men were recognized as having an important role to play, child survival was emphasized, the integration of RSH services into

primary health care rather than their being offered as a separate service was advocated and the need for reproductive health services in separate facilities was advocated. The need for reproductive health services specifically designed for refugees and Internally Displaced Persons (IDPs) was also recognized. Overall, it called for a fundamental rethink on health service provision.

Definition of Reproductive Health

The United Nations Population Network (POPIN) has defined “reproductive health” as:

(A) state of complete physical, mental and social well-being and not merely the absence of diseases or infirmity in all matters relating to the reproductive system and its functions and processes. Reproductive health, therefore, implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide of when and how often to do so. Implicit in this last condition are the rights of men and women to be informed about and to have access to safe, effective, affordable and acceptable methods of family planning, as well as other methods of their choice for regulation of fertility, the rights of access to appropriate health care services that will enable women to go safely through pregnancy and child birth and provide couples with the best chance of having a healthy infant.

Thus, reproductive health is viewed in relation to three interconnected domains that include universal rights, women’s empowerment and health service provision. Firstly, it promotes a universal understanding that is premised on the fact that it is a basic human right to be fulfilled by all governments. Secondly, it seeks to address the underlying causes of gender inequality and inequity to promote women’s empowerment. And thirdly, the provision of universal access, utilization and quality of reproductive health services address issues of sexual and reproductive health and possibly death.

The three concepts of rights, women’s empowerment and equality, and services must work in unison in order for individuals to achieve healthy reproductive and sexual lives. The first concept of reproductive health is basically rights based. This means that everyone is entitled to the rights and freedoms set out by the Universal Declaration of Human Rights, which includes the right to health and education without distinction based on race, sex and religion. Universal reproductive and sexual rights must be supported and upheld by governmental policies and laws, specifically the right for couples and

individuals to decide if, when and how many children they would like to have as well as access to information to enable them to make these choices.

The second concept of reproductive health deals with women’s empowerment, which is based on the fact that norms, values and laws create an environment that influences the extent of women’s equality and power within a society. Broadly, this means addressing issues of gender inequality and empowering women: ensuring men’s participation in decision making and understanding their responsibilities, eliminating all forms of discrimination against female children, and prevention from accessing education. It is widely known that education has an effect on health and healthy decision making. In terms of reproductive health, it can contribute to reductions in fertility and morbidities. It is also known that the education of girls contributes greatly to the empowerment of women and is associated with postponement of the age at marriage, reduction in the size of families and increase in a child’s survival possibilities. This second arena of reproductive health addresses how social and sexual behaviours and relationships affect healthy and satisfying sex lives or how they can create ill-health. Furthermore, reproductive health does not affect women alone and must not be solely promoted as women’s issue. Men also have reproductive health needs in addition to the fact that the involvement of men is an essential part of protecting women’s reproductive health (Jacobson 1991:6).

Therefore, in promoting women’s empowerment and addressing issues of equality and equity, relationships must not only be viewed in the context of those between men and women, but also of the individual and wider community. Attitudes and norms surrounding sexuality and gender carry profound meanings in every society or culture. The dynamics of knowledge, power and decision making in sexual relationships, between service providers and clients, and between community leaders and citizens all affect an individual’s reproductive and sexual health status.

The last concept of reproductive health deals with service provision. Not only does this include the ability of public and private service providers to provide a variety of quality services as outlined by the three areas of service provision, but also addressing factors that may inhibit an individual from accessing and utilizing these services. This may include ensuring widespread information on services and methods of family planning and safe sex, affordability, confidentiality, convenience, treatment of service providers and availability of suppliers.

However, the definition falls short of comprehensive perspective on reproductive health as it provides only a slight modification of WHO's definition of health. There is a need to include other important aspects of reproductive health. It should include the other members of society apart from women who are married like adolescents, single women, divorcees, couples who are living separately, widows, old women and children. Men are also to be included as they cause the greatest single hazard to reproductive morbidity and several other problems throughout their lives. Thus, in 1998, WHO set several goals to improve the inadequacies. The goals state that reproductive health does not start from a list of diseases or problems - sexually transmitted diseases, maternal mortality or from a list of programmes - maternal and child health, safe motherhood and family planning. Reproductive health instead must be understood in the context of relationships fulfilment and risk, the opportunity to have a desired child or alternatively, to avoid unwanted or unsafe pregnancy. Reproductive health contributes enormously to physical and psychosocial comfort and closeness, and to personal and social maturation. Poor reproductive health is frequently associated with disease, abuse, exploitation, unwanted pregnancy and death. The most significant achievement of the Cairo Conference was to place people firmly at the centre of development efforts, as protagonists in their own reproductive health and lives rather than as objects of external interventions (United Nations 1994). The aim of interventions is to enhance reproductive health and promote reproductive rights rather than population policies and fertility control. This implies empowerment of women (through better access to education), the involvement of women and young people in the development and implementation of programmes and services, reaching out to the poor, the marginalized and the excluded, and assuming greater responsibility for reproductive health on the part of men.

Reproductive health requires good basic health and nutrition, protection from violence, environmental health hazards and livelihood security throughout the lifespan. While the concept of reproductive health applies to both women and men, it has far greater impact on women than on men and, as such, requires preferential utilization of resources to women's health in particular, to reduce health risks. Where reproductive health is poor, reproductive rights become an issue and therefore a rights-based perspective has been adopted in this paper.

Reproductive Health as a Human Right

Reproductive rights and health are an integral part of human rights and are

essential for enjoyment of one's full human potential, mental, emotional and physical well-being (Jayapalan 2002:113). It also includes enhancement of relationships, women's empowerment and achievement of gender equality. Respect for women's reproductive rights and provision of reproductive health services also provides the basis for neo-natal health and survival for the health and development of children and for the overall well being of the family.

Reproductive rights embrace certain human rights that are already recognised in national laws, international laws and human rights documents and other consensus documents. The rights rest on the recognition of the basic rights of all couples and individuals to decide freely and responsively the number, spacing and timing of their children. To have information and means to do so and the right to attain the highest standard of sexual and reproductive health and the right to make decisions concerning reproduction that is free of discrimination, coercion and violence.

Reproductive rights also include the rights of individuals to control their own bodies, to have sex that is consensual, free from violence and coercion and to enter marriage with the full and free consent of both the parties (United Nations 1994). Reproductive rights are essential for women's exercise of their right to health and include the right to comprehensive, good quality health services that ensure privacy, that are fully informed and have freedom of consent, confidentiality and respect.

A healthy reproductive health and sexual life is now considered to be a basic human right for all, including refugees and other forcibly displaced persons and is protected by three bodies of human rights law, refugee law and humanitarian law (United Nations 1994). The foundations of reproductive rights were first established in the two fundamental human rights treaties, the United Nations Charter, adopted in 1945, and the Universal Declaration of Human Rights, adopted in 1948, which ensured an individual's right to health. In 1951, refugee law came into effect with the United Nations convention relating to the status of refugees. In 1949, the Geneva Convention with respect to the protection of civilians in the time of war provided the basis from which reproductive health was addressed under humanitarian law. Although not addressing reproductive health specifically it made reference to protection and special assistance to 'maternity cases' as well as protecting women 'against rape, enforced prostitution or any form of indecent assault' (United Nations 1949: 2-4).

In 1976, the international community agreed on an additional covenant

which provided more detail to the rights embodied in the Human Rights Declaration and the Convention of the Status of Refugees, with implications upon issues of gender, reproductive health and refugees including those individuals not lawfully within a host country. The International Covenant on Economic, Social and Cultural Rights (ICESC), Article 12 goes beyond the Universal Declaration's Right to Health and states: 'right to everyone to the enjoyment of the highest attainable standard of physical and mental health' and then outlines steps to the realisation of this goal. While there is no specific mention of reproductive health rights, some of its provisions, such as Articles 10(2) and 12(2a), address reproductive health issues (United Nations 1976:178). However, the subsequent UN General Comment No. 14 on Article 12 (United Nations 2000) states: 'the right to the highest attainable standard of health, it specifically addresses reproductive health rights of all individuals with specific reference to women, to adolescents, the inclusion of refugees, asylum seekers, illegal immigrants and internally displaced persons, as well as state responsibilities to uphold these reproductive rights'.

In 1979, the United Nations International Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) set clearer definitions and standards than the earlier covenants with respect to gender equality. It expanded the protections against discriminations and called for increased attention to vulnerable groups including refugees and migrants. CEDAW is the only human rights treaty that addresses women's reproductive health rights with acknowledgement of pervasive social, cultural and economic discrimination against women. In particular, Article 12 of the Convention requires States to 'eliminate discrimination in access to health services throughout the life cycle, particularly in the areas of family planning, pregnancy and confinement, and the post-natal period' (United Nations 1979:1-2). In 1999, CEDAW General Recommendations 24 on Women and Health (Article 12) made further recommendations according to the fact that 'access to health care, including reproductive health, is a basic right under the Convention on the Elimination of All Forms of Discrimination against Women' (United Nations 1999). It comprehensively addresses violence against women, safe motherhood, provision and access to services, and quality of services provided, and declares that all of these are to be addressed by the participating states as provision of basic human rights.

The 1989 Convention on the Rights of the Child (CRC), equally guarantees children access to basic human rights including health and access to reproductive health information and services. The 2002 Optional Protocol

of the CRC was extended to include the sale of children for prostitution, which endangers their reproductive health status.

Framed within the human rights and refugee law, a Humanitarian Charter and a Minimum Standards of Care in Disaster Assistance were developed by a larger group of agencies in 1997. This Charter describes core principles of humanitarian actions in order to reaffirm the rights of affected populations, as well as pointing out responsibilities of warring parties or states. The Charter formed the bases of the Sphere Handbook, which sets out minimum standards of care for multi-sectoral disaster responses. In 2004, an updated version came into effect, which, in addition to other cross-cutting themes, addresses reproductive health-related issues of protection, gender, children, HIV/AIDS, and people living with HIV/AIDS (The Sphere Project 2009).

Programmes dealing with various components of reproductive health exist in some form almost everywhere but they have usually been delivered in separate ways, unconnected to programmes dealing with closely interdependent topics. For example, the objectives, design and evaluation of family planning programmes were largely driven by a demographic imperative, without due consideration to tolerated health problems such as maternal health or STD prevention and management (POPIN 2004). Evaluation was largely in terms of quantity rather than quality - numbers of contraceptive acceptors as opposed to the ability and opportunity to make informed decisions about reproductive health issues. In general, such programmes exclusively targeted women, taking little account of the social, cultural and intimate realities of their reproductive lives and decision making powers. They tended to serve only married people, excluding, in particular, young people. Services were rarely designed to serve men even though they have reproductive health concerns of their own, particularly with regard to sexually transmitted diseases. Furthermore, the involvement of men in reproductive health is important because they have an important role to play as family decision makers with regard to family size, family planning and use of health services.

A reproductive health approach would differ from a narrow family planning approach in several ways. It would aim to build upon what exists and at the same time to modify current narrow, vertical programmes into ones in which every opportunity is taken to offer women and men a full range of reproductive health services in a linked way. The underlying assumption is that people with a need in one particular area, like treatment of

sexually transmitted diseases, also have needs in other areas, in this case family planning or antenatal/postpartum care. Such programmes would recognize that dealing with one aspect of reproductive health can have synergistic effects in dealing with others. For example, management of infertility is difficult and expensive but it can be largely prevented through appropriate care during and after delivery and prevention and management of STDs. Promotion of breast-feeding has an impact on reproductive health in many ways: it helps prevent certain postpartum problems, delays the return to fertility, may help prevent ovarian and breast cancer, and improves neonatal health (POPIN 2004).

Another important difference between existing programmes and those developed to respond to the new concept of reproductive health is the way in which people, particularly women and young people who are the most affected by reproductive health concerns, are involved in programme development, implementation and evaluation (POPIN 2004). When women become more involved in programmes it becomes clearer that they have health concerns beyond motherhood and also that dealing with reproductive health involves a profound rethinking of the behavioural, social, gender and cultural dimensions of decision-making which affect women's reproductive lives.

Reproductive Health, Rights and Laws

As already stated, the concept of reproductive health was evolved during the 1994 ICPD conference at Cairo as an offshoot of the family planning programme. However, any conceptual models revealing the possible causal relationship between various factors, directly or indirectly influencing reproductive health, do not accompany the existing conceptual frameworks on reproductive health (Mahadevan 2000: 3). Women suffer from several problems with the key aspects of sexuality and reproductive health such as reproductive tract infections, infertility, morbidity due to childbirth and violence against girls and women. Protection of women against indecent representation, unequal remuneration, *sati*, *devadasi* system, forced abortion, lack of maternity benefits, violence against women, dowry deaths and rape are all recognized by the Indian Penal Code (IPC) (Diwan and Diwan 1994).

Conservative and traditional upbringing of many women influences a great deal battered women to tolerate such violence (Madhurima 1996). The Constitution of India provides protection of women from discrimination and

denial of equal protection under the law (Pachauri 1999). However, the effectiveness of these laws in protecting women from social problems is doubtful.

The government of India appointed a commission to inquire into the conditions of women working in the unorganised sector. This commission produced a detailed report describing the conditions of women in India in 1975. Several efforts have also been made to discuss women's invisibility in the data. However, the greatest invisibility of women pertains to health issues. Health is the basic need of a human being and therefore denying women their health needs has seriously affected their productive and reproductive role. Health and well being of all members of a family are also far more dependent on the productive capacities of the woman than that of any other members of the family (Karkal 1996: 1). At the Alma Ata Conference in the USSR, in 1978, primary health care was exclusively discussed by 134 countries where access to family planning, maternal and childcare and prevention of common diseases was accepted as a basic human right (WHO 1978: 33).

Since the mid 1970s, women's organisations, social activists and community based organisations have raised their voices against the contradictory positions taken by the government on population and family planning. While on the one hand the Bucharest Conference espoused that "development is the best contraceptive", back home family planning measures were intensified with women becoming the focus of sterilisation. The first glimmer of doubt at the government level emerged in the 1980s when the approach paper to the Eighth Five-Year Plan stated 'in spite of massive efforts in the form of budgetary support and infrastructure development, the performance of the family welfare programme has not been commensurate with inputs' (Ramachandran 1996: 160-61). By this time, many women activists and NGOs had either distanced themselves from the government's programme and the population control lobby or had begun to oppose it. There was little or no positive dialogue between them. The moderates, who argued for a more balanced view of population, women's health and poverty linkages, were either silent or found their campaign/ advocacy ineffective.

Agreement on the central role of women was not even an issue at the ICPD (United Nations 1994). The debate focussed on a woman's control over her own body, the need to empower women, provide them with more choices, expand their access to health services and education, skill development and employment, and ensure their full involvement in policy and decision-

making at all levels. The ICPD Programme of Action facilitated reforms in population/family planning programmes wherein targets, incentives and coercion were no longer to be used. Integrated approaches, quality services and informed free choice in all matters related to sexual and reproductive life were upheld as core principles. Finally, in addition to the long-established basic right to family planning, the universal right to sexual and reproductive health was affirmed.

An important contribution of the ICPD was that it changed the language to include hitherto un-mentioned words such as sexuality, reproductive and sexual health and reproductive rights. Experts replaced words such as “population control” with “population stabilisation” to stress the voluntary nature of the actions sought. The terms “reproductive and sexual health”, “women’s rights”, “sustainable development” “quality of life”, “quality of care” and “informed choice”, reflect the shift from the quantitative achievement to a holistic vision of individual well-being (Petchesky 2000: 17).

The Indian government affirmed its commitment to the principles of the ICPD in 1994, but there is still a limited understanding of the concept of reproductive and sexual health among policy makers, programme managers and the public in India. Despite some progressive changes, there is a continuing focus on stabilising population growth rates and a lack of unity of goals among women’s rights advocates, service providers, and policymakers. What continue to be missing are policies and programmes that promote not only health but also rights and the empowerment of women. Without a strong focus on these, India’s reproductive health policies and programmes may become like “grass without roots” (Pachauri 1999: 125).

Reproductive health care strategies to meet women’s multiple needs include education for responsible and healthy sexuality, safe and appropriate contraception and services for sexually transmitted diseases, pregnancy, delivery and abortions (Sai and Nassim 1989). The use of targets, incentives and experimental contraceptives in the context of deepening poverty and patriarchy makes family planning a tool for women’s victimization rather than liberation. When we look into the WHO definition we find that it ignores the reproductive health of women who do not wish to accomplish reproduction. It makes fertility regulation mandatory as a part of health and puts major emphasis on maternity and related situations and very little is said about other conditions that seriously affect women’s health.

Understanding key policies and programme issues based on empirical

research and field experiences are important factors for better outcomes in reproductive health, especially in a country like India (Pachauri and Subramanian 1999). This is because India is a country with multiple cultures and ethnic backgrounds. It is also a male dominated society and there is huge disparity in gender equity. Therefore, it is important to ascertain the extent to which ongoing fertility transition has contributed to the reduction of disparities and socially valued outcomes. For example, the positive relationship between women’s education and fertility decline where female education is low, fertility declines sharply with education and where fertility levels are low the link between education and fertility is less marked. Thus, there should be a redistribution of resources to promote women’s education in states that have low female literacy and high fertility (Jain 1999: 3-41). An equal health service for both men and women is a positive way to improve any health policy (Piet-Pelon, Rob and Khan 1999).

Standardised quantitative methods are needed to study the occurrence and timing of violence in relation to pregnancy and to study the context in which pregnancy occurs. The right to life enables women to enjoy privileges, which come along with motherhood, and also to prevent maternal mortality (Ballard 1998: 274-276).

Reproductive choice includes abortion and family planning (Shalev 2000: 39-59). Though the term “sexual rights” has been widely used, its concrete scope has not yet been fully defined. The viewing of “reproductive rights” as a subset of “sexual rights” has led to the negligence of individuals in considering themselves as rights holders, especially the men, thus leaving many outside the framework of human rights protection in the context of sexual behaviour (Miller 2000: 67-69).

Reproductive rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children, to have the information and means to do so and the right to attain the highest standard of sexual and reproductive health. They also include the rights of all to make decisions concerning reproduction free of discrimination, coercion and violence. Interpretation of sexual rights by different stakeholders during the development of the Beijing Programme of Action and within the South African Development Community (SADC) illustrated a lack of understanding that sexual rights in the African context results from poverty as well as gender inequality particularly in sexual relationships whereas in the European context sexual rights claims are motivated

specifically in relation to sexual orientation (Klugman 2000: 145-69).

The “Double Discourse” which exists in the majority of Latin American nations has led to a wider choice for citizens on reproductive and sexual choices than the official policies would lead one to believe. It can lead to an increase in illegal abortion, unsafe methods to prevent pregnancy and other high risk public health factors, especially in women inflicting a great deal of self harm (Shepard 2000: 111-36). It is commonly seen in India as well where, for example, among the Khasis illegal abortions are carried out in a clandestine manner especially among well to do families. This is because families do not want to tarnish their clan name or spoil the reputation of their children in the society and the church they belong to. Another example of the “Double Discourse” in a society is the use of contraceptives or family planning methods. Many women in Khasi society will deny the fact that they use any contraceptives due to religious sanction against same. Moreover, the fear of being ridiculed in society in their own families or by elders has led these women to deny using any kind of contraceptives.

Therefore, there is an emphasis on ethical principles in women’s rights to reproductive health and freedom where the fundamental principles are “liberty”, which guarantees freedom of action, “utility” which defines moral rightness by the greatest for the greatest number, and “justice” which requires that everyone has equitable access to necessary goods and services under this framework. As a consequence of this, governments have an obligation to provide information and services for women to exercise their right to reproductive freedom (Mahadevan 2000: 3-57).

Gender Differences in Reproductive Health

Accepted wisdom in medical sociology and social epidemiology states that in industrialised societies men die earlier than women, but that women have poorer health than men (Macintyre *et al* 1996: 617-24). Detailed inspection of papers (Raju *et al* 2000: 303-324) on gender differences published in the last decade reveals that the findings reported by many researchers are not unique, but that a relatively undifferentiated model of consistent sex differences has nevertheless continued to predominate the literature. Therefore, the topic of gender differences in health needs periodic re-examination.

Men are often neglected in programmes related to reproductive health. In the past, the fact that reproduction takes place through heterosexual relations was generally ignored. A review of conventional demographic and family

planning literature illustrates that the population field has neglected issues related to sexuality, sexual decision-making, and gender relations (WHO 1985: 34). The focus has largely been on outcomes such as fertility decline, unwanted pregnancy and more recently on infection with HIV and other sexually transmitted diseases but because these issues are politically and culturally sensitive they have been avoided in the past. As men, women and especially young people are being exposed to unwanted pregnancy and infections, these issues can no longer be ignored. However, in many cultures men are the decision makers even when it comes to sexual and reproductive health. Therefore, research focussing almost exclusively on women and downplaying men’s role is likely to have limited impact, a fact that ironically has been ignored by past programmes. Ignoring these important factors may explain in part why past family planning programmes have not been successful. Men, therefore, should be considered and involved in reproductive health issues before implementing any health issues. This might enable policies to be successful (Armstrong 1999: 902-05).

Health care researchers like Cleland, Khongsdier, Mahadvan, Pachauri, Russell and others have documented that, in many settings, male social prerogatives powerfully condition women’s relationship to health care systems. Particularly in the area of reproductive health care, the decision-making privileges enjoyed by men fundamentally affect women’s health status. Yet population policy and reproductive health programmes have been slow to respond to this insight. Unrecognised or unacknowledged assumptions about women’s “natural” responsibility for childbearing and childrearing, coupled with an acceptance of the rights of men to make family health care decisions, have impeded policy responses to these research findings. By accepting these static characterisations of men, rather than understanding that gender relations are dynamic and that men’s roles are able to change, just as women’s roles are, research and programmes have often implicitly accepted men’s power and women’s subordination. Effective reproductive health care programmes need to recruit men’s support and participation in creative ways (Greene 2000: 49-59).

A survey of 6,549 married men in Uttar Pradesh, India, made by Bloom, Tsui, Plotkin and Basset during 1986-2003 investigated factors contributing to men’s knowledge in the areas of fertility, maternal health and sexually transmitted diseases (Bloom *et. al* 2000: 237-51). Results of this survey showed that very few of the respondents had basic knowledge in any of these areas. The likelihood of reporting knowledge was associated with a set of

determinants that differed in their magnitude and effect across the areas of reproductive health explored. In particular, men's belief about the ability of an individual to prevent pregnancy showed an independent association with men's knowledge about reproductive health. After controlling for factors such as age, parity, educational and economical status, men who believed that it was not possible to prevent pregnancy were less likely to know when, during the menstrual cycle, women would become pregnant. Furthermore, they tended to know little about STDs but were able to name two or more symptoms of serious maternal health conditions.

Reproductive Health in Khasi Society

Discussion on reproductive health in the matrilineal Khasi society is still a very new idea and some aspects of reproduction and related subjects are avoided in public discussions. Women may be considered promiscuous or "loose" if they openly speak about sex and sexuality. Sex and sexuality are considered to be unclean and impure subjects especially by the Catholic Church.

Khasi society is a matrilineal society, predominantly controlled by patriarchal values. Though children take their mother's clan name, the head of the household is the father. Women often have no authority in the household and absolutely no authority in the traditional political arena. Customary laws have defined the roles assigned to men and women. In traditional Khasi society men are warriors and protectors, tillers, hunters, administrators, priests, etc. Their roles and duties are in the domains outside the home. Women have the roles of mothers, housekeepers, custodians of family property, helpers in the fields and groves. A woman is considered as *Ka Blei ĩng* (deity of the house), the mother ancestress, *Ka ĩawbei*, is revered as one of the ancestral triad consisting of herself, her husband and her brother (War 1992: 13). In traditional Khasi families each daughter is helped to set up the home by gifting her some land when she marries. However, this is only in cases where the family is wealthy. The youngest daughter, *Ka Khatduh* remains (even after marriage) in the house of her parents and becomes the custodian of family wealth and property. The Khasi women enjoy considerable freedom in matters pertaining to themselves. Women are not taken as sex objects, but are a part of *ki kur-ki jait* (matrilineal relations), *ki kha-ki man* (relatives from the father's side) and *para Khasi-Khara* (the Khasi race), against whom any kind of assault would be considered sacrilegious.

Women in Khasi society are treated as equal to men. They perform social roles as mothers and as custodians of religion and property. Today's

Khasis, however, are experiencing significant changes in family relationships, in attitudes and values, and in kinship relationships. Conversion to Christianity, education, profession, urban living and contact with other cultures has given Khasi women new options. Much of the traditional and religious practices in which the matrilineal kin group plays a dominant role are no longer adhered to. Social interactions with their own kin are less frequent. This has greatly weakened the effectiveness of the matrilineal kin group and has affected the attitude and behaviour of the wife towards her kinsmen and husband. She is no longer regarded just as a kinswoman or a clan-woman. Her status is dependent on her own social position and that of her husband.

In Khasi society, as a general rule, the youngest daughter or the *Khatduh* inherits all the properties, including *Ka ĩng Seng* (foundation house/ancestral property) (Gurdon 1966). She also becomes the custodian of the family property and has no authoritative power to sell it in any form. The *Jaiñtias* belong to the same racial and cultural stream as the Khasis and are also known as *Pnars*. They share the same religion, although the *Jaiñtias* are more influenced by Hinduism. However, in the southern slopes of Meghalaya constituting the areas inhabited by Wars, the customs regarding inheritance are somewhat different from the customs prevalent among the *Khyriam* Khasis and *Pnars*. Amongst the Wars, for instance, sons and daughters have equal share of the property of their parents and grandparents with the lion's share going to the youngest daughter. However, if the youngest daughter dies or refuses to claim the ancestral property the same goes to her own youngest daughter and if she is without any daughter her elder sister inherits it. In some cases, if there is no daughter in the family the property reverts to the mother's family, that is, to the mother's sister.

Most women in Khasi society are at times left to take sole care of a large number of children. This happens when husbands abandon the family or when they do not feel responsible towards their children, as they do not take their clan names. This behaviour can usually be seen in rural areas. The principal duty of women has been viewed as bearing children and serving as the foundation of families. The cost to women's health in discharging these duties goes unrecognized.

Changes in the Khasi Matrilineal System

With the onset of modernisation, urbanisation and conversion to Christianity the Khasis have to deal with pressures that force the traditional matrilineal system to go through multifarious changes. The constant interaction with

patrilineal societies is also another factor which is having an impact on Khasi society as a whole.

The role of the youngest daughter (*khatduh*) is changing. With conversion to Christianity, much of her traditional religious obligations in terms of *ka niam iing* and in bone confinement ceremonies (*thep shyieng*) are no longer expected of her. The Khasi woman is still expected, however, to fulfil her social obligations towards her maternal kinsmen. She remains the central figure of the clan if not the only important one (Syiem 1992: 22-35).

It is also possible to see some changes among the Jaiñtias as well. In traditional Jaiñtia society, the husbands were “visiting husbands” and this added to the responsibility of women to look after the children. This has changed with time and husbands no longer visit their wives at night only but are staying with them. The Jaiñtia women have the same role to play with regard to ritual and religious ceremonies like the Khasi women do. One also notices a pull between the avuncular and paternal authorities in Khasi society. The emergence of the father figure as a dominant personality is also clearly observed (Gassah 1992: 37-46).

The attitude of Khasi men and women towards some of their customs and practices has changed with the spread of modern education and other forces of modernisation (Pakyntein 1999: 171-82). The preference for a female child was strong in the traditional Khasi society. It still carries some importance in modern Khasi society. However, reverence of the female progenitors has diminished in importance though the mother’s clan name continues to be adopted by children as before. Matrilineal inheritance also continues but women depend less on the male relatives of the clan (*kur*). They manage their affairs independently or with the help of their husbands. Even the men have acquired a new sense of confidence about themselves. They have tended to show increased disapproval of the interference of the wife’s brothers and other relatives concerning their family matters (Lamin 1999: 97-108).

Modernisation and urbanisation have brought about a sea change in perception and attitudes among the Khasi people especially the women. Education is looked upon as a major asset and both sons and daughters are given equal opportunities for education. This has led to a desire among the males to form a neo-local family rather than staying with their in-laws (Das Gupta 1995) Women also prefer to set up neo-local families along with their husbands as they understand that their husbands feel insecure with their wives’ relatives.

Conclusion

Concluding on reproductive health in the matrilineal Khasi society can be difficult, as it is still a very new idea and many aspects of reproduction and related subjects are avoided in public discussions. This is complicated by the significant changes in family relationships, in attitudes and values and in kinship relationships in Khasi society. Moreover, conversion to Christianity, education, profession, urban living and contact with other cultures has given Khasi women new options. Much of the traditional and religious practices in which the matrilineal kin group plays a dominant role are no longer adhered to.

Changes due to modernisation and urbanisation are also taking place in their perception and attitudes towards the women. An example of the changing society is the desire of the men to form neo-local family structures, which are not objected to by their wives. All these changes are likely to erode some of the status associated with women in this society and are therefore likely to impact on the reproductive health of Khasi women as well.

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An Empirical Estimation of Loan Recovery and Asset Quality of Commercial Banks

JAYNAL UD-DIN AHMED

Introduction

The recovery performance of commercial banks is the *sin qua non* for their liquidity of funds. Loan recovery is the main factor that determines the quality of loan assets of banks. Lower recovery indicates erosion of banks' profitability and blocking of bank credit to developmental projects of the area. The mounting overdues lead to high level of non-performing assets (NPA) and thereby deteriorate the asset quality. Thus, improving the quality of loan assets is the true test of improved efficiency of banking system. The importance of efficiency has assumed a critical significance for the viability of commercial banks in the liberalized era particularly in the backward regions of the country. The success of the commercial banks to maintain a healthy profit growth not only depends on the hardening of interest rate, which owes its origin to reduction in operational expenses, but also rests on improvement in their assets quality.

The NPA of banks is an important criterion to assess the financial health of banking sector. It reflects the asset quality, credit risk and efficiency in the allocation of resources to productive sectors. Since the reform regime there have been various initiatives to contain growth of NPA to improve the asset quality of banking sector. Commercial banks have envisaged the greatest renovation in their operation with the introduction of new concepts like income recognition, prudential accounting norms and capital adequacy ratio etc which have placed them in a new platform. The growing competition from internal and external constituents and sluggish growth in economy coupled with poor credit-deposit ratio, the large volume of NPAs in the balance sheet and lack of automation and professionalization in operation have been affecting the banking situation in the country.

The NPA has emerged since over a decade as an alarming threat to

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the banking industry in our country sending distressing signals on the sustainability and durability of the affected banks.¹ In the present scenario, NPAs have been the most vexing problem faced by public sector commercial banks.² The positive results of banking sector reforms by the Government of India (GoI) and Reserve Bank of India (RBI) in terms of Narasimham Committee Report in this contemporary period have been neutralized by the ill-effects of this surging threat. The GoI and RBI have initiated various measures to control NPAs in the post-reform years, but the commercial banks are still unable to solve the dilemma. Despite various correctional steps administered to solve this problem, concrete results have not taken place. It is a sweeping and all-pervasive virus confronted universally by banking and financial institutions. The severity of the problem is however suffered by nationalized banks, followed by the State Bank of India (SBI) group, and all India financial institutions. The asset quality of banks, however, has improved in recent years and is reflected in the decline in their gross and net NPA ratios. A survey of 77 commercial banks finds that their aggregate gross NPA has declined by 1.2 per cent in 2006-07 over 2005-06. The gross NPA as percentage of loans and advances has declined from 3.35 per cent in 2005-06 to 2.25 per cent in 2007-08. Incidentally, in absolute terms, the net NPA of Scheduled Commercial Banks (SCBs) increased to Rs. 24,733 crores in 2007-08 from Rs. 20,207 crores in 2006-07. The gravity of the situation will be clear from the total amount recovered (Rs. 28,283 crores) from gross NPA account, which was lower than the fresh accretion of Rs. 34,420 crores during 2007-08. This scenario underlines the following questions: Why is the loan recovery not up to the mark? How are the banks managing the NPAs?

These issues need to be addressed. With this backdrop, an attempt has been made in this paper to study the loan recovery and asset quality of commercial banks in the Barak Valley of Assam.

Studies on Asset Quality of Banks

There exist cross country studies on financial health and asset quality of banks. The recessions-caused banking crisis is studied by Hardy and Pazarbasioglu³, and Kaminsky and Reinhart.⁴ Salas and Saurina⁵ establish the significant role of economic slump in increasing loan problem in Spanish banks. Meyer and Yeager⁶ find that the loan quality of local banks in the US is affected by local economic slowdowns. Shu⁷ observes that bad loans as a

proportion to total loans of banks has decreased with high economic growth in Hong Kong. Gambera⁸ has used a bivariate Vector Auto-Regression (VAR) technique and found that firm income and state annual product have significant influence on bank loan quality in the US. Recently some studies showed feedback effect from the banks to the real economy. Marcucci and Quagliariello⁹ validate the cyclicity of write-offs to total loans for Italian banks. Hoggarth, Sorensen and Zicchino¹⁰ observe cyclicity of aggregate write-offs in UK banks. Baboucek and Jancar¹¹ find no corroboration of the cyclicity of NPAs but conform pro-cyclicity for banks in Czech economy. Chaudhuri¹² has analysed the methods adopted by China to clear out the backlog of NPAs. The study observes that recapitalization, sale of NPAs to Asset Management Companies (AMCs), merger, corporatization, adoption of risk management techniques etc are followed by the banking system of China to contain the NPAs.

There are a large number of studies on the causes of NPAs in Indian banking sector. However, some of the studies relating to NPAs are mentioned to pinpoint the importance of the subject. Rangarajan¹³ has pointed out that improving the quality of loan assets is the true test of improved efficiency of banking system. Ramala and Nagi¹⁴ suggest proper end-use of loans to the entrepreneurs, which could only ensure economic development of the area and the country as a whole. Taori¹⁵ has dealt with NPA management of banks and stated that the surest way of containing NPAs is to prevent their occurrences. He suggests proper risk management, strong and effective credit monitoring, co-operative working relationship between banks and borrowers etc as tenets of NPA management policy. Similar opinion has been echoed in a recent work by Bhattacharya.¹⁶ In order to root out the NPA problem, Banmali¹⁷ has suggested a multi-frontal attack involving all concerned staff members in the field up to the grass root level as well as in the controlling points. A number of studies viz., Ranjan and Dhal¹⁸, Harpreet and Parricha¹⁹, Ramkrishna and Bhargavi²⁰, Singh²¹ etc agree that the asset quality of commercial banks has improved considerably due to reform package. Raul²² suggests that an appropriate set of substantial financial sector regulation clarity, including changes in tax laws, is imperative for the banking system to get rid off NPAs as well as for the Qualified Institutional Buyers (QIBs) to look forward to the investment opportunity. Ghosh²³ has studied the management of NPAs with reference to Mugberia Central Co-operative Banks and Tamluk Ghatal Central Co-operative Bank Ltd. He has found that these banks are not successful in restricting the level of NPAs and suggested a change from NPAs to performing assets. In

order to survive and compete with private and foreign banks, it is crucial for the Public Sector Banks (PSBs) to clean up their balance sheets by increasing the equity capital. Rajender and Suresh,²⁴ in a case study, examine the quality of loan assets of Indian banking and suggest some practical strategies to make Indian banks more viable by managing the level of NPAs. An assessment on the causes and consequences of NPAs of commercial banks by Rajesham and Rajender²⁵ has concluded that a strong political will is necessary for satisfactory solution to the problem of mounting NPAs.

Bhaumik and Piesse,²⁶ in their study, indicate that allocation of assets between risk-free government securities and risky credit is affected by past allocation patterns, risk averseness of banks, regulations regarding treatment of NPAs, and ability of banks to recover doubtful credit. Ahmed²⁷ has examined NPAs of PSBs in Indian milieu. He observes that PSBs have been committed towards the reduction and management of NPAs. The quality of asset portfolio has improved quite impressively over the period. In order to survive and compete with private and foreign banks, it is crucial for PSBs to clean up their balance sheets by increasing the equity capital. In the wake of deterioration in the overall economic climate, Lele²⁸ observes, on the basis of data available with the finance ministry, that out of 27 PSBs, 16, including SBI, reported higher level of gross NPAs than the target set for the year-ended March 2009. Singh and Singh,²⁹ in their paper, examine the recovery performance of Manipur Rural Bank. The study observes that repayment of loans mainly depends on proper utilization of the loan amount, supply of quality assets, generation of sufficient income from schemes, availability of infrastructure and marketing facilities, willingness to repay, continuous supervision and follow-up visits etc. Akhan³⁰ has attempted to study the NPA management of Non-Banking Financial Companies (NBFCs) in India during 2002-2007 and suggested that pre-sanctioned scrutiny and post-sanctioned supervision, effective recovery steps and full compliance with the prudential norms of RBI help to control NPA.

From this review it is clear that there are not many studies based exclusively on the management of NPAs of banks. Most of the studies relate to the quality of bank assets and loan portfolio. However, studies relating to loan recovery and asset quality of banks remain un-researched area.

Problem Identification

The NPAs of commercial banks is a legacy of the past when prudent norms of banking were ignored. Despite this the malaise remained invisible to the

public eyes due to the practice of not following transparent accounting standards. In the wake of complex changes taking place during 1992-93, there was resultant chaos and confusion. As the problem exploded unexpectedly commercial banks were unable to analyze and make a realistic assessment of the prevailing situation. It was not realised that the root of the problem of NPA was the economy of the country. The un-preparedness and structural weakness of our banking system to act in the emerging scenario and face the challenges thrown by the new order further aggravated the crisis. The partial perceptions and hasty judgments led to a policy of ad-hocism, which characterised the approach of the authorities during the last two decades towards finding solutions to banking ailments and dismantling recovery impediments. Repeated correctional efforts were executed, but positive results evaded.

Although the level of NPA of the Indian banking system is now comparable to several advanced economies due to RBI rates reduction, still commercial banks have attributed to a huge quantum of NPAs. The gross NPA of the banking system amounts to Rs. 60,841 crores for 2000-01, which is a little over 16 per cent of the total assets of nationalized banks. During 2001-02, nationalized banks have recorded a collective growth of 130 per cent in net profits but more than double NPAs were also added during the year compared to the previous fiscal year. The gross NPAs of Scheduled Commercial Banks (SCBs) in absolute term increased to Rs. 56,435 crores in March 2008 from Rs. 50,519 crores in March 2006. The net NPAs of banks in 2007-08 stood at Rs. 24,733 crores compared to Rs. 18,265 crores in 2005-06 and Rs. 17,435 crores in 1999-00. This has been largely possible because of the huge provisioning that most of these banks could make as a result of growth in treasury income and therefore profits. The priority sector added up a large proportion – about 46.4 per cent (Rs.21,184 crores) – of total NPAs in March 1998 and swelled to 54.4 per cent (Rs.28,705 crores) in March 2008. The priority sector NPAs increased by 11.1 per cent during 2007-08 (4.8 per cent in the previous year) mainly due to increase in NPAs in the agriculture sector (32.1 per cent). In the non-priority sector, the same has been reduced to 44.9 per cent (Rs.23,721 crores) in March 2008 from 50.6 per cent (Rs.23,107 crores) in March 1998. The higher NPAs in priority sector advances have pushed up the overall proportion of NPAs by three to four percent. Although the commercial banks in general have succeeded in reducing NPAs, or loans defaulted by borrowers, the new generation private sector banks have witnessed an increase over the years. The gross NPAs of

26 private sector banks have increased from Rs 7,791 crores in 2005-06 to Rs 9,255 crores in 2006-07.

Further, commercial banks in India in general suffer from a tendency to minimize their NPA figures. They practise what is called ‘ever-greening’ of advances through understated techniques. It has been reported that banking industry has under-estimated its NPAs by a whopping Rs. 3,862.1 crores in March 1997. The nationalized banks including the SBI and its associate banks have under-estimated their NPAs by Rs 3,029.29 crores. Such deception of NPA statistics is executed through various ways. Among these, non-identification of NPAs as per stipulated guidelines such as ‘sub-standard’ assets classified as ‘standard’, wrong classification of NPAs by classifying a ‘loss’ asset as ‘doubtful’ or a ‘doubtful’ asset as ‘sub-standard’ asset, avoiding prudential norms (RBI 2006).³¹

The NPAs of commercial banks have direct impact on the profitability, productivity, liquidity and equity of banks and finally influence the outlook of the banks towards credit delivery and credit expansion. The gravity of the situation may be revealed by the facts that return on assets (ROA) – the most telling measure of banks’ performance – was 0.83 for PSBs as against 1.65 for foreign banks in March 2007 (RBI 2008).³² Further, net profit or spread ratio (the difference between interest earned and interest paid) usually considered as true measure of core operation of banking sector turned up trumps. The spread as percent of volume of business was 1.5 per cent for PSBs while the same for foreign banks was 4.0 per cent. The SCBs experienced a declining ratio of operating profits to total assets which has been declined to 1.9 per cent in March 2008 from 2.04 per cent in March 2005. The same for foreign banks has increased from 3.16 per cent to 3.75 per cent (RBI 2007-08).³³

The RBI has proposed prompt corrective action (PCA) for arresting the menace of NPAs and has introduced various measures like Credit Risk Management models, Compromise Settlement methods, effective use of Debt Recovery Tribunals (DRTs), Asset Reconstruction Companies (ARC) and Recovery of Debts,³⁴ Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SRFAESI) Act 2002,³⁵ Circulation of information on defaulters, Corporate Debt Restructuring (CDR), *lokadalats* etc to arrest unbridled virus of non-performing assets of commercial banks. With a view to providing additional option and developing a healthy secondary market for NPAs, the guidelines relating to sale/purchase of NPAs were

issued in July 2005 covering the procedure for purchase/sale of NPAs by banks. The guidelines were partly modified in May 2007 whereby it was stipulated that atleast 10 per cent of the estimated cash flows should be realised in the first year and atleast 5 per cent in each half year thereafter subject to full recovery within three years.

The effectiveness of various measures initiated by GoI and RBI is limited and banks are still not able to tame the problem of NPAs. According to the latter authority, improved profitability and health of banks, underpinned by robust macroeconomic environment and upturn in interest rate cycle, has enabled banks to reduce the backlog of NPAs. Although asset quality of banks has improved in percentage terms over the years, commercial banks need to guard against any deterioration of credit quality, particularly in the wake of significant expansion of credit. As the economy is poised to grow at a stupendous pace the banks have to play a much larger role in the coming years. This requires a robust framework to deal with NPAs. Hence, in the present cut-throat competition, it is a permanent task for the banks to manage their NPAs more efficiently so that they can change their character from NPAs to performing assets. It is in this context that an in-depth study is warranted to detect this emerging problem of the economy.

Background of Commercial Banks in the Study Area

The Barak Valley comprises three districts of Assam viz., Cachar, Karimganj and Hailakandi. The valley has 12.5 per cent of the total bank offices of Assam. At present, 12 public sector banks (PSBs), 1 regional rural bank (RRBs) and 3 private banks are operating with a network of 147 branches. Cachar is bestowed with 72 branches (51 PSBs, 19 RRBs and 2 private banks) while Karimganj has 52 branches (32 PSBs, 17 RRBs and 3 private banks) and 23 branches (13 PSBs, 8 RRBs and 2 private banks) in Hailakandi are taking the care of banking activities (GoA 2008).³⁶ The growth performance of banks in the area has been summarized on the basis of parameters as presented in Table 1. It is observed that during 1991 population served per branch at all India average was 15,000, which went up to 16,000 in March 2007. The same has increased to 40,000 in December 2007 from 29,100 in 1991 in the study area. The deposits per branch are, however, far behind the national level. The absolute figures are Rs. 2.72 crores in 1991, Rs. 8.95 crores in 1999 and Rs.15.3 crores in 2007. During 1991-2007 deposits per office in the districts increased by 7 times in contrast to 11 times increase in the country as a whole. On the other hand, the advances per branch in the

districts remained lower than that of the national level. The net result of discrepancies is reflected in the credit deposit (C/D) ratio. It slipped to 19.3 per cent in 2007, from 38.6 per cent in 1991 compared to increase in national average from 54.2 per cent in 1991 to 55.8 per cent in 1999 and further a noteworthy increase to 73.5 per cent in 2007.

Table 1
Performance of Banks in Barak Valley vis-à-vis India

Performance Indicators	Barak Valley			All India Average		
	1991	1999	2007	1991	1999	2007
1 Number of Commercial Banks	13	15	15	272	298	183
2 Branch expansion of banks (number)	140	140	149	60646	67868	73836
3 Population served per office ('000)	29100	37800	40000	14000	15000	16000
4 Total deposits (Rs. in crores)	233.94	457.72	1391.91	201199	607268	2608309
5 Deposit per branch (Rs. in crores)	2.72	8.95	15.3	3.34	14.50	36.75
6 Total advances (Rs. in crores)	91.25	125.12	313.72	105524	261279	1928913
7 Advances per branch (Rs in crores)	1.06	1.69	2.8	2.02	6.53	27.57
8 Credit-Deposit (C/D) ratio	38.6	20.8	19.3	54.2	55.8	73.5

Source: Figures for March compiled and computed from:

- (i) Basic statistical Returns, Reserve Bank of India, Mumbai, and
- (ii) Lead Bank offices of the region, United Bank of India.

Apart from the above, the process of computerization, which is vital for technological initiatives, is taking place very slowly in the branches of banks. Only 10 per cent of the total bank branches are fully computerized and a very negligible fraction of bank branches under core banking solution (UBI 2008).¹ As on today, only SBI has ATM facilities in the area. The RBI has been encouraging banks to use technology-based solutions for increased financial inclusion. Credit delivery in rural areas is expensive for banks, what with large number of small accounts. Thus information technology enabled method can reduce the cost of delivery.

Objectives of the Study

The key objective of the paper is to analyse the loan recovery and asset quality of commercial banks. The specific objectives of the study are

1. To study the recovery performance of commercial banks in the study area.

2. To study the nature and growth of NPAs of banks in the area under study.
3. To identify the reasons for assets becoming NPAs of SCBs in the area under study.
4. To study whether branch expansion has led to accretion in the volume of NPAs.

Hypotheses

The following hypotheses are formulated to meet the objectives of the study:

1. There exists significant difference in sector-wise loan recovery over the years.
2. The priority sector lending over the years has led to insignificant increase in the volume of NPAs of banks.
3. The branch expansion of banks has led to fresh accretion in the volume of NPAs.

Methodology

Research population of the study comprises commercial banks operating in three districts of the study area. As in March 2008, there are 15 banks with a network of 149 branches catering to financial requirements of three districts in the valley. For the purpose of the present study we have considered all commercial banks for the analysis of finances of the banks. An attempt has also been made to do a cross-sectional analysis of NPAs of bank branches over the years. The data prior to the period has also been considered in some cases to comprehend the background of the banks in the study area. The relevant data have been collected from both primary and secondary sources. The sources of secondary data are RBI Annual Reports, RBI Trend and Progress of Banking in India, financial statements compiled by the regional offices of the banks operating in the study area, Lead Bank statements, Directorate of Economics and Statistics, various reports, etc. The survey cum interview method has been used for assessing the work system, recovery system, processing loan applications and other impeding factors associated with loan portfolio.

In order to assess the nature of NPAs in banks, the variables are net and gross NPAs, total standard, doubtful and loss assets, total write off amount

during the year, total unrealized interest and amount recovered from bad loans. The variables to analyse loan portfolio of banks include advances to agriculture, small industries, service sector etc. The statistical and financial techniques have been applied to test the hypotheses of the study. In order to assess the inter-relationship between the variables and their interdependency Pearson's correlation coefficient is used. The parametric test viz., 't' test is also conducted in appropriate cases. The growth of NPAs along with its components has been tested with the help of linear growth rate (*b*) and compound growth rate (Cgr). The correlation matrix analysis is employed to assess the relationship between total advances and total NPAs along with its components.

In order to have an in-depth idea of the issue, a reasonably suited period of 10 years commencing from 1998-99 to 2007-2008 has been considered. The rationale for considering the aforesaid time period is that RBI announced a package of measures following the report of the Narasimham Committee (1998), which includes rising the minimum capital adequacy ratio and moving towards tighter asset classification, income recognition and provisioning norms. The different variables in respect of loan recovery and asset quality of banks in the area under consideration will be compared with national scenario during the aforesaid time period.

Recovery Position and Asset Quality of Banks

A. Recovery Performance of Commercial Banks

The recovery performance of commercial banks is the *sin qua non* for their liquidity of funds. It consequently restricts the banks' lending capacity and stands in the way of dilution of funds to developmental activities and hence the socio-economic development of the area. The recovery position of banks in the area under study is quite unsatisfactory, as shown in Table 2. It has been observed that the recovery position was very poor in almost all the sectors in the area under study. In December 1990, it was 14.9 per cent in agriculture and allied activities followed by 28.4 per cent in small sector and 19.9 per cent in trade and service sector for Karimganj while 16.3 per cent, 22.9 per cent and 46.9 per cent in the respective sectors for Cachar as in June 1989. The recovery position in agriculture and allied activities is relatively discouraging to other priority sectors in the three districts under consideration.

Table 2
Sector-wise Recovery Position of Banks in Barak Valley
(Amount Rs. in Lakhs)

Date	Agriculture & Allied			Small Sector & Rural Artisans			Trade & Service		
	Demand	Recovery	Overdues	Demand	Recovery	Overdues	Demand	Recovery	Overdues
Karimganj District									
31-12-90	292.3 (100)	43.8 (14.9)	248.5 (85.1)	92.3 (100)	26.3 (28.4)	66.0 (71.6)	1025.2 (100)	204.3 (19.9)	820.9 (80.1)
30-09-96	363.2 (100)	98.2 (27.0)	265.0 (73.0)	143.0 (100)	45.2 (31.6)	97.8 (69.4)	1530.8 (100)	345.6 (22.5)	1185.2 (77.5)
30-03-99	458.8 (100)	115.8 (25.2)	343.0 (74.8)	206.3 (100)	92.6 (44.8)	113.7 (55.2)	1960.3 (100)	558.2 (28.4)	1402.1 (71.6)
30-03-05	543.2 (100)	231.1 (27.9)	320.9 (72.1)	245.7 (100)	110.8 (43.6)	134.2 (56.4)	2134.0 (100)	602.8 (27.6)	1432.0 (72.4)
30-03-08	599.1 (100)	250.0 (35.4)	349.1 (65.6)	287.4 (100)	140.2 (45.8)	147.2 (55.2)	2359.0 (100)	879.0 (29.9)	1480.0 (70.1)
Cachar District									
30-06-89	325.6 (100)	53.3 (16.3)	272.3 (83.7)	118.3 (100)	27.7 (22.9)	90.5 (77.1)	524.6 (100)	246.3 (46.9)	278.3 (53.1)
31-12-94	638.3 (100)	113.0 (17.7)	525.3 (82.3)	299.2 (100)	45.8 (15.8)	253.4 (84.7)	853.2 (100)	424.6 (49.7)	428.6 (50.3)
31-03-98	758.6 (100)	215.6 (28.4)	543.0 (71.6)	345.2 (100)	96.2 (27.8)	249.0 (72.2)	1022.8 (100)	511.2 (49.9)	511.6 (50.1)
31-03-05	875.9 (100)	298.7 (27.9)	576.5 (72.1)	398.5 (100)	100.5 (32.1)	298.0 (67.9)	2563.9 (100)	1263.8 (48.1)	1300.1 (51.9)
30-03-08	915.8 (100)	314.7 (32.7)	601.1 (67.3)	450.5 (100)	210.2 (35.1)	240.3 (64.9)	3290.3 (100)	1687.0 (50.9)	1603.3 (49.1)
Hailakandi District									
31-12-91	192.0 (100)	20.2 (10.5)	171.8 (89.5)	62.8 (100)	19.2 (30.5)	43.6 (69.5)	302.7 (100)	145.6 (48.1)	157.1 (55.9)
31-03-94	258.3 (100)	45.0 (17.4)	213.3 (82.6)	85.3 (100)	41.6 (48.7)	43.7 (51.3)	512.6 (100)	213.9 (41.7)	298.7 (58.3)
31-12-99	482.9 (100)	102.9 (21.3)	380.0 (78.7)	90.6 (100)	45.2 (49.8)	45.4 (50.2)	418.2 (100)	219.0 (52.3)	199.2 (47.7)
31-03-05	879.6 (100)	278.6 (25.3)	601.0 (74.7)	201.6 (100)	95.3 (47.4)	106.3 (52.3)	657.2 (100)	321.1 (49.1)	336.1 (50.9)
30-06-08	970.8 (100)	290.1 (26.5)	680.7 (73.5)	234.8 (100)	103.5 (46.0)	131.3 (54.0)	879.4 (100)	432.1 (49.8)	445.3 (50.2)

(Figures in parentheses indicate percentage to total.)

Source: Lead Bank Statements (LBS), Lead Bank Office, Cachar, Karimganj and Hailakandi districts of Assam.

The gravity of the situation will be clear when we find that Rs. 250.0 lakhs (35.5 per cent) was realized against the total outstanding dues of Rs. 599.1 lakhs under agriculture sector in Karimganj as on 30-03-08. While in Cachar Rs. 314.7 lakhs (32.7 per cent) was realized against the total dues of Rs. 915.8 lakhs, as on 30-03-08, in Hailakandi Rs. 290.8 lakhs (26.5 per cent) was realized against total dues of Rs. 970.8 lakhs on 30.06.08. Similar trend was noticed in small sector and service sector in

the districts. However, the recovery position of small sector (46.0 per cent) is relatively better than that of agriculture (26.5 per cent) in 2008. The service sector has experienced a recovery of 49.8 per cent in June 2008.

A noteworthy feature of banks' lending is that despite mounting over dues in each year the agriculture and allied sectors enjoyed relatively major portion of bank credit but the recovery performance is extremely low. This indicates that the agriculturists and poor people of the area could not repay the loans. This may be because they spent their loan on consumption purposes rather than productive purposes. The reasons for poor recovery may also be attributed to various other factors such as lack of supervision of end use of fund owing to lack of vehicle and paucity of staff, defective processing of loan applications, political interferences, communication gap between banker and customer etc.

Furthermore, no effort is made by the banks for recovery of such loan. The local leaders do not encourage them to pay it back. They assure them that government will exempt the same later. Consequently the loan is often not recovered. As a result the mounting over-dues restrict the banks' lending capacity. Therefore, an immediate action from appropriate authority to accelerate the loan recovery in all sectors is necessary.

Asset Classification of Banks in the Study Area

As per present asset classification norms, assets of commercial banks are classified into four categories viz., standard assets, sub-standard assets, doubtful assets and loss assets. Table 3 presents the nature of assets available with the banks in the study area. The total NPAs of banks, in absolute term, increased to Rs. 5143.0 lakhs in March 2007 from Rs. 538.2 lakhs in March 1998 recording a 9.5 times increase, while the percentage of NPAs to total advance was hovering around 5.7 per cent. It was 4.3 per cent in March 1998, which increased to 7.3 per cent in March 2002 and thereafter gradually reduced to 4.2 per cent in March 2007. The all India average percentage of the same was 19.4 per cent in March 1995, which decreased to 7.8 per cent in March 2004 and further down to 2.7 per cent in March 2007 (RBI 2006-07).³⁸ The proportion of both doubtful assets and sub-standard assets has been around 2 per cent throughout the period whereas the loss assets constituted around 0.5 per cent of total advances.

Table 3
Classification of NPA of Banks in Barak Valley (1998-2007)

(Amount Rs. in lakhs)

Asset Classification	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
I. Advances	12380 (100)	12943 (100)	12918 (100)	15132 (100)	15779 (100)	18213 (100)	20967 (100)	23687 (100)	26786 (100)	34210 (100)
A. Standard Assets	11841.8 (95.7)	12243.2 (94.6)	12156.2 (94.1)	14302.1 (94.5)	14624.1 (92.7)	17196.8 (94.4)	18970.0 (93.4)	20087.1 (94.0)	23809.8 (93.9)	29067.0 (95.8)
B. NPAs	538.2 (4.3)	699.8 (5.4)	761.8 (5.9)	829.9 (5.5)	1154.9 (7.3)	1016.2 (5.6)	1997.5 (6.6)	3686.9 (6.0)	2976.2 (6.1)	5143.0 (4.2)
i) Sub Standard assets	245.1 (1.9)	298.6 (2.3)	412.6 (3.2)	314.2 (2.1)	458.9 (2.9)	530.8 (2.9)	832.5 (2.6)	1786.4 (2.9)	1523.7 (3.0)	3051.5 (2.6)
ii) Doubtful Assets	219.6 (1.7)	305.4 (2.4)	299.1 (2.3)	425.0 (2.8)	411.0 (2.6)	398.2 (2.2)	613.1 (2.1)	1209.2 (2.0)	945.0 (1.5)	1397.5 (1.1)
iii) Loss assets	75.5 (0.5)	95.8 (0.7)	50.1 (0.3)	90.7 (0.5)	285.0 (1.8)	87.2 (0.4)	346.0 (0.8)	691.3 (0.7)	345.5 (0.7)	697.0 (0.8)

(Figures in parentheses indicate percentage to total advances.)

Source: Compiled from the data collected from zonal offices of the study area.

Further, Table 3 demonstrates that NPAs in absolute figure recorded 9.5 times increase whereas it was 1.43 times increase at the national level during the same time span. This does not reflect NPAs' reduction tempo at the national level. This is partly because of complex regional economic settings, multi-faceted clientele and failure on the part of the bankers to design suitable mechanism/channel to recover from NPAs in the study area. However, the significant reduction of NPAs as percentage of advances may be due to the definitional changes introduced by the RBI in 1995-96 and shyness on the part of the banker while granting fresh loan. This, however, may also be owing to the fact that managerial strategy of the banks has undergone radical change over the years, moving from opacity towards transparency.

In order to study the growth of various components of NPAs and the relationship between the advances and NPA components of banks, we have employed correlation analysis. Table 4 below exhibits the matrix of co-relation co-efficient among the components of NPAs and advances.

Table 4
Matrix of Correlation Coefficient

	Advances	NPAs	Sub-standard Assets	Doubtful Assets	Loss Assets
Advances	1.00				
Non Performing Assets	0.82 (2.867)*	1.00			
Sub-Standard Assets	0.80 (2.667)	0.84 (3.099)*	1.00		
Doubtful Assets	0.86 (3.373)*	0.85 (3.231)*	0.89 (3.912)*	1.00	
Loss Assets	0.71 (2.017)	0.87 (3.529)*	0.74 (2.202)	0.85 (3.231)*	1.00

* Significant at 5 % level.

(Figures in parentheses indicate respective 't' values.)

The analysis shows that with the increase in the advances the total NPA has increased in the same proportion. The positive correlation between advances and NPAs (0.82) is statistically significant at 5 per cent level of significance. The 'r' value of advances with doubtful assets (0.86) is also significant while with sub-standard and loss assets are not statistically significant. This indicates that with the increase in advances doubtful assets also increase but the increasing rate for sub-standard assets and loss assets is not followed by the rate of increase in advances. The correlation coefficient between NPA components and their respective 't' values reveals that high positive correlation exists between NPA components except in the sub-standard and loss assets.

Non-Performing Assets: Bank-wise Analysis

The bank-wise analysis shows that in absolute terms NPAs of commercial banks have increased except Vijaya Bank (having only one branch) in the area under study. It is also clear that throughout the period the SBI holds maximum share of NPAs to total advances followed by the United Bank of India (UBI), Punjab National Bank (PNB), Allahabad Bank (AB), Vijaya Bank (VB), Punjab and Sind Bank (P & S) respectively where the Central Bank of India (CBI), United Commercial Bank (UCo), Indian Bank (IB) hold a very small percentage of NPA of total advances. The data have been summarized in Table 5.

Table 5
Bank Group-wise NPAs in Barak Valley

(Amount Rs. in lakhs)

Sl. No	Banks	1998	1999	2000	2001	2002	2003	2004	2005	2006	agr	cv
1	SBI	206.3 (12.6)	252.8 (11.1)	318 (12.2)	211.2 (9.8)	498.3 (10.6)	426.7 (9.1)	510.9 (9.8)	967.5 (9.7)	907.7 (8.7)	11.5	34.4
2	UBI	200.1 (9.1)	264.0 (8.6)	286.0 (10.6)	431.0 (9.5)	439.1 (9.6)	379.0 (8.2)	410.6 (8.9)	839.7 (9.0)	967.6 (9.7)	9.8	26.7
3	AB	21.6 (7.2)	18.2 (6.9)	24.8 (7.1)	21.2 (5.8)	19.6 (3.8)	24.6 (4.3)	27.5 (4.4)	75.0 (4.7)	110.6 (4.5)	2.3	11.1
4	PNB	10.8 (8.6)	8.9 (6.2)	15.6 (7.1)	12.3 (7.2)	27.2 (4.9)	28.6 (5.6)	31.1 (5.1)	35.6 (5.2)	76.4 (5.0)	17.2	45.3
5	CBI	17.2 (5.2)	19.0 (5.1)	22.3 (3.6)	28.6 (3.5)	35.2 (2.0)	26.9 (2.1)	27.6 (2.2)	76.4 (2.9)	101.6 (3.7)	6.5	24.6
6	IB	5.2 (2.6)	7.9 (5.5)	7.0 (4.8)	9.6 (4.2)	7.8 (2.8)	8.9 (3.8)	9.7 (3.2)	23.5 (3.4)	54.2 (2.9)	7.9	18.2
7	UB	23.2 (7.6)	37.8 (9.1)	24.1 (5.2)	27.9 (6.8)	33.2 (7.7)	30.8 (6.8)	28.6 (6.6)	56.7 (6.3)	97.5 (7.0)	4.3	17.3
8	PSB	NA	7.8 (8.9)	7.6 (7.2)	12.8 (7.1)	10.6 (6.2)	11.3 (5.2)	9.6 (5.7)	17.8 (5.9)	42.6 (6.0)	5.8	20.2
9	BB	21.6 (4.5)	36.7 (6.2)	19.0 (7.1)	25.6 (6.3)	30.0 (5.2)	31.6 (6.1)	37.4 (6.5)	56.7 (6.0)	98.7 (6.0)	6.1	22.0
10	Uco	NA	NA	8.1 (4.1)	7.2 (0.7)	7.6 (0.4)	5.6 (0.7)	7.9 (0.8)	23.9 (0.9)	75.9 (1.9)	-	8.7
11	CB	8.2 (4.0)	9.6 (3.9)	7.8 (3.6)	12.6 (5.1)	11.2 (6.7)	9.0 (4.9)	15.6 (5.4)	40.9 (5.7)	103.7 (4.9)	1.4	17.3
12	VB	24.0 (8.6)	37.1 (10.6)	20.9 (5.7)	29.9 (6.7)	35.1 (6.8)	33.2 (5.6)	38.7 (5.7)	97.2 (5.9)	167.3 (5.5)	5.1	19.5
All Commercial Banks		538.2 (4.3)	699.8 (5.4)	761.8 (5.9)	829.9 (5.5)	1154.9 (7.3)	1016.2 (5.6)	1997.5 (6.6)	3686.9 (6.0)	2976.2 (6.1)	9.6	24.3

(Figures in parentheses indicate percentage to total advances.)

Source: 1. Statement of Recovery of NPA Accounts of the respective banks, and
2. Zonal office, file registers of respective banks.

The position and extent of growth are revealed by cv and average annual growth rate (agr) of NPAs of individual banks. During the period under consideration the UCo Bank has witnessed negative growth rate (agr = - 8.7). With regard to variation in the volume of NPAs, Allahabad Bank is well placed (cv=11.1), as others have attained higher volume of NPAs as fresh accretion over the years.

Growth of Advances and Non Performing Assets

A comparison of growth of standard assets, NPAs and advances per branch is presented in Table 6. For this purpose total advances, NPAs and standard assets per office and their growth rate has been analysed with compound growth rate (cgr). The analysis shows that volume of NPA registered a higher growth (cgr = 14.9) in contrast to the growth of advances (cgr = 10.9) and standard assets (cgr=12.1) during 1998-2007. Further, NPAs per office recorded a higher growth rate (cgr=14.6) than that of advances per office (cgr =7.9) and standard assets per office (cgr= 7.8). Thus, higher growth of

NPAs over the years reveals inefficient profile of the asset portfolio of banks. This may be due to the banker's inappropriate managerial strategy. An appropriate strategy for the purpose of containing the microbes of NPA of banks is warranted based on the situation.

Table 6

Position of Advances, Standard Assets, and Non-Performing Assets of Banks
(Amount Rs in lakhs)

Year	Advances (Rs)	Standard Assets (Rs)	NPAs (Rs.)	Advances per branch (Rs.)	Standard Asset per branch (Rs.)	NPA per branch (Rs.)
1998	12380	11841.8	538.2	136.0	130.1	5.9
1999	12943	12243.2	699.8	139.2	131.6	7.5
2000	12918	12156.2	761.8	138.9	130.7	5.8
2001	15132	14302.1	829.9	156.3	150.5	5.5
2002	15779	14624.1	1154.9	166.0	153.9	12.1
2003	18213	17196.8	1016.2	191.8	181.0	10.6
2004	20967	18970.0	1997.5	201.8	177.8	22.0
2005	23687	20087.1	3686.9	229.0	198.6	30.6
2006	26786	23809.8	2976.2	242.9	213.7	28.5
2007	34210	29067.0	5143.0	298.6	227.0	48.4
Cgr	10.9	12.1	14.9	7.92	7.8	14.6

Source: Adapted from the data collected from lead bank offices and zonal offices of the banks.

Interrelationship between Non-Performing Assets and Priority Sector Advances

Due to non-availability of information relating to priority sector NPAs in the area under study, an attempt has been made here to study the relationship between NPA and priority sector advances to identify the contribution of the same to total NPA. Table 7 presents the position of the variables relating to performing assets, priority and non-priority sector advances per bank branch.

Table 7

Position of Priority and Non-Priority Sector NPA of Commercial Banks
(Amount Rs in Lakhs)

Year	Non Performing Assets (Rs.)	Priority sector advances (Rs.)	Non-priority sector advances (Rs.)	NPA per branch (Rs.)	Priority sector advances per branch (Rs.)	Non-priority sector advances per branch (Rs.)
1998	538.2	7245	5135	5.9	79.6	56.4
1999	699.8	8185	4758	7.5	88.0	51.1
2000	761.8	8310	4608	5.8	89.3	49.5
2001	829.9	8720	6412	5.5	91.7	67.5
2002	1154.9	9135	6644	12.1	96.2	69.9
2003	1016.2	9753	8466	10.6	102.7	89.1
2004	1997.5	9980	9754	22.0	120.7	87.9
2005	3686.9	12780	9831	30.6	132.9	121.0
2006	2976.2	14328	10895	28.5	186.0	113.9
2007	5143.0	16453	11342	48.4	231.0	128.6

Source: Adapted from the data collected from lead bank offices and zonal offices of the banks.

For this purpose, we have calculated 'r' between NPAs per branch (a) and priority sector advances per branch (b) and non-priority sector advances per branch (c) during the period 1998-2007. The results are summarized hereunder

$r_{ac} = 0.65$	$r_{ab} = 0.742$.
't' value (cal) = 2.404	't' value (cal) = 3.123
't' value (tab) at 8 d.f.	't' value (tab) at 8 d.f.
1 pc = 2.896	1 pc = 2.896
5 pc = 1.860	5 pc = 1.860

The analysis reveals that the positive correlation 0.74 is statistically not significant at 1 per cent and 5 per cent levels of significance at their respective degree of freedom for priority sector advances. The 'r' value 0.65 for non-priority sector advances is significant at 5 per cent level but not at 1 per cent level of significance. This implies that with the increase in priority sector lending, there has been corresponding increase in the volume of NPAs. However, it cannot be argued that priority sector lending is the sole factor in enhancing the volume of NPAs in the area under study.

Interrelationship between NPAs and Branch Expansion

An attempt has been made here to determine whether growth of advances per branch is associated with growth of NPAs per branch. In this connection we have used co-efficient of correlation (r) between advances per branch and NPAs per branch. The 'r' value is found as under

$r = 0.857$
't' value (cal) = 3.729
't' value (tab) at 8 df,
1 pc = 2.896
5 pc = 1.860

The analysis manifests that the high positive correlation is significant at 5 percent and 1 percent levels at their 8 df. This implies that there exists a positive relationship between advances and NPAs per branch. In other words, it can be argued that high volume of advances lead to increase in the volume of NPAs. Thus, with the expansion of bank branches, banks have acquired high volume of deposit, and at the same time the volume of NPAs has grown considerably over the years.

Causes for Poor Recovery and Reasons for Asset becoming NPAs

There are a number of factors responsible for low recovery and increase in size of NPAs of commercial banks. A few prominent reasons for assets becoming NPAs in the study area are mentioned as under:

- Poor credit appraisal system
- Lack of vision/foresightedness while sanctioning/reviewing or enhancing credit limits
- Lack of proper monitoring
- Reckless advances to achieve the budgetary targets
- Lack of sincere corporate culture
- Inadequate legal provisions on foreclosure and bankruptcy
- Change in economic policies/environment at the macro level
- Non-transparent accounting policy and poor auditing practices
- Lack of coordination between banks and their customers
- Directed/schematic lending to certain sectors

Conclusion

The study concludes that a number of factors are responsible for poor recovery and increasing volume of NPAs of banks in the districts of Assam under study. These are poor credit appraisal system, lack of foresightedness while sanctioning credit limits, lack of proper monitoring, reckless advances to achieve the budgetary targets, lack of sincere corporate culture, inadequate legal provisions on foreclosure and bankruptcy, change in economic environment at the macro level, non-transparent accounting policy, poor auditing practices, and lack of coordination between banks and their customers. NPA being an important parameter for assessing financial performance of banks, reduction is necessary to improve the profitability of the banks and compliance with capital adequacy norms. The quality appraisal, supervision and proper follow up undoubtedly will help solve the problem. The judicial system needs to be restored to have a smooth recovery of dues from defaulters. The pre-credit and post-credit appraisals should be done objectively. The banking secrecy Act must be amended to enable the publication of defaulters' names and willful default has to be treated as criminal offence. The mounting NPAs of banks affect their financial health in terms of profitability, liquidity and economics of scale of operation. Banks have to take timely action against degradation of performing assets. The management of NPAs has been an immense task before the bankers because it challenges the banks' resistance

capacity. The occurrences of NPAs may not be avoidable entirely but they can be managed effectively. The fresh incidence of NPAs should be avoided but not at the cost of fresh deployment of credit.

Implications of the Study

Having analyzed various lacunae of loan recovery and accumulation of NPAs in the loan portfolio of commercial banks, following suggestions are offered for improvement of loan recovery and effective management of NPAs.

- (a) The timely edifice of loan portfolio is indispensable for effective management of NPAs. Keeping in view the present stipulation of sensitive sector where the instability is escalating gradually the bank should diversify its services into capital market, consultancy, credit card, housing finance and insurance sector etc.
- (b) Although the asset quality of banking system has improved considerably banks need to safeguard against any deterioration of credit quality. Banks need to have a comprehensive system in which the process of risk monitoring is combined with proper risk assessment.
- (c) Prevention is better than cure. It has been observed that there is unprecedented rise in fresh accretion of NPAs in some banks. Pre-arrangements must be made to contain this. The surest way for containing NPA is to prevent their occurrences. The doctrine of this prevention policy lies on
 - Proper risk management system in banks
 - Strong and effective credit monitoring
 - Open and co-operative working relation between banks and borrowers
- (d) The judicial system needs to be revamped to facilitate quicker recovery of dues from defaulters. It is essential to enforce the securitization Act with more stringent provisions to realize the securities and personal assets of the defaulters.
- (e) Internal governing factors of banks are, possibly, responsible for current level of NPAs. The onus, therefore, rests with the banks themselves. The organizational structuring, improvement in managerial efficiency, up-gradation of skills for proper assessment of credit worthiness and a change in the banks' attitude towards legal action are needed.
- (f) The specific strategy of writing off loans may be adopted, particularly where the amounts of outstanding loans are small, the security available to the bankers is negligible and the expenses to be incurred might be

more than the amount likely to be recovered. They may reduce the volume of NPAs to an appreciable level without much loss to the banks.

- (g) Supervision and follow-up are two sides of the same coin. Regular monitoring makes the borrowers not to divest the funds for purposes other than the purpose for which the loan is sanctioned. Funds should not be sanctioned and released suddenly. A personal enquiry may be conducted about the borrowers whose accounts become NPA.
- (h) Repayment ethics should be inculcated in the minds of the borrowers by optional utilization of various media, i.e., television, video films, All India Radio and press. The incentives could be offered to the regular payers by financing again or providing bonus and disincentives for the willful defaulters in the form of public crime action or adverse publicity in the newspapers.
- (i) The mounting overdue thwarts the banks' lending in the area. No effort is made to improve the recovery performance. The local leaders do not encourage the loanee to pay it back. Consequently, loan is not recovered. Therefore, an immediate action plan in the line of provisions made in the securitization Act 2002 is necessary to expedite the recovery position.

Limitations of the Study

The financial data collected for the present study is mostly based on secondary sources. In order to maintain the year-wise uniformity of data, some adjustment has been made keeping in view the objective of the study. Apart from this, the analysis of the data for the purpose of the study is based on quantitative techniques. The qualitative aspects of banks, which have a bearing on the profitability and asset quality, have not been taken care of.

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Implementation of NREGS in Tripura: An Evaluation

SANJOY ROY

Introduction

The National Rural Employment Guarantee Act (NREGA) is a landmark legislation in Indian history. On 2 February 2006, NREGA was first introduced in 200 most backward districts of the country and by 1 April 2008 it has become ubiquitous in all districts of the country. The National Rural Employment Guarantee Scheme (NREGS) under this Act aims at enhancing the livelihood security of people in rural areas by guaranteeing 100 days of wage employment in a financial year to each rural household whose members volunteer to do unskilled work. It is called an innovative scheme because it is demand-based supported by some extraordinary guidelines, which emphasize on planning of works and ensure transparency and accountability through the mechanism of social audit. Remarkable feature of the NREGS is a ban on the use of contractors and it stands as a wage employment programme.

Objective and Methodology

The present paper aims to evaluate the performance of the NREGS in Tripura. To this end emphases are given on the outcomes of the NREGS, status of performance of NREGS, participation of women, and creation of community assets, particularly physical infrastructure in the rural areas. The study also encompasses the impact of NREGS on the villages, causes of success as well as the main challenges of the scheme faced in Tripura. The whole account is based on secondary data published by the Government of India and Government of Tripura from time to time as well as primary data collected by the author from 100 NREGS workers engaged in different work sites, 12 Panchayat Secretaries, 12 Gram Rozgar Sevaks, 10 Gram Panchayat Pradhan/his representatives etc through interviews. The observations of 4 key panchayat functionaries, mainly 2 Block Development Officers and 2 Panchayat Samity Chairpersons, are also collected and included in the study. 10 Gram Panchayats (GP) out of 513 spread over 4 administrative blocks in

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West and South Tripura districts have been visited by the author to supplement data collected from the website and other documents published by the governments and Panchayati Raj Institutions (PRIs) in Tripura.

Findings

In Tripura, the NREGS was introduced in Dhalai District along with 200 most backward districts of the country and gradually by 2008, the remaining three districts were brought under this scheme. The introduction of the NREGS in Tripura is worth mentioning for many reasons. Tripura is a small state inhabited by only 32 lakh people comprising 31 percent Scheduled Tribe (ST) population and 17 percent Scheduled Caste population. About 83 percent of the total population live in the rural areas and 55 percent¹ of the total population are below poverty line. The economy of the state is agrarian with a low average landholding size of 0.97 hectare.² Geographical isolation, poor transportation network, dearth of industries, soaring unemployment problem, and porous border with Bangladesh have inhibited economic growth and consequently hindered the economic development of the state.

Table 1. Profile of NREGS in Tripura

Particulars	Tripura	Dhalai	South Tripura	West Tripura	North Tripura
Employment provided to household (in lakh)	5.49002	0.76875	1.3794	2.29	1.05207
Person days (in lakh)	351.12	75.77	87.55	140.35	47.45
Total Fund (in crore)	514.00	104.41	128.56	222.23	58.8
Expenditure incurred (in crore)	490.77	101.53	121.43	209.62	58.2
Total works	59258	9267	12917	33626	3448
Works completed	54478(92)	7058(76)	11080(86)	33196(99)	3144(91)
Work in progress	4780(08)	2209(24)	1837(14)	430(01)	304(09)

Source: Source: Ministry of Rural Development, Government of India. (Figures in the brackets show percentages)

Given the circumstances, NREGS has been introduced in the state with an expectation that it will give a new lease of life to the rural poor by bringing dynamism in rural livelihood and energizing the state's economy in particular. Its implementation has given a reason to the people in Tripura to smile, especially the poor in its rural areas. According to tribal beneficiaries of the State, it has brought a new dawn for them³ and they foresee an improvement in their livelihood. Earlier most of them had to go to forest to collect firewood and bamboo and sell the same in distant rural markets for earning their bread.^{3A} Available data shows that the poor are happy to work for NREGS and they

are getting employment in various projects. The agony of income uncertainty of poor people is reduced. It is also helping the women, as more and more women are participating in the scheme ensuring its success.⁴ According to one informant, construction of road under NREGS has brought immense satisfaction to the villagers. The villagers now need not walk long distance to reach the market and it has given them opportunity to earn.^{4A} Table 1 above clearly shows the achievements of the NREGS in Tripura during 2008-09 regarding employment generation, completion of work and allocation of fund.

Table 1 further shows that during 2008-09 average employment per household in Tripura was 64 days, which is better than the scenario of other northeastern states. National average employment provided per household in 2008-09 was 48 while it was 31 for Nagaland, 32 for Meghalaya, 44 for Arunchal Pradesh, 47 for Manipur and 35 for Assam as on 11 March 2009. District-wise classification of the average employment per rural household in Tripura shows that it was 98 for Dhalai District, South Tripura District 63, West Tripura District 61 and North Tripura District 45. It may be mentioned that Dhalai, which is the most backward district in the state as per Tripura Human Development Report 2007,⁵ tops the list in average employment per rural household. Available records establish that the participation of tribal people is particularly noteworthy. In 2008-09, the percentage of tribal participation was more than 45⁶ and it was the highest in Dhalai District with more than 61 percent.⁷ The percentage of tribal participation in North Tripura District was 39,⁸ 43⁹ in South Tripura District and 40¹⁰ in West Tripura District.

Field data further show that average employment provided per household is 68 days. In West Tripura District, it is the highest in West Gandhigram Gram Panchayat (GP) with 72 days' work while Sarasima GP in South Tripura District is found to be the highest provider of employment with 78 days' work. Maximum employment provided in West Tripura District is Lankamura GP with 83,221 person-days' work while Kanchannagar GP under Bokafa Block in South Tripura District was the highest with 61,319 person-days' work.

Table 1 further shows that 92 percent of total works are completed and remaining 8 percent are in progress. Work-in-progress is the highest in North Tripura District (24 percent) while it is the lowest in West Tripura District (1 percent). As regards allocation of fund, total allocation under NREGS in Tripura in 2008-09 has risen by more than three times reaching Rs. 514 crore from Rs 167 crore in 2007-08. Available records show that Tripura was

second to Assam regarding fund availability under NREGS among the northeastern states. Table 1 also shows that total allocation was the highest in West Tripura District (43 percent) followed by South Tripura (25 percent), Dhalai District (20 percent) with the least fund allocated to North Tripura District (12 percent). Table 2 below gives an insight into the state of rural household and allocation of fund.

Table 2. Fund Allocation under NREGS in Rural Tripura during 2008-09

Districts	No of villages	Total population as per census 2001 (in lakh)	Total rural Population (in lakh)	No of Rural Household (in lakh)	Allocation of fund in 2008-09 (Rs. in crore)
West	274 (32)	15.30 (48)	11.20 (73)	2.29 (42)	209.62(43)
North	163 (19)	5.90 (18)	5.26 (89)	1.02 (19)	58.29(12)
South	263 (31)	7.70 (24)	7.11 (93)	1.50 (28)	121.43(25)
Dhalai	156 (18)	3.10 (10)	2.87 (94)	0.58 (11)	101.41(20)
Total	856	32.00	26.44 (83)	5.39 (100)	490.77

Source: Some Basic Statistics of Tripura 2001 & 2006 and Census of India 2001 and Ministry of Rural Development, Government of India.

(Figures in the brackets indicate percentages.)

Table 2 shows that per village allocation of fund for West Tripura District was Rs.76.64 lakh while for North, South and Dhalai districts it was Rs.35.70 lakh, Rs.46.17 lakh and Rs.65.30 lakh respectively. It may be noted that there are 527¹¹ village committees under Tripura Tribal Area Autonomous District Council (ADC) and 513¹² Gram Panchayats (GP) in non-ADC area under the Panchayat Raj Institutions Act, 1993 establishing the fact that each GP or village committee spent Rs.47.21 lakh on an average in 2008-09 on NREGS. Allocation of fund per rural household in Tripura was Rs.9360 while it was Rs.9704 for West Tripura District, Rs.5600 for North Tripura District, Rs.9550 for South Tripura District and Rs.13,200 for Dhalai District in 2008-09. It can be gauged from Table 2 that Dhalai District could allot 100 days' work to all the households that applied for job in 2008-09. Table 2 further shows that although 11 percent of the total population have been residing in Dhalai District, allocation of fund for the same is 21 percent only. 99 and 86 per cent of the registered households in four GP each at Salema and Ambassa blocks respectively under Dhalai District applied and were provided with jobs under the scheme.¹³

Status of Performance

The parameters used in performance appraisal are transparency, accountability, monitoring, evaluation, physical performance indicator, financial performance indicator, staffing, training etc. as per NREGS guidelines. NREGS gives a central role to “social audit” as a means of continuous public vigilance. Social audit may be defined as “an in-depth scrutiny and analysis of the working of any public utility vis-à-vis its social relevance. Social audit gained significance especially after the 73rd Amendment of the Constitution relating to Panchayat Raj Institutions”.¹⁴ “A social audit is a process in which the people work with the government to monitor and evaluate the planning and implementation of a scheme or programme or indeed of a policy or law. It can be conducted by the government and the people specially by those people who are affected by or the intended beneficiaries of, the scheme being intended. A social audit is conducted over the life span of a scheme or programme and not just in one go or at one stage.”¹⁵ It audits the process, the output, planning, implementation, monitoring and evaluation. As a result of social audit “updated data on demand received, registration, number of job cards issued, list of people who demanded and had been given/not given employment, funds received and spent, payments made, works sanctioned and works started, cost of works and details of expenditure on it, duration of work, person-days generated, reports of local communities and copies of muster roll need to be made available in a pre-designed format outside offices of all agencies involved in implementing NREGS.”¹⁶

As regards performance of NREGS, Tripura ranks second in the country. The records of other northeastern states show that Mizoram is 5th,¹⁷ Arunachal Pradesh 19th,¹⁸ and Nagaland 20th.¹⁹ It may be mentioned that the Union Ministry of Rural Development has also applauded Tripura government for its performance in NREGS in the last fiscal year.²⁰ Besides Tripura, Rajasthan implemented the scheme effectively. For instance, it is reported: “Rajasthan districts bag award for best NREGS application. The tribal-dominated Dungarpur, Sirohi and Jalore districts of Rajasthan have bagged the prize instituted by the Union Ministry of Rural Development for outstanding performance in implementation of the NREGS.”²¹

District-wise performance shows that West Tripura tops among four districts in Tripura regarding total allocation of fund, total person-days’ work, number of works undertaken as well as their completion. North

Tripura District lies at the bottom in respect of total person-days’ work, average person-days’ work etc. Dhalai District is the first as regards average person-days’ work, involvement of highest number of tribal people but its achievement regarding the completion of work is not good. About 24 percent of the works undertaken are ‘work in progress’. Performance of South Tripura District is noteworthy. Though it does not rank top in respect of allocation of fund, average person-days’ work and work completion, yet it runs close to the average value of parameters indicating better implementation of NREGS.

Social audit in all GPs (182 for North Tripura and 320 for South Tripura districts, 408 in West Tripura District and 130 for Dhalai District) are completed. Available records show that 46,499 out of 58,886 muster rolls used are verified in North Tripura District as on March 10, 2009,²² and 70,451 out of 96,611 muster rolls used in South Tripura District are verified till March 11, 2009.²³ In West Tripura District out of 82,284 muster rolls 74,245 are verified.²⁴ Number of complaints received is insignificant and about 81 percent of the total 42 complaints received in two districts are disposed of while there were only 28 complaints in West Tripura District and 2 complaints in Dhalai District and all the complaints are disposed of. Field study conducted by the author shows that all GPs included in the sample have completed social audit and 90 percent of the sample have organized such audits twice a year and all such audits had been attended by one or two representatives from either sub-divisional office or reputed non-governmental organization. Another major achievement of NREGS in Tripura is the payment of wages through either banks or post offices. This is done with a view to ensuring that the payment reaches real beneficiaries with no involvement of middlemen, which is also mandatory as per the guidelines of NREGS. However such a work does not come without problems. The major problem was to find out banking institutions at the doorsteps of workers. Though payment of wages through banks develops banking as well as thrift habits, opening of large number of accounts is a stupendous task given the poor penetration of banking institutions in the rural areas of Tripura. In 2001, only about 12.2 per cent of the villages in Tripura had a commercial bank branch. Of the remaining villages, only 15.1 per cent had a branch operating within 5 km. In other words, the people of 72 per cent of Tripura’s villages had to travel more than 5 km to reach a bank branch.²⁵ Given this backdrop, as many as 3.29²⁶ accounts are opened under NREGS in 2008-09, which

is really worth commending. Field study conducted by the author further shows that except 3 GPs under Mohanpur Block under West Tripura District all GPs could arrange wage payments through bank accounts or post offices in 2008-09. The details of accounts opened in bank and post offices are given below:

Table 3. Details of Accounts opened under NREGS in Tripura in 2008-09

Districts	No of Bank Accounts		No of Accounts in Post Offices		Total no of accounts opened
	Individual	Joint	Individual	Joint	
Dhalai	0	19894	0	4206	24100
South	26047	43407	18390	12774	100618
North	23044	27419	28312	25352	104127
West	0	66351	0	34153	100504
Total	49091	157071	46702	76485	329349

Source: Ministry of Rural Development, Government of India.

Women's Participation

NREGS is a highly gender-sensitive scheme. It is mandatory that at least one third of workers should be women. A state progress report of the NREGS activities shows that women's participation which was 44.51 percent in 2007-08 rose to 51 percent²⁷ in 2008-09, which is higher than the national average of 48 percent.²⁸ Tripura held the highest record in terms of employing women in NREGS among the northeastern states. In some of the tribal states of the region like Arunachal Pradesh, Nagaland, Mizoram and Meghalaya, the percentage of women's participation in 2007-08 was 29.58²⁹, 29.36³⁰, 36.62³¹ and 30.87³² respectively while it was 30.85³³ and 32.80³⁴ for Assam and Manipur respectively. On district-wise participation of women in Tripura it may be mentioned that women in Dhalai and West Tripura districts are front-runners in the execution of NREGS and about 60 and 55 percent of person-days generated have gone to women followed by 42 percent in South Tripura and 38 percent in North Tripura districts. As per THDR 2007, work participation rate for female was the lowest in North Tripura District. On the other hand, the participation of tribal women in Tripura was 46 percent.³⁵ Available data show that efforts of tribal women in Khedarnal Village of Amarpur Block, South Tripura District have enabled the village to become the first village in the country to generate 100 person-days' work for all the 321 Below Poverty Level families under NREGS during the year 2007-08.³⁶

The study shows that NREGS has substantially improved female workforce participation rate in Tripura, which as per Census of 2001 was 21 percent³⁷ while it was 51 percent³⁸ for male. "The work participation rates for women are similar to those of Assam and eastern India (West Bengal), and much lower than those of the other North Eastern States and also the Indian average. Interestingly, even among the ST population, female work participation rates in Tripura were the second lowest (after Assam) in the North East. For women the highest work participation was in Dhalai and lowest in North Tripura District".³⁹ The work participation for women in NREGS is substantially higher and better than what THDR 2007 demonstrates. My field study makes it evident that the participation of women in West Tripura District is high. In Anaganagar, Singerbill, West Gandhigram, and Lankamura GPs the participation of women is as high as 80 percent while it is the lowest in Banshpada GP under South Tripura District with 48 person-days' work only. Further, the participation of women is exceedingly high in city/town adjacent GP while it is low and moderate in interior and minority-dominated areas. To sum up, NREGS has become popular among women, as it has enabled many women to come out of their social barriers and traditional and religious inhibitions leading to some kind of emancipation.

Creation of Assets

While the basic principle of NREGS is provision of guaranteed employment to the people willing to do manual work, it also envisages creation of sustainable assets in the long run to improve the overall economy of the village.⁴⁰

In Tripura during 2007-08, major emphasis of NREGS was on road connectivity, but in 2008-09, the works under NREGS got diversified. In 2008-09, major emphasis was on water conservation, drought proofing, micro irrigation, provision of irrigation, renovation of traditional water bodies on which total allocation of fund was 34 percent followed by 27 percent allocation on road connectivity, land development 15 percent, flood control 7 percent and other activities 11 percent.⁴¹ The volume of community assets created during 2008-09 is shown in Table 4 below.

Table 4. Creation of Community Assets under NREGS in 2008-09

Nature of Works	Expenditure	No of works	Volume of works (units)
	Rs. in lakh (%)		
Rural connectivity	11067 (27.3)	8129	3104 (Km)
Flood control and protection	2968 (7.3)	2154	157 (Km)
Water conservation and harvesting	5437 (13.4)	5305	904 (Cu.mt)
Drought proofing	2552 (6.3)	2296	321 (Hect)
Micro irrigation	3308 (8.0)	5341	687 (Km)
Provision of irrigation to ST/SC etc.	2196 (5.4)	4057	130 (Hect)
Renovation of traditional water bodies	2541 (6.3)	5697	300 (cu.mt)
Land development	6053 (15.0)	11243	242 (Hect)
Any other works	4544 (11.0)	10256	466 (Hect/cumt)
Total	40466	54478	

Source: Ministry of Rural Development, Government of India.

Table 4 amply shows that present activities of NREGS are very much diversified and they aim at creating such infrastructure which has lasting impact on income generation and conservation of natural resources. Tripura is ahead of some other leading states of northeastern states in diversity of works. Though Mizoram is fifth in the country as regards performance, “92% of the NREGS works are for road connectivity, 5% for land development, 1% for flood control, remaining 2% for water conservation and drought proofing activities”.⁴² Available records show that there exist differences in the expenditure pattern of NREGS fund among different districts causing variation in creation of community assets. The study further shows that West Tripura District earmarked 17% fund⁴³ on activities like rubber nursery, flower nursery, development of mango, cashew and banana orchards, construction of market sheds, crematorium, community latrine, children’s park and even assisting the cultivators undertaking systematic rice intensification method “followed by land development (15%), rural connectivity(12%), flood control (11%), water conservation (10%), micro irrigation (10%) drought proofing (9.5%), renovation of traditional water bodies (8.5) and 8% on provision of irrigation to ST/SC”⁴⁴ and while South Tripura District emphasized more on rural connectivity earmarking “49% fund followed by land development (21%) and water conservation (7%), micro irrigation (7%), renovation of traditional bodies (5%) etc”.⁴⁵ The allocation of fund by Dhalai and North Tripura districts are almost similar with minor variation. Dhalai District allocated “37% on rural roads, 25% on water conservation, 10% on land development, 7% on micro irrigation, 6% on others and 5% on renovation of traditional bodies etc”⁴⁶ while North Tripura District allocated “39% on rural roads, 19% on water conservation, 14% on land development, 10% on other activities,

6% on micro irrigation, 5% on renovation of traditional water bodies, 4% each on drought proofing and on flood control etc”⁴⁷. The volume of assets created district-wise from such fund are shown in Table 5.

Table 5. District-wise Position of Community Assets under NREGS in 2008-09

Assets Created	Dhalai	South Tripura	West Tripura	North Tripura
Rural roads (Km)	1473	2083	19808	1076
Flood control and protection (Km)	99	177	42137	116
Water conservation and harvesting (Cu.mt)	3269945	383517	33188	440.97
Drought proofing (Hect)	2183	260	12456	980
Micro irrigation (Km)	378	1154	27536	505
Provision of irrigation to ST/SC etc.	130	628	15117	109
Renovation of traditional water bodies (Cu.mt)	506314	474438	22334	32
Land development (Hect)	1083	834	26586	279
Any other works (cu.mt/ hect./ Km.)			253	250

Source: Ministry of Rural Development, Government of India.

Table 5 shows that volume of assets created in West Tripura District is noteworthy and it is diversified as well. The allocation of fund in West Tripura District was also the highest. Barring West Tripura District, other three districts emphasized on rural roads, water conservation, land development and other activities.

Field data collected by the author shows that land development and reclamation works top the list in GPs under Mohanpur Block. Out of 262 works undertaken by four GPs in Mohanpur Block, 211 works relate to land development while rural connectivity, excavation of tanks, irrigation channel and land development are preferred in South Tripura District. Field data further show that out of 221 works under two GPs in Bokafa Block of South Tripura District in 2008-09, 88 works relate to construction and maintenance of rural roads, 59 relate to water conservation and harvesting, 43 are related to land development, 25 relate to irrigation channel, 4 are related to flood control and 2 works are related to rural market development. It is further seen that during 2008-09, 778 km rural roads, 25 km brick soling road, 876 water tanks and mini barrages covering 40 hectares of land, 348 irrigation channels comprising 332 hectares of land have been created under Rajnagar Block of South Tripura District. As many as 23 brick soling roads and 77 playgrounds are developed in different schools by Hrishyamukh Block in South Tripura District besides the construction of 114 irrigation canals, 32

slab culverts and 13 spun pipe culverts. Furthermore, Kanchannagar GP under Bokafa Block in South Tripura District constructed and maintained 62 km rural roads, dug and renovated 20,250 mtr. fishery tanks, constructed and maintained 14 km irrigation channel and reclaimed 45,551 sq.mt land and leveled about 7 hectares of land. All these indicate that NREGS has been creating and developing a lot of community assets as rural infrastructure in Tripura.

Impact of NREGS on Villagers

The impact of NREGS on villagers of Tripura is immense and multi-dimensional. On the one hand, it has lessened the incidence of poverty among the villagers and, on the other hand, it has emboldened the confidence of rural unskilled men and women, most particularly the aged women and widows who can hardly go out of villages for work. In true sense NREGS is a means of survival for this section of hapless old, aged unskilled labourers in rural areas. NREGS regenerated some self-belief amongst this section of people. “An impact assessment study on NREGS in Dukli Block, West Tripura District shows that the scheme has provided economic independence to rural people. Lives of rural people have been changed as a result of introduction of this scheme. The benefits of the scheme include economic emancipation of women, wage security for impoverished family and creation of public assets.”⁴⁸

NREGS instilled self-confidence in rural women. They learnt digging water tanks, carrying head loads and doing such other works that a man traditionally did. They are more assertive while they talk and are able to make eye contact while they interact with implementing agencies. Instead of looking at their husbands for meeting their unavoidable expenses, share the family expenses and lend money to their husbands in crises. Women earning money from NREGS spend it on the education of children and on their petty jewels and household necessities. Field study shows that 10 percent of women participating in NREGS have been subscribing to LIC policies/recurring deposits. A majority of women has reported that NREGS has enabled them to be health conscious. They are no longer a passive listener but a compelling force both at home and at work place. The additional income of women is a booster to the family income. Their income has not only brought some economic solvency to the concerned families but has also caused changes in attitude of men towards women.

Creation of durable community assets like rural roads, water bodies, tank, and market sheds for the unemployed youths have brought a momentous

shift in the livelihood of rural people. As Tripura is hilly state and geographically isolated, construction of various rural roads has facilitated easy marketing of agricultural and minor forest produces leading to increased flow of income. The study shows that the land-leveling activities undertaken in Lankamura GP under West Tripura District have brought more than 10 hectares of barren and unproductive lands to cultivable stage leading to the rise of agricultural productivity as well as rise in the family income. Land-leveling works under Narsingarh GP in West Tripura District have led to the establishment of a big banana orchard by some poor SC people. Such work undertaken by Banspadua GP in South Tripura District has enabled the establishment of 4-hectare mango plantation as well as guava plantation in those lands besides settling some minority families displaced during the construction of Indo-Bangladesh Border Road. Establishment of rubber nursery, floriculture and horticultural activities by Sarasima GP are income generating. Digging and renovation of water tanks and reservoirs are likely to increase the fish production in the state substantially, which happens to be a long-standing problem in the state.

Development of agricultural lands held by ST/SC and BPL families in Anaganagar and West Gandhigram GPs under Mohanpur Block of West Tripura District, reclamation of land of ST/SC people residing in Kanchannagar GP under Bakafa Block of South Tripura District have helped many poor cultivators to see their barren land converted to fertile land and enabled them to cultivate vegetables on such land in large scale enabling them to enhance their income. Micro irrigation projects have helped the rice cultivators under Gardhang GP avail of irrigation facility intensively and improve rice production manifold. In Garhang and Kanchannagar GPs land reclamation, excavation of tank and construction of rural roads were done by tribals and non-tribals irrespective of location of work and density of tribal or non-tribal population. Construction of market sheds by Motai GP and Banshpada GP in South Tripura District, most of which are distributed to the unemployed youths in rural market, have given a sigh of relief to the prolonged unemployment problem in the local areas.

To sum up, the participation of rural people in NREGS has led to increased income levels of households, food security, health consciousness, empowerment of women, access to productive assets and savings, improved livelihood, access to leadership position in gram panchayats etc while afforestation, construction of dams, tanks and water bodies have not only assuaged the prolonged water scarcity problem in rural areas but have also made positive environmental impacts on the society as a whole.

Reasons for Success

Available data show that NREGS in Tripura is successful. “An important reason for Tripura’s better performance in this respect is that rural employment programmes were implemented more seriously in this state than elsewhere”.⁴⁹ According to the present author, performance of NREGS is good mainly because of the workings of the three-tier Panchayati Raj Institutions (PRIs) in the state. The devolution of powers and functions to the PRIs particularly in respect of 12 administrative departments like rural development, food, forest, agriculture, fisheries and education led to the enhancement of people’s participation as well as better performance. The PRIs did a commendable job right from the registration of households, door-to-door survey, and issue of job card to distribution of work and payment of wages. This can be gauged from the Performance Audit Report No 42 of 2008 of Government of India which, *inter alia*, states: “Despite the fact that there was no shortage of funds for implementation of the NREGA, audit scrutiny revealed that except in Tripura, none of the test checked GPs were able to take up all the works proposed in their Annual Plan for 2006-07”.⁵⁰ The report clearly states that there was no use of contractors or machines in NREGS works in Tripura; there was no irregular execution of work and abandoned or unfruitful work in the state.⁵¹

Another reason for the success of NREGS is the policy of People’s Plan introduced in Tripura, which is an attempt to formulate village development plans through participatory resource mapping called *Gramoday* introduced in 1999-2000 in West Tripura District first and later extended to the entire state by 2001-02.⁵² *Gramoday* is a kind of decentralized planning. It has two components. One component is to be formulated and implemented by Gram Panchayat and other component, which requires resources and technical inputs from outside the village, is to be submitted to the panchayat samity and zilla parishad for incorporation in the consolidated district plan and the state plan. “The resource mapping exercise generated considerable enthusiasm and popular participation and helped people’s perceptions on development needs and priority into area based development programmes.”⁵³

The other key factors for good performance of NREGS are the efforts of state government in complying with the guidelines regarding the appointment of (1) Gram Rozgar Sevak (GRS) in each GP, on whom the pivotal role of implementation of NREGS rests, and (2) one technical assistant for every 10 GP for assisting the estimation and measurement of works, planning,

designing, monitoring, evaluation and quality audit of various initiatives and also to assist in training and handholding with a view to improving the quality and cost-effectiveness of the scheme. Field study shows that hundred per cent of the gram panchayats formulated their work plan through gram sansad (through a meeting of villagers) and 80 percent of the panchayats sent proposal estimates etc in time, which led to all round planning effective.

Limitations of NREGS in Tripura

While implementation of NREGS has gained significant achievement, it is not free from criticism. Some such limitations in the implementation of NREGS are discussed below: One, many job cardholders have alleged that wage payment against their work is irregular and it takes some period to get the wages after the work is completed. However, according to Gram Pradhan, Gram Panchayat Secretary, formality compliances regarding transparency and other mandatory procedures cause the unwanted delays in the disbursement of wages. As per the existing norms, 50 per cent of total cost is disbursed by the local GP and the Block and District Level PRIs disburse the remaining 50 percent. But the reality is that the share of the total cost of projects likely to be borne by Block and District level PRIs are released only after the receipt of the completion report from every GP. According to the Panchayat Samity chairpersons, Gram Pradhan, GRSs and BDO, the above process takes only 15 days from the date of completion of work and they refer to banking delays as prime cause for the deferral of wage payments. But the bank officials refute this and instead allege that implementing agencies are responsible for such delay citing examples of incorrect or incomplete filling up schedules and forms. Two, men are generally found reluctant to join this flagship programme. In West Tripura District, women share 60 percent of the total person-days while overall participation of women in Tripura is 51 percent. According to Block Development Officer (BDO) and panchayat functionaries, men are not interested in NREGS because it offers relatively lower wage. In Tripura the wage as fixed for NREGS works is Rs.85 per day (increased to Rs.100 from March 1, 2009) while the daily wage, even for an unskilled worker in construction work is not less than Rs.130 per day, which, in some cases, goes up to Rs.200 per day depending on the nature of work. “This is the reason why the participation of women in some adjoining areas of Agartala like Jirania Block, Mohanpur Block and Dukli Block goes up to 70% to 80% per cent.”⁵⁴ Women participating in NREGS activities also endorse this view. According to women, men of the village move to the nearby town in search of job earning a wage @ Rs150 per day leaving job

opportunities for women in the village. Field study conducted in town/city adjoining gram panchayats like West Gandhigram, Lankamura GP under West Tripura District and Sarasima GP in South Tripura District shows that the share of participation of women in such areas is about 80 percent of total person-days' work. Three, the study also shows that both wage and participation of women have risen. NREGS has restricted the movement of labour from one area to another to a great extent. This has been substantiated by contractors, engineers, panchayat functionaries, rubber cultivators, etc. in Agartala. The non-availability of labours has already been impacting rice production in the state causing the cost per hectare to rise leading to economic loss to cultivators.⁵⁵ It is apprehended that ultimately it may change the cropping pattern of Tripura.⁵⁶ A classic example of such problem is the recent crisis of labourers in the tea gardens of Tripura. Tea gardens in Tripura have started facing the shortage of labours following the expansion of NREGS in all the four districts of the state. "According to Tea Association of India, about 40-42% of the workers have deserted tea estates and joined the NREGS and another 12% of the tea workers have obtained job cards for NREGS"⁵⁷ implying a bleak future for the tea industry. "More than 5,000 tea garden workers in Tripura have switched jobs in the past six months. They have found better option in the works under the National Rural Employment Guarantee Act (NREGA), 2005 leaving tea industry in crisis in their trail"⁵⁸. It may be mentioned that tea workers in Tripura are allured to join NREGS because they receive a wage of Rs.38 per day excluding ration, accommodation and other benefits being provided by the employer.

Four, field study also shows that approved wage rate of NREGS is directly regulating and impacting minimum wages of labourers under unorganized sector in the state. When wages under NREGS was fixed at Rs 60 per day, the market rate was Rs.80 per day; when the wages under NREGS rose to Rs.71 the minimum rate in the local market shot up to Rs.100 per day; when the wages under NREGS increased to Rs 85 per day, the market rate went up to Rs.120 per day and now with the latest revision of NREGS wages to Rs.100, the minimum wage rate reaches Rs150 per day. Five, according to the present author the shortage of adequate number of labourers is a key factor in the continuation of NREGS in the coming days. There is acute shortage of both skilled and unskilled workers in the state today. Some of the workers under NREGS need to be semi-skilled but they may not remain in NREGS given the existing *modus operandi* of wage payment. Field study shows that the recently introduced wage payments are

to some extent contractual and directly proportional with the volume of work to be performed by a group of workers. Thus NREGS may face acute availability of workers. The available records also show that since 2001 number of unskilled workers registering in employment exchanges has been steadily declining and it reached 145,974 in 2006⁵⁹ from 195,895 in 2001⁶⁰ to 161,095 in 2003⁶¹ while number of skilled workers did not go up. Thus the non-availability of workers may be a real problem in fear future. According to the present author absence of differential wage rate system is also a factor that restricts the movement of labour from one sub-division to another and thus scarcity persists. The study shows that Tripura along with other 15 states did not prepare separate District-wise Schedules of Rates (DSRs) specifically for NREGS works after listing tasks for NREGS works in different geo-morphological conditions, and undertaking time and motion studies for observing out-turn and fixing rates.⁶² Field study shows that male worker is hardly available on demand as they are being hired for various development activities like Pradhan Mantri Sadak Yojana, Indo-Bangladesh Fencing Work, Bharat Nirman Project, and in rubber cultivation.⁶³ Besides organizations like Oil and Natural Gas Company and State Public Works Department prefer men to women workers for implementing their projects.

Six, another problem is the unspent fund allocated to NREGS. Available records indicate that the size of unspent fund is Rs.24 crore, which according to media report, is as high as Rs.141.35 crore in 2008-09 in the state.⁶⁴ The present author observed during the field study that the size of unspent fund at the end of March 2009 was not meagre. Delayed receipt of the fund in March 2009 has been cited as the reason for the unspent amount as well as spending the fund after the financial year. Absence of proper planning, lack of adequate staff and improper training to those newly recruited are reasons for such fund remaining unspent. The BDO is already vested with diverse works and the implementation of NREGS through the BDO proves to be additional burden resulting in under achievement of NREGS. "Non-appointment of a full-time dedicated Programme Officers (PO), pivotal to the successful implementation of the NREGA and giving the additional charge of PO to BDOs, who were responsible for other developmental schemes at the Block level, strikes at the root of effective implementation of NREGA."⁶⁵ Engagement of one GRS in each panchayat where the number of households is more than 800 is also a factor to reckon and it is hardly possible for one GRS to get all works done smoothly, including supervision and generating better performance from workers. Under the present system time lag between decision taken to introduce a new scheme and subsequent

implementation through project formulation, processing and approval of projects at different levels is high. This is one of the reasons for poor progress in taking up works proposed in the Annual Plans, and thus affecting the implementation of NREGS.

Seven, lastly, a great deal of responsibility has been vested on GP for implementation of NREGS. The Gram Pradhan is particularly responsible for some tasks of NREGS like distribution of job cards, receipt of work application, selection of works, allotment of works, implementation and supervision of work and even for the disbursement of wages in time, etc. This implies that Gram Pradhan has to actively devote his time, attention and energy to the programme. But, unlike other functionaries, he is not paid any remuneration for these tasks. This may be the reason for the involvement of some of these people in the corruption, malpractices and misappropriation of the NREGS fund. A section of the media already reported about mismanagement of NREGS fund by GP level leaders in collusion with other concerned employees. There are reports that NREGS fund is misappropriated in some blocks under Amarpur, Ambassa, Teliamura, Khowai, Sonamura, Sabroom and Dharmanagar sub-divisions of the state and most of reports are related to book adjustments shown against wages paid to workers and issue of fake job cards.

Conclusion

The study shows that average person-days per household is higher, creation of assets is more voluminous and diversified, women's participation is noteworthy and tribal participation is resplendent. Social audit is conducted in all GPs and payment of wages is made through bank accounts and most blocks are equipped with technical assistants and all GPs have one GRS each. According to the present researcher, some of the limitations mentioned above will be solved within a short period of time as the implementing machinery is able to identify them. However, the reluctance of men to join NREGS, shortage of labour and its multiplier effects may take some time to be solved.

In fine, the implementation of NREGS in Tripura is in right direction. If implemented properly, some of the present pitfalls like poor irrigation system, ill connectivity, and undeveloped agriculture and allied activities can be removed and income generating assets like development of nursery and orchard, and silk rearing can be developed along with social infrastructure

like playgrounds in the hinterland schools. The state government is expected to take appropriate measures against such challenges confronting its smooth implementation and make Tripura a model state in the country in NREGS implementation.

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Novel Printed Rectangular Patch Monopole Antennas with Slit Ground Plane for UWB Applications

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Introduction

Ultra-Wideband (UWB) commonly refers to signal or system that either has a large relative bandwidth (BW) or a large absolute bandwidth^{1,4}. Such a large BW offers specific advantages with respect to signal robustness, information content and/or implementation simplicity. But such systems have some fundamental differences from the conventional narrowband systems. The Federal Communications Commission (FCC) has designated the 3.1 to 10.6 GHz band with Effective Isotropic Radiated Power (EIRP) below -40dbm/kHz for UWB Communications.

Some UWB antennas are much more complex than other existing single band, dual band and multi-band antennas^{5,6}. Most of the UWB monopole antennas investigated till today is non-planar as in^{2,4} and due to its protruded structure they cannot be integrated with integrated circuits and they are fragile. Few researchers have also studied printed monopole antennas.

In this paper, we investigate rectangular patch UWB antenna with slit in the ground plane, which is basically a printed microstrip antenna with etched ground plane^{6,8}. First we investigate in depth the rectangular disk printed monopole antenna with etched ground plane as shown in Fig. 1 for UWB applications. We have used conventional rectangular microstrip lines as feed lines for printed UWB antennas which are properly matched to the antenna impedance^{9,10}. And we have maintained some gap “g” between the rectangular patch and the ground plane in order to get proper impedance matching as well as huge bandwidth, which was one of the design parameters of proposed antenna in order to meet UWB applications¹¹. In future we propose to

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investigate other broadband matching techniques to further improve the UWB performance of the printed monopole antenna. The CAD-FEKO simulation software has been employed for obtaining the simulation results.¹²

Geometry of Printed UWB Monopole Antennas and Simulation Results

A. UWB Antenna with Rectangular Patch and Slit in Ground Plane

The UWB monopole antenna is designed for UWB applications on a FR4 substrate with 4.4 relative permittivity and 1.6 mm thickness. Next, the input impedance of the patch at the edge was determined by placing a simple 50Ω rectangular microstrip line. The final dimensions of the UWB antenna after doing an extensive simulation study are:

The Patch: W=12 mm, L=16.5 mm and thickness=0.035 mm; the Substrate: W=30 mm and L=28 mm; the Ground: W=30 mm, L=10 mm and thickness=0.5 mm; the Microstrip line: W=3 mm and L=11.5 mm; the Slit: W=30 mm and L=4 mm.

Where “g” is gap between the ground plane and patch.

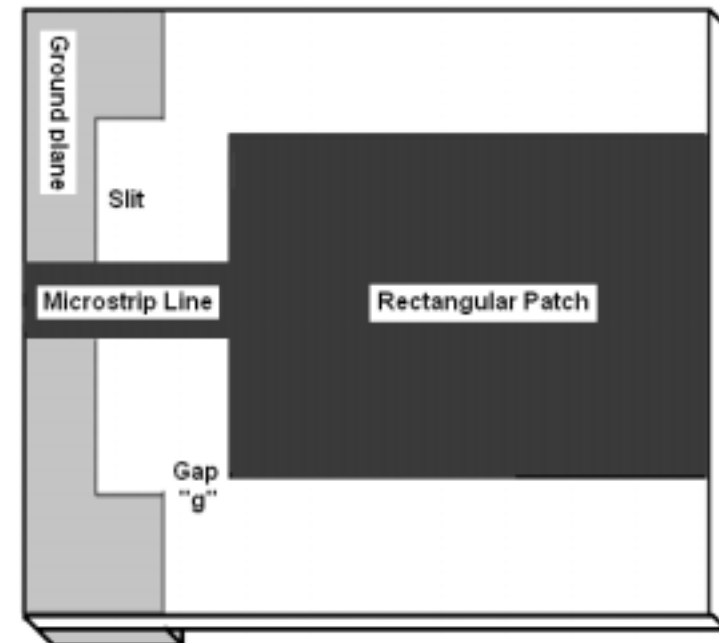


Fig.1. Geometry of Rectangular UWB Antenna

After doing extensive simulation study at particular values of “g”, the antenna impedance, the maximum radiation intensity (Max U) in watt per steradian, bandwidth (f_{low} is the lower start frequency of the antenna BW, f_{high} is the higher end frequency of the antenna BW and antenna BW is considered for those frequency range where the s_{11} is below -10dB) and the radiation efficiency are tabulated. Here the gap (g) between the rectangular patch and the ground plane below is the most crucial parameter for getting the broad BW, matching the antenna impedance to 50 Ω and maximize the antenna radiation efficiency.

Table 1: Various Parameters of the Antenna

g mm	F _{low} GHz	F _{high} GHz	Antenna Impedance Ω	P _{acc} w	P _{rad} w	Max U W/Sr	Peak Gain	η %
2.5	3.1	12	50	0.88	0.76	0.20	2.4	95

As we can see from Table 1, the value of ‘g’ is fixed at 2.5 mm. The ‘g’ value is a very crucial parameter for proper impedance matching and the slit in the ground plane results the broadband width. The width of the ground plane and the slit in the ground plane are important factors in determining the antenna impedance and consequently the frequency BW. The lower end of the frequency BW is 3.5GHz before making the slit in the ground plane. This is a serious limitation of the UWB regulations, and this can be solved and fixed by the slit in the ground plane. The lower end of the frequency BW is shifted from 3.5 GHz to 3.1 GHz after slit formation in the ground plane, the final dimensions of the slit are listed above. The UWB performance of the monopole antenna is due to such closely resonating fundamental and harmonic frequencies.

Fig. 2. s_{11} versus Frequency Plot

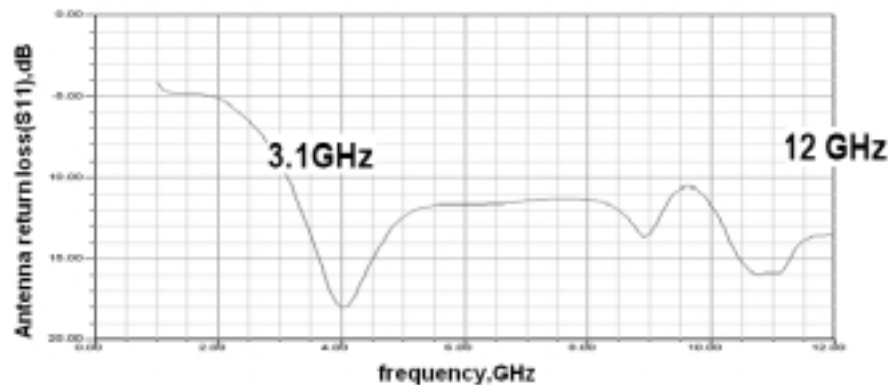
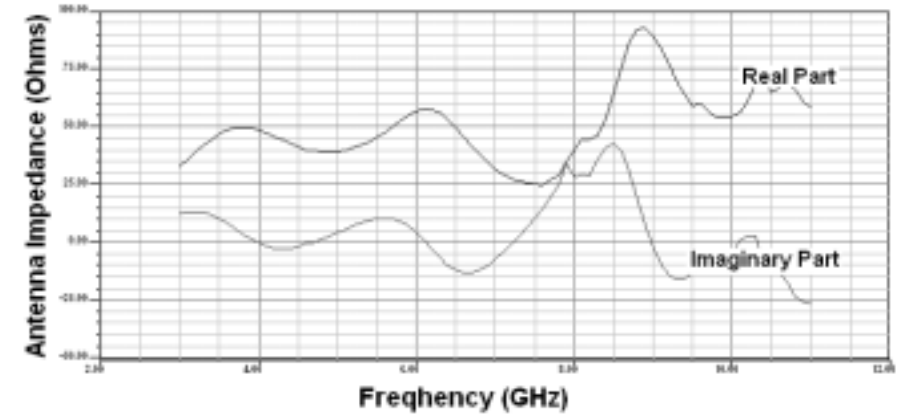


Fig. 3. Antenna Impedance versus Frequency



The antenna impedance versus frequency plot tells us that “the real part of antenna impedance is exactly 50 Ω at 6 GHz and 8 GHz where the imaginary part of the antenna impedance equals zero as depicted in Fig.3. Throughout the bandwidth of the UWB antenna, the real part of the antenna impedance varies from 40 Ω to 60 Ω whereas the imaginary part of the antenna impedance is in the range of -30 Ω to +30 Ω, which is not a major variation of the antenna impedance. The E-plane (i.e. vertical cut of 3D radiation pattern) and the H-plane (i.e. horizontal cut of 3D radiation pattern) radiation patterns of the rectangular patch UWB monopole antenna at 3.1, 7.2, 9 and 10.6 GHz are shown in Fig. 4 and Fig. 5. It can be observed that the E-plane radiation pattern is in the shape of figure “8” at 3 GHz and the higher frequencies. It has maximum directivity at - 15° and - 180° at 3 GHz and at the frequency 10.6 GHz. It has been tilted to 9° and -16°. As frequency increases it is slightly tilted with 5° to 10°. The H-plane radiation pattern on the other hand is purely omni-directional pattern throughout ultra wideband.

Fig. 4. E-plane Radiation Patterns at (i) 3.1 GHz, (ii) 7.2 GHz, (iii) 9 GHz and (iv) 10.6 GHz

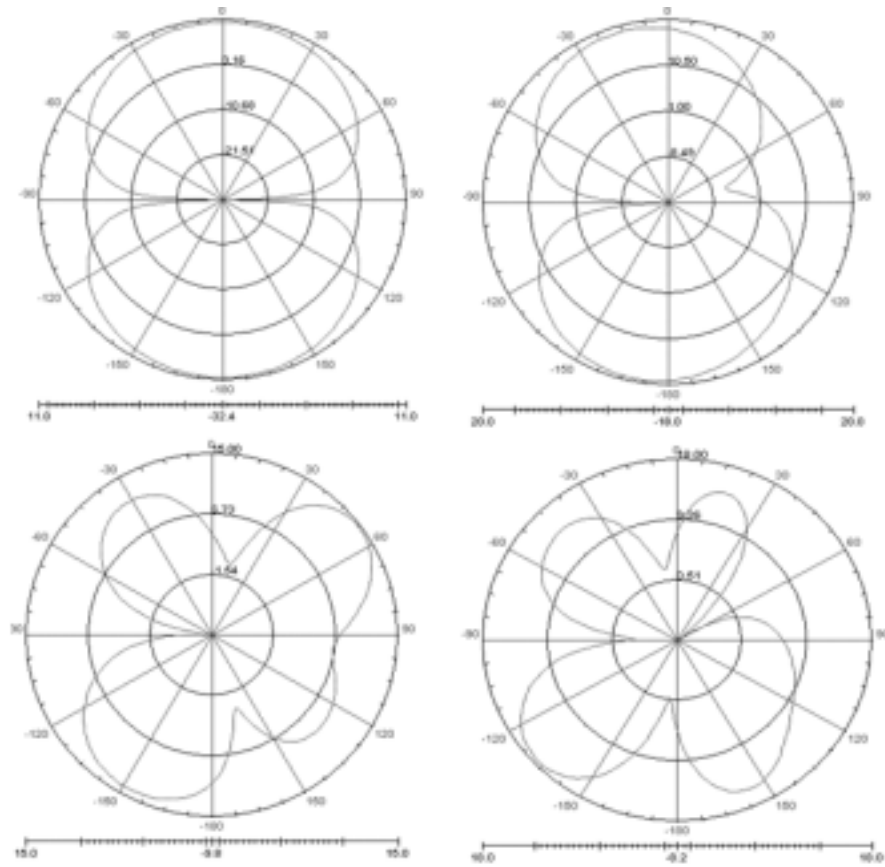
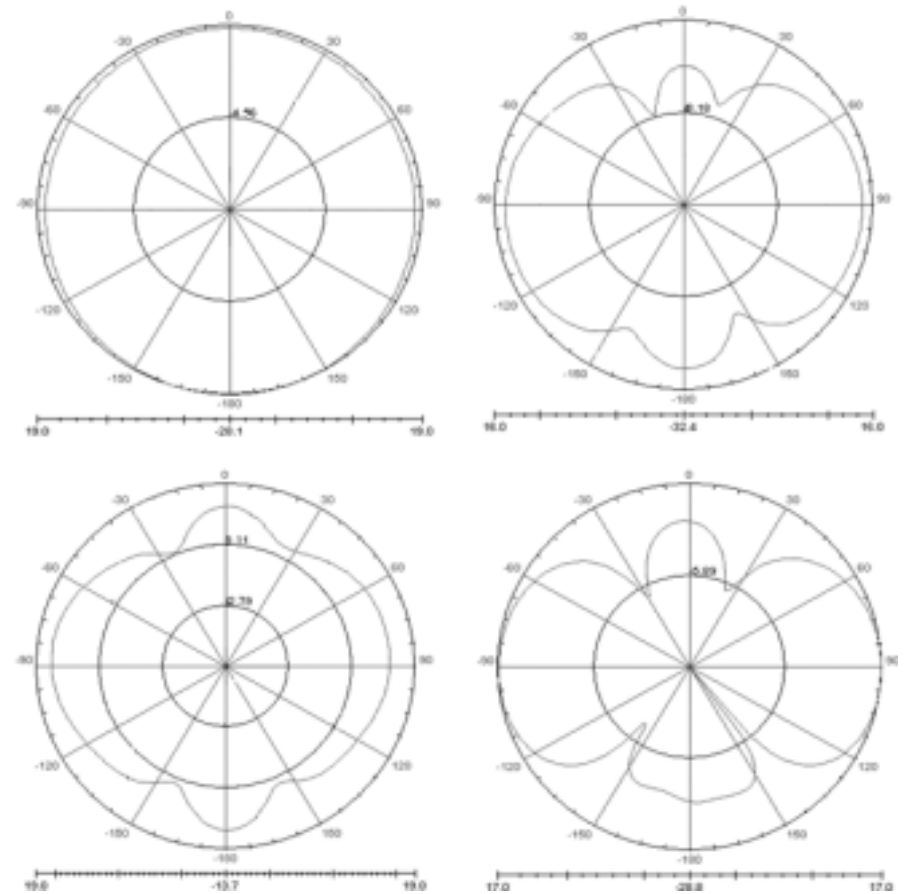
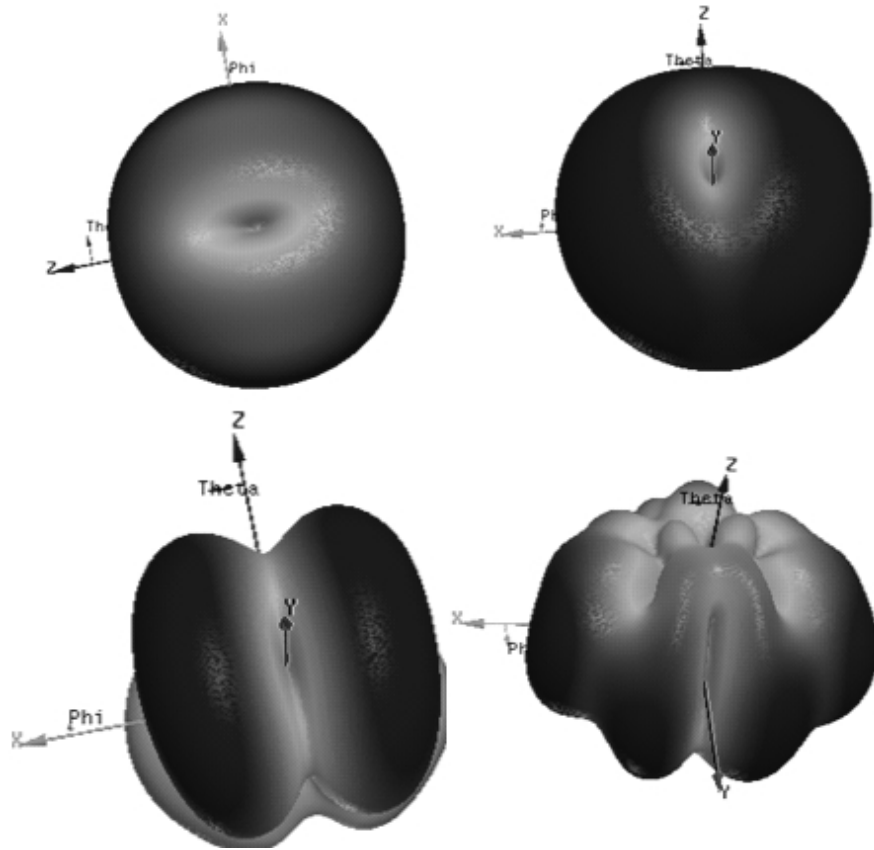


Fig. 5. H-plane Radiation Patterns at (i) 3.1 GHz, (ii) 7.2 GHz, (iii) 9 GHz and (iv) 10.6 GHz



The simulated 3D radiation patterns of the proposed antenna are at 3.1, 7.2, 9 and 10.6 GHz are shown in Fig.6. Throughout the Ultra Wide Band the radiation pattern resembles a doughnut at the resonant frequencies, i.e., 3.1 GHz and 7.2 GHz similar to that of a dipole pattern. The radiation pattern is somewhat like a pinched doughnut (i.e., omni directional) at the higher resonant frequencies, i.e., at 10.6 GHz. The radiation pattern becomes somewhat distorted as it reaches higher frequencies (i.e. beyond 10.6 GHz).

Fig. 6. 3D Radiation Plots at (i) 3.1 GHz, (ii) 7.2 GHz, (iii) 9 GHz and (iv) 10.6 GHz



The radiation pattern variation from a simple doughnut at the lower frequencies to slightly distorted doughnut pattern at the higher resonances indicate that this antenna must have gone through major changes in its behaviour, yet has omni-directionality. The antenna has very less reflections and maximum radiation efficiency due to proper impedance matching. It has been observed that such monopole antennas are suitable for UWB operations from the CAD-FEKO simulation results.

Conclusion

In this paper, we have investigated rectangular patch UWB monopole antenna with slit in the ground plane, which is basically a printed microstrip antenna with the etched ground plane. Printed UWB monopole antennas are less fragile, planar and can be integrated with the integrated circuits unlike monopole antennas which have non-planar or protruded structures above the ground plane. In particular, we have simulated compact UWB monopole antenna namely rectangular disk printed monopole antenna. The proposed antenna is compact and has higher efficiency as well as broad BW. The E-plane radiation patterns of the monopole antenna are in figure of 8 shapes and it is slightly tilted at higher frequencies. The H-plane radiation pattern has omni-directional patterns throughout the frequencies of the BW.

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On Wave Solutions of Einstein's Field Equations of General Relativity Containing Zero-Rest-Mass Scalar Fields

M. ANSARI

Introduction

The study of relativistic field equations in the presence of scalar meson field has drawn the attention of many researchers. Brahmachary¹, Bergmann and Leipnik² have investigated the spherically symmetric fields associated with zero-rest-mass. The static solutions for axially and spherically symmetric fields have been investigated by Buchdahl³ who has also studied the physical aspects of these solutions. Janis, Newman and Winicour⁴, in an attempt to present an extension of Israel's⁵ idea of singular event horizon, have considered the spherically symmetric solutions of the field equations of general relativity containing zero-rest-mass mason fields. Penney⁶ and Gautreau⁷ have extended the study to the case of axially symmetric fields and have found that the scalar field obeys a flat-space Laplaces equations such that a large class of solutions exists. Lal and Singh^{8,9} have obtained exact cylindrical wave solutions of Einstein's field equations of general relativity in the presence of zero-rest-mass scalar fields and have further analyzed the non-singular nature of one of these solutions. Singh¹⁰ and Patel¹¹ have investigated plane symmetric solutions of the field equations corresponding to zero-rest-mass scalar fields.

This paper is continuation of Lal and Ansari¹² in which we have investigated the plane wave-like solutions of the field equations of general relativity containing electromagnetic fields in a space-time whose geometry is described by the line element,

$$ds^2 = -dx^2 - dy^2 - dz^2 + dt^2 + 2Adzdt + 2Bdxdy, \dots \dots \dots (1)$$

where $A = A(z, t)$ and $B = B(x, y)$.

The object of this investigation is to find out the plane - wave-like solutions of Einstein's field equations of general relativity in presence of zero-rest-mass scalar fields in

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the same space time (1).

The equations under consideration are given by

$$G_{\mu\nu} = R_{\mu\nu} - \frac{1}{2}g_{\mu\nu}R = -8\pi T_{\mu\nu} \dots \dots \dots (2)$$

$$g^{\mu\nu}\psi_{,\mu\nu} = 0, \dots \dots \dots (3)$$

where ψ is a scalar field having zero - rest - mass and $T_{\mu\nu}$, the energy momentum tensor of this field, is defined by

$$T_{\mu\nu} = \psi_{,\mu}\psi_{,\nu} - \frac{1}{2}g_{\mu\nu}(\psi_{,i}\psi_{,m}g^{im}), \dots \dots \dots (4)$$

Here and elsewhere a semicolon (;) indicates covariant differentiation with respect to Christoffel symbols $\left\{ \begin{matrix} k \\ \mu \nu \end{matrix} \right\}$ and a comma (,) followed by an index μ denotes partial differentiation with respect to x^μ .

Calculation of $G_{\mu\nu}$ and $T_{\mu\nu}$

The contravariant components of $g_{\mu\nu}$ corresponding to the line-element (1) are given by

$$\begin{aligned} g^{11} &= g^{22} = \frac{g^{12}}{B} = \frac{-1}{1-B^2}, \\ -g^{33} &= g^{44} = \frac{g^{34}}{A} = \frac{-1}{1+A^2}, \end{aligned} \quad (5)$$

For the line-element (1) the components of Christoffel symbols of the second kind $\left\{ \begin{matrix} k \\ \mu \nu \end{matrix} \right\}$ are

$$\begin{aligned} \left\{ \begin{matrix} 1 \\ 1 \ 1 \end{matrix} \right\} &= \frac{-BB_1}{1-B^2} & \left\{ \begin{matrix} 3 \\ 3 \ 3 \end{matrix} \right\} &= \frac{AA_2}{1+A^2} \\ \left\{ \begin{matrix} 2 \\ 1 \ 1 \end{matrix} \right\} &= \frac{-B_1}{1-B^2} & \left\{ \begin{matrix} 4 \\ 3 \ 3 \end{matrix} \right\} &= \frac{A_2}{1+A^2} \\ \left\{ \begin{matrix} 1 \\ 2 \ 2 \end{matrix} \right\} &= \frac{-B_2}{1-B^2} & \left\{ \begin{matrix} 3 \\ 4 \ 4 \end{matrix} \right\} &= \frac{-A_4}{1+A^2} \\ \left\{ \begin{matrix} 2 \\ 2 \ 2 \end{matrix} \right\} &= \frac{-BB_2}{1-B^2} & \left\{ \begin{matrix} 4 \\ 4 \ 4 \end{matrix} \right\} &= \frac{AA_4}{1+A^2} \end{aligned} \quad (6)$$

where B_1, B_2 , etc stand for $\frac{\partial B}{\partial x}, \frac{\partial B}{\partial y}$ respectively.

The Ricci Tensor $\bar{R}_{\mu\nu}$ is defined by

$$\left\{ \begin{matrix} s \\ \mu \ s \end{matrix} \right\}, \nu - \left\{ \begin{matrix} s \\ \mu \ \nu \end{matrix} \right\}, s + \left\{ \begin{matrix} s \\ t \ \nu \end{matrix} \right\} \left\{ \begin{matrix} t \\ \mu \ s \end{matrix} \right\} - \left\{ \begin{matrix} s \\ t \ s \end{matrix} \right\} \left\{ \begin{matrix} t \\ \mu \ \nu \end{matrix} \right\} \dots \dots \dots (7)$$

Using (6) and (7) the non-vanishing components of $R_{\mu\nu}$ are given by

$$R_{11} = R_{22} = \frac{-R_{12}}{B} = X$$

$$-R_{33} = R_{44} = \frac{R_{34}}{A} = Y; \tag{8}$$

where

$$X \equiv \frac{B_{12}}{1-B^2} + \frac{BB_1B_2}{(1-B^2)^2},$$

$$Y \equiv \frac{A_{34}}{1-A^2} + \frac{AA_3A_4}{(1+A^2)^2}, \tag{9}$$

By a straight forward calculation the non-vanishing components of $G_{\mu\nu}$ and $T_{\mu\nu}$ have the following values:

$$G_{11} = G_{22} = \frac{G_{12}}{B} = Y, \tag{10}$$

$$-G_{33} = G_{44} = \frac{G_{34}}{A} = X, \text{ and}$$

$$\begin{aligned} T_{11} &= \psi_1^2 - \Phi & , & & T_{11} &= \psi_2^2 - \Phi \\ T_{12} &= T_{21} = \psi_1\psi_2 + B\phi & , & & T_{14} &= T_{41} = \psi_1\psi_4 \\ T_{13} &= T_{31} = \psi_1\psi_3 & , & & T_{24} &= T_{42} = \psi_2\psi_4 \\ T_{23} &= T_{32} = \psi_2\psi_3 & , & & T_{33} &= \psi_3^2 - \Phi \\ T_{34} &= T_{43} = \psi_3\psi_4 + A\phi & , & & T_{44} &= \psi_4^2 + \Phi \end{aligned} \tag{11}$$

where

$$\phi = (\psi_1^2 + 2B\psi_1\psi_2 + \psi_2^2)/2$$

$$(1 - B^2) - (\psi_3^2 + 2A\psi_3\psi_4 + \psi_4^2)/2(1+A^2).$$

Solutions of Field Equations (2) and (3)

Substituting the values of $G_{\mu\nu}$ from (10) and $T_{\mu\nu}$ from (11) into (2), we get

$$Y + 8\pi(\psi_1^2 - \Phi) = 0 \dots \dots \dots \tag{12}$$

$$Y + 8\pi(\psi_2^2 - \Phi) = 0 \dots \dots \dots \tag{13}$$

$$BY - 8\pi(\psi_1\psi_2 + B\phi) = 0 \dots \dots \dots \tag{14}$$

$$\psi_1\psi_3 = 0 \dots \dots \dots \tag{15}$$

$$\psi_1\psi_4 = 0 \dots \dots \dots \tag{16}$$

$$\psi_2\psi_3 = 0 \dots \dots \dots \tag{17}$$

$$\psi_2\psi_4 = 0 \dots \dots \dots \tag{18}$$

$$X - 8\pi(\psi_3^2 - \Phi) = 0 \dots \dots \dots \tag{19}$$

$$X + 8\pi(\psi_4^2 + \Phi) = 0 \dots \dots \dots \tag{20}$$

$$AX + 8\pi(\psi_3\psi_4 + A\phi) = 0 \dots \dots \dots \tag{21}$$

Equation (15)-(18) are satisfied when either

- (i) $\psi_1 = \psi_2 = \psi_3 = \psi_4 = 0$ which is trivial ;

or (ii) $\psi_3 = \psi_4 = 0$ that $\frac{\partial\psi}{\partial z} = 0$,

or (iii) $\psi_1 = \psi_2 = 0$.

Taking case (ii) and (iii) when $\frac{\partial\psi}{\partial z} = 0$, ψ becomes a function of x, y only, but this is not useful from the point of view of 'wave solutions'. Therefore, we take $\psi_1 = \psi_2 = 0$ which reduces ψ to be a function of Z only. Using $\psi_1 = \psi_2 = 0$ and $\psi = \psi(z)$ in equations (12)-(21) solution is

$$A(x + y) - 8\pi\bar{\psi}^2 = 0, \dots \dots \dots \tag{22}$$

where a bar denotes partial differentiation with respect to $z (= z - t)$. Substituting the values of $g^{\mu\nu}$ from (5) and $\left\{ \begin{smallmatrix} i \\ \nu \end{smallmatrix} \right\}$ from (6), in the wave equation (3), we have

$$\left\{ \psi_{,11} + \psi_{,1} \frac{BB_1}{1-B^2} + \psi_{,2} \frac{B_1}{1-B^2} + 2B_{,12} + \psi_{,1} \frac{B_2}{1-B^2} + \psi_{,1} \frac{BB_2}{1-B^2} \right\} /$$

$$(1 - B^2) - \left\{ -\psi_{,33} + \psi_{,3} \frac{AA_3}{1-A^2} + \psi_{,4} \frac{A_3}{1+A^2} + 2A\psi_{,34} + \psi_{,44} + \psi_{,3} \frac{A_4}{1-A^2} \right.$$

$$\left. \psi_{,4} \frac{AA_4}{1-A^2} \right\} /$$

$$(1 + A^2) = 0 \tag{23}$$

Using $\psi_1 = \psi_2 = 0$ and $\Psi = \Psi(z)$ in equation (23), it reduces to

$$(1 - A)A_3 - (1 + A)A_4 + 2(1 + A^2)A\bar{\psi} = 0 \dots \dots \dots \tag{24}$$

Thus, the plane-wave-like solutions of the field equations (2) and (3) are composed of $g^{\mu\nu}$ given by (1) satisfying the conditions (22) and (24).

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What is the Mandate of North-Eastern Hill University?

BINOD KUMAR AGARWALA

*Apologia pro vita sua*¹ – John Henry Newman, 1864

It is important to remember the mandate of a university given by the Parliament or State Assembly, as the case may be, as it gives direction for its present and future development. North-Eastern Hill University (henceforth NEHU), one of the central universities located in India's Northeast, has witnessed considerable growth as well as development during the past 35 years or so. It is therefore worthwhile to look back at its mandate and see if it is developing according to its mandate.

In Clause 4 of the NEHU Act, 1973 the mandate of NEHU is spelt out as follows:

The objects of the University shall be to disseminate and advance knowledge by providing instructional and research facilities in such branches of learning as it may deem fit; to pay special attention to the improvement of the social and economic conditions and welfare of the people of the hill areas of the North-Eastern region, and, in particular their intellectual, academic and cultural advancement.

I

One of the objectives of NEHU is thus “the intellectual, academic and cultural advancement” of “the people of the hill areas of the North-Eastern region”. Let us understand first the phrase “cultural advancement”. Culture here is to be understood as something of value. History tells us that culture as an independent concept of value occurs for the first time during Enlightenment; culture can lift one up above the rawness of nature toward complete humanity, to progress to become a perfect “policy maker.” In culture there resides

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cultura animi, cultivation of mind, as Cicero spoke², and in the word “culture” and in the essence of culture we are presented not just the pleasure of free play, but also the toil of sowing and harvesting of the spirit, i.e., cultivation toward humanity. Hence culture is, to quote Gadamer, “all that stops men from assaulting one another, and from being worse than any animal. For animals, unlike men, know no war: no other species fights with its own kind to the point of annihilation.”³ Culture is the domain of all that becomes more by sharing it.⁴ Talking and communication is sharing in its pure form.⁵ It is interesting to note that ‘ethos’ means a self-conduct and a bearing that can give an account of itself and answer for itself in discourse.⁶ Even ‘tradition’ rests on discourse.⁷ What we immediately understand by ‘tradition’ is the written information that has come to us through writing, copying, and reproduction.⁸ There is also oral tradition.⁹ Discourse can be art not only through the medium of writing but also through *mneme*, through *memoria*, and through memory.¹⁰ We are cultured because we talk to each other to give an account of ourselves and answer for ourselves, and preserve it in writing and memory to hand it down to next generation, so much so that we undertake our whole life on the basis of *prohairesis* or on the basis of our own choice, i.e., we lift ourselves above nature. This understanding of culture, where culture is open, universalistic, inclusive and it is a value, is implicit in NEHU mandate when it speaks of cultural advancement.

The mandate does not speak of culture in anthropological sense. Even the aborigines of Andaman and Nicobar islands who live in forests in primitive conditions through hunting and gathering have a culture in anthropological sense.¹¹ If someone were to speak of cultural advancement of such people he will mean to bring modern culture to them. When a university as a modern institution aims at cultural advancement of people of the Northeast region it means that there should be attempt at inculcating the commensurate modern values of openness, universality and inclusivism required by modern consumption culture and to promote modern institutions. The very existence of a modern university militates against the traditional institutions of learning like Morungs of Nagas and other youth dormitories as traditional institutions of learning of various tribes of the region.

What is intellectual advancement as an objective? Why should this be an objective? Why is bodily development or physical development not an objective? All health is inner harmony against the background of possible disharmony. Only in disharmony and degeneration do both the intellect and the body become sensitive to their inner division. But the analogy between

bodily and intellectual health has an obvious limitation. As nature takes care of itself, a body with a good constitution has the greatest capacity for repairing itself naturally, and any doctor only assists in the natural process of self-reparation, as does the individual person who takes care of himself and protects his health.¹² In contrast to the body the healthy intellect is not simply in the hands of some 'nature' which takes care of it; it does not possess a natural good constitution which could be said to govern it. The intellect is always required to be aware of the danger of disharmony because it must *knowingly* aim at being in unison with itself.¹³ It must pay constant attention to ensure that it maintains its accord with itself as its self-accord is endangered at every moment. In preserving *reason*, in existing *knowing*, the intellect attains lasting governance of itself. Thus in the case of the intellect it is not sufficient to have merely characterized its healthy state. The real concern is to preserve it from being led astray. Hence universities have the responsibility of development and advancement of intellect so that it exists *knowing* and with *reason*.

The mandate speaks of intellectual advancement and not advancement of intelligence. So we need to understand the distinction between intellect and intelligence. Intelligence is a concept of very recent origin while intellect goes as far back as the *nous* of ancient Greeks, which includes highest form of insight, superior even to Roman *ratio*, the rational use of concepts and forms of thought. *Nous* primarily denotes the ability to recognize and identify the highest principles. In contrast intelligence does not refer to the capacity to know principles, rather it means general ability to recognize things, facts, relations etc. and places man on essentially the same plane as intelligent animals.¹⁴ Intellect not only refers to *nous* (insight), but also to *synesis* (understanding), and *phronesis* (practical reason). Intellect is bound with the totality of what it is to be human, with our *humanitas*.¹⁵ But intelligence expresses a general ability which is not determined by any particular capacity or by its relation to any particular objects of thought. Intelligence is just a measure of performance. Concept of intelligence is not related to principles, rather it is just a generalized instrumental ability. Anyone who possesses this ability is capable of anything and is able, where it is exercised without reservation or any sense of responsibility, to win from every situation a practical advantage and to profit from it.¹⁶ But in contrast intellect, being bound with *humanitas*, has substantial content and refers primarily to social sense, to that public spiritedness which contains certain commonly shared and undisputed principles as substantial assumptions; it is in no way merely the formal ability to make use of faculty of reason.¹⁷ So, the mandate of the university is to develop public spirited citizens of the modern world.

Academic advancement also takes us back to the roots of the concept 'academic' in Plato's Academy¹⁸ which designed a course on education against the philosophy of education of sophists which required development of skill only.¹⁹ Academic advancement therefore does not refer to development of skill or what in modern terminology we call professional education. Rather it refers to development of *theoria*, the theoretical attitude, which is a fundamental form of human behaviour.²⁰ But what is *theoria*? It involves distance from oneself in the form of total self-forgetfulness. Hence it also involves freedom from ends.²¹ It is also the ability to think from the other person's point of view.²² *Theoria* is a basic human possibility²³ not limited to some but available to all and it manifests itself in the fact that all men by nature strive after knowledge. Hence, *theoria*, as a primordial anthropological possibility, is what is sought by all cultivation and culture. A cultivated person or a cultured person is he who knowing about the insufficiency of the particularity of his own experiences rises to the universal by participating in the linguistic communication of all with all.²⁴ Whoever is able to achieve distance from himself, who gains insight into limitedness of his sphere of life, and so opens to others, experiences constant correction by reality, i.e., "what is" to which *theoria* attends.

Freedom from ends, which characterizes *theoria*, is also something that characterizes play which is the life of the child. And hence our 'pedagogy', derived from the name by which the Greeks referred to education, 'paideia,' retains a reference to the child's playful stage of life, to *pais*, and play (*paidia*).²⁵ The word 'theoria' already tells us something about the thing it refers to, about the concept itself: its proximity to mere play, to mere attending to and wondering at something, far removed from all use, profit, and serious business of practice of politics. History of culture gives us a hint that we have to continue the struggle over the ideal of a theoretical life that has been a part of western culture since the Greeks²⁶ and in Indian culture theoretical life in the form of *darshan* has always been a matter of eulogy since the time of the *Vedas*, i.e. *sruti*. The struggle has become necessary now. The present practice of the market and the state, and the thinking that it can prove itself only in serving the practice of the market and the state, lay claim to a superior legitimacy.²⁷ In such a scenario there can be no place for *theoria* unless there is a struggle for it. *Theoria*, i.e., attending to 'what is' involves research leading to discovery. For 'what is' is not apparent. As Heraclitus says, 'Nature loves to hide'²⁸ or as Indian Vedic sages were aware that the face of truth is covered by a golden cover.²⁹ In this research we need to approach the thing

to be known in a way appropriate to it and the criterion of appropriateness comes from the individual character of the subject under study.

Skills serve some purpose external to them. For example skill in carpentry is for making wood work which is distinct and separate from the skill itself. But academic advancement is not for some external purpose. It does not admit of the question: What is its use? Not because it is useless but because its value is so apparent in itself. It embodies its value such self-evidently that for its value it need not refer to any thing other than itself. During Middle Ages also academic advancement had this meaning and was distinguished from training in skill which was not a business of university. Even during renaissance universities were meant for what one called at that time liberal arts or *humanitas*, distinguished from useful arts and industrial arts. This understanding of academic development is clearly articulated recently by Drew Gilpin Faust, the first woman President of Harvard University:

The essence of a university is that it is uniquely accountable to the past and to the future – not simply or even primarily to the present. A university is not about results in the next quarter. It is not even about who a student has become by graduation. It is about learning that moulds a lifetime, learning that transmits the heritage of millennia; learning that shapes future. Hence we need to seize the initiative in defining what we are accountable for. Education is not to make men carpenters, so much as to make carpenters men. Traditional role of universities as ‘Stewards of living traditions’, as places for ‘Philosophers as well as scientists’, where learning and knowledge are pursued in part because they define what has over centuries made us human, not because they can enhance our global competitiveness. Those who long for a lost golden age of higher education should think about the very limited population that alleged utopia actually served. Colleges used to be restricted to tiny elite; now it serves the many, not just the few.

Mark the words, “Education is not to make men carpenters, so much as to make carpenters men.” What it means is that the primary purpose of education in universities is not merely to impart vocational training; rather it is to teach humanities to teach good citizenship. This public function of universities is a common thread running from Plato’s Academy to one of the most advanced universities today, i.e., Harvard University. When North-Eastern Hill University mandates academic advancement of the people of the region it mandates education in citizenship of the human world and not mere imparting

of vocational skill. Imparting of vocational skill under the name of professional education has only a private value and has acquired legitimacy for a place in university education very recently compared to the task of academic development of people.

II

The NEHU Act, 1973 mentions that it is established and incorporated “for the benefit of the people of the hill areas of the North-eastern region” and the objective makes it clear in what way the university is to give benefit, i.e., “to pay special attention to the improvement of the social and economic conditions and welfare of the people of the hill areas of the North-Eastern region.”

Here the important question is: What are the instrumentalities of the university through which it is to benefit people of the region? What are the instrumentalities of the university through which it is to pay special attention to the improvement of the social and economic conditions and welfare of the people of the region? The instrumentalities are also made clear in the mandate. In the beginning the Act speaks of North-Eastern Hill University being a “teaching and affiliating” university and the objectives further mandate the university “to disseminate and advance knowledge by providing instructional and research facilities in such branches of learning as it may deem fit.” So the instrumentalities through which the university is to benefit the people of the region are (a) dissemination (i.e., teaching and extension activities) and advancement of knowledge (research), (b) providing instructional (classrooms) and research (laboratories, seminar rooms, libraries etc.) facilities, and (c) affiliating colleges in the region. It is in this context of determining “such branches of learning as it may deem fit” that the “benefit” of the people of the region is to be the guide.

Let me quickly discuss the issue of benefiting the people of the region through affiliating colleges. One can understand how the university benefits people in a region by affiliating colleges in that region but it defies logic how the university benefits the people of the region by affiliating colleges from outside the region.

Formal instruction in the classroom is an important instrumentality of the university as a teaching institution. A university is also a place for interchange of ideas on every conceivable subject among teachers and students. That interchange of ideas, to be effective, requires long and continuous interaction through research activity. No doubt those who are driven by the passion for

ideas will make a room for their expression in any condition. But we are here concerned with institutions and not a few focussed individuals, and the task of the university is precisely to provide its ordinary members with a setting that they find both physically and socially congenial for research. A university which is physically congenial is likely to keep its ordinary members longer than is minimally required by the rules of attendance, which has always been remarkably elastic for both students and teachers. So a conglomerate of buildings is required for universities.

According to the Act the university is incorporated. And hence for a university corporate existence and the sense of corporation are essential instrumentalities. Due to rapid expansion NEHU has emerged as a large and sprawling institution with at least two campuses and many parts that neither fit together nor appear to fit together harmoniously. The two principal component parts of NEHU as an academic institution are the diverse affiliating colleges, which are situated as near as Mawlai in Shillong and as far as Gujarat, and the postgraduate departments in two campuses, in Shillong and Tura. There are, in addition, undergraduate departments, halls of residences, library, computer centre, laboratories, statutory bodies such as the executive and the academic councils, and separate departments dealing with administration, examinations, finance, and so on. The different parts of the university have grown unevenly, some very rapidly, and NEHU is not in a position to foster unity and coherence desirable of a corporate body. An important aspect of the university as an institution is that its individual members - whether students or teachers - should have some sense of it as a corporation. Hardly any member of the university has such a sense about NEHU. Great and rapid expansion of the university has not helped in fostering its corporate identity, even though the corporate existence and the sense of corporation in a university is the most important thing.

A university is also established. An established university functioning as modern institution imparts modern ideals to improve a culture through its mere functioning. Young men and women unrelated by ties of kinship and community can interact more freely in a university than perhaps in any other domain of society. If NEHU has done nothing else, it has at the very least created a new basis for the relationship between men and women in the Northeast hill region. The university has provided a corporate life where one meets people cutting across tribal and ethnic groups and has provided a new ideal of womanhood and manhood and some are able to give that ideal a concrete shape in the region. The admission policies followed by NEHU

needs to be widened so that there is more diversity in the composition of students and so that the instrumentality under consideration is successful.

Here what the mandate says “for the benefit of the people of the hill areas of the North-eastern region” is clarified in the objective as “to pay special attention to the improvement of the social and economic conditions and welfare of the people of the hill areas of the North-Eastern region” and through what instrumentality this “special attention” is to be paid is further mentioned in the NEHU Act, 1973, Clause 5 (2) which empowers the university “to take such academic steps as would contribute to the improvement of the economic conditions and welfare of the people of the hill areas of the North-Eastern region.” “Academic steps” here does not mean admission-related steps but relates to the content of teaching and research and related matters as explained above. Hence the mandate does not say that the university is to admit students exclusively or predominantly from the region. The jurisdiction is only with respect to affiliation of colleges. The jurisdiction does not mean that it is the only catchment area for selection of students for admission as it has been heard from some quarters. In fact, for all-round development of the people of the region, as envisaged in the mandate, the university needs to follow more inclusive admission policy.

III

Does the university have any other instrumentality? There are incidental instrumentalities. A conglomerate of buildings, equipment and furniture is required for universities. Hence, the idea that every university must have its own well-equipped and well-furnished campus has now come to be generally accepted. In Northeastern hill region the establishment of a new university has generally been associated with much building and spending activity.

When much building and spending activity goes on in the campus the society at large starts seeing the university as an institution through which funds flow into it. With rapid expansion of the university come new jobs of teachers, officers and other supporting staff. The larger society starts taking interest in it as an employment agency. This gives rise to two new instrumentalities for benefiting the people of the region: (i) flow of funds into the region through the university, and (ii) giving employment to people in the region. Now the question emerges: Are these two instrumentalities mentioned in the mandate? To the best of my understanding the mandate does not cover these two instrumentalities. There are laws of finance and appointment which cover how these instrumentalities are to be utilized.

Here we must remember Mahatma Gandhi's dictum that ends do not justify means. The means have to be clean in themselves.³⁰ So even if "improvement of the social and economic conditions and welfare of the people of the hill areas of the North-Eastern region" is the objective NEHU cannot justify the two incidental instrumental means for the mandate makes it clear that the objective is to be achieved by other instrumentalities and not through these two incidental instrumentalities, which have to be clean in themselves or at least appear to be clean in themselves following the relevant laws.

No doubt there are socio-political pressures on the universities to benefit the people of the region through these two incidental instrumentalities. Pragmatism may require that the universities give in some times to such pressures. Andre Beteille, the former Chancellor of NEHU, has correctly observed, "Every living institution has to accommodate some corruption and some injustice as a part of its ordinary existence."³¹ Corruption, injustice and bad politics cannot be expelled with a magic wand from the university. The real challenge for an academician in a university is to remain loyal to its legitimate instrumentalities. Hence it is expected that the universities do not give a cloak of legitimacy to these incidental instrumentalities by directly justifying them as part of the mandate. At least they are expected to keep appearances of following the laws made under the mandate of the university. The flow of funds and employment generation are bound to slow down in times to come unlike the generation and dissemination of knowledge. If the larger society gives legitimacy to a university only in its capacity as an institution through which funds flow or as employment agency then, when flow of funds and employment generation slow down the university faces problems of legitimacy. Hence it is always wise not to justify these two incidental instrumentalities as mandates of the university even if university is benefiting the society through these two incidental instrumentalities.

References

¹ This Latin phrase means "a defense of one's life" as meant by John Henry Newman. But nowadays this phrase has acquired a pejorative meaning "a lame excuse for one's infelicitous life and action".

² Marcus Tullius Cicero, *Tusculan Disputations*, 2.5.13.

³ Hans-Georg Gadamer, *Praise of Theory: Speeches and Essays*, translated by Chris Dawson, Yale. University press, New Have and London, 1998, p.10.

⁴ *Praise of Theory: Speeches and Essays*, p.6.

⁵ *Praise of Theory: Speeches and Essays*, p.7.

⁶ *Praise of Theory: Speeches and Essays*, p.8.

⁷ *Praise of Theory: Speeches and Essays*, p.11.

⁸ *Praise of Theory: Speeches and Essays*, p.11.

⁹ *Praise of Theory: Speeches and Essays*, p.11.

¹⁰ *Praise of Theory: Speeches and Essays*, p.11.

¹¹ I am maintaining a strong contrast between the modern enlightenment value concept of culture and anthropological understanding of culture. Even a fully modern society can fail in sticking to the former concept of culture and still have a culture in the latter sense. This contrast is not well understood so far because the same word 'culture' is used for both. German language distinguishes two terms 'Bildung' and 'Kultur'. The former is always a value term while the later is a descriptive term. Germans never speak of 'Bildungskampf' but some of them in Bismark's era talked of 'Kulturkampf.' But in English language there is currency only of one term 'culture,' used indiscriminately both for value concept of culture and descriptive concept of culture. In 1990s American leaders gave currency to term 'culture war', beginning with Patrick Buchanan, but the term 'culture war' had by 2004 become commonly used in the United States by both liberals and conservatives. It was a result of conscious or unconscious substitution of the descriptive term 'culture' for the value term 'culture,' whose ground was already prepared by Anglo-American anthropologists by their appropriation of value term 'culture' for the object of their study to designate which they needed a descriptive term. It was a confusion confounded by the English speaking Anglo-American anthropologists, who the Indian scholars interested in philosophy of culture followed blindly, which led to substitution of cultural anthropology, which deals with some object designated by the value neutral descriptive objective 'culture' [German 'Kultur'], by philosophy of culture, which is expected to deal with the value called 'culture' [German 'Bildung'] that had emerged as a principle of humanism in Enlightenment. One can see this confusion in the course content of philosophy of culture in the academia in the Northeastern region. This confusion can also be seen in the evolution of the theories of culture in anthropology and sociology. In the beginning of nineteenth century even while giving an explicit descriptive meaning to culture, implicitly the normative sense of culture was operative as manifested in the evolutionary classification of anthropological cultures. James George Frazer, a Scottish social anthropologist influential in the early stages of the modern studies of mythology and comparative religion, in his most famous work, *The Golden Bough* (1890), documents and details similar magical and religious beliefs across the globe and posits that human belief progressed through three stages: primitive magic, replaced by religion, in turn replaced by science. But subsequently all influence of normative understanding of culture was removed from cultural anthropology. Questioning and criticizing cultural evolution, which posited that human societies progressed through stages of savagery to barbarism to civilization, Franz Boas established the principle of cultural relativism and trained students to conduct rigorous field research in different societies. All subsequent cultural anthropologists in spite of their differences have accepted some kind of descriptive sense of culture. Appropriation of a philosophical term like 'culture,' which was a value term, for the object of study of anthropologists, no doubt gave legitimacy to anthropological enterprise, but it led to confusion of philosophical normative sense of culture with the descriptive sense of

culture. This confusion not only led to cultural relativism but also led to celebration of all cultures as equal but divergent adaptation to different environments. This has led to romanticisation and eulogization of all descriptive anthropological cultures irrespective of the culture wars (Kulturkampf) and conflicts of cultural identity it has spawned.

¹² Hans Georg Gadamer, Plato's Educational State *Dialogue and Dialectic: Eight Hermeneutical Studies on Plato*, tr. P. Christopher Smith, Yale University Press, New Haven and London, 1980, p. 88.

¹³ Plato's Educational State, pp. 88-89.

¹⁴ Hans Georg Gadamer, *The Enigma of Health: The Art of Healing in a Scientific Age*, Translated by Jason Gaiger and Nicholas Walker, Stanford University Press, Stanford, California, 1996, p.46.

¹⁵ *The Enigma of Health*, p.47f.

¹⁶ *The Enigma of Health*, p.49f.

¹⁷ *The Enigma of Health*, p.48.

¹⁸ *The American Heritage Dictionary of the English Language*, Fourth Edition, Houghton Mifflin Company, 2009.

¹⁹ Hans Georg Gadamer, Plato and the Poets, *Dialogue and Dialectic: Eight Hermeneutical Studies on Plato*, tr. P. Christopher Smith, Yale University Press, New Haven and London, 1980, p. 57.

²⁰ Hans Georg Gadamer, Science and the Public Sphere, *Praise of Theory: Speeches and Essays*, Translated by Chris Dawson, Yale University press, New Have and London, 1998, p.67.

²¹ Science and the Public Sphere, p.68.

²² Science and the Public Sphere, p.68.

²³ Science and the Public Sphere, p.67.

²⁴ Science and the Public Sphere, p.67f.

²⁵ *Praise of Theory: Speeches and Essays*, p.16f.

²⁶ *Praise of Theory: Speeches and Essays*, p.19.

²⁷ *Praise of Theory: Speeches and Essays*, p.19.

²⁸ Heraclitus B123 DK

²⁹ Yajurveda XL.17 declares: "The mouth of the truth is hidden by a golden pot." *Iæa Upanisòad*, 15. On the basis of this declaration describes the process of *daræana* thus: "The mouth of truth is covered with a golden pot. Pusanna that you must uncover to see the truth." Similarly *Bâr Up.* 5, 15, 1 "unveil it, O Pusan, so that I who love the truth may see it," *Mait. Up.* 6, 35 "Do thou, O Pusan, uncover that unto the truly Real, the pervader."

³⁰ M. K. Gandhi, "The means may be likened to a seed, the end to a tree: and there is just the same inviolable connection between the means and the end as there is between the seed and the

tree." *Non-Violent Resistance (Satyagraha)*, New York, Schocken Books, 1961, p.10. "If one takes care of the means, the end will take care of itself," Gandhi is reported to have said. Quoted in Howard Ryan, *Critique of Nonviolent Politics*: <http://www.netwood.net/~hryan>. Gandhi wrote: "They say, 'means are, after all, means'. I would say, 'means are, after all, everything'. As the means so the end..." R. K. Prabhu & U. R. Rao, editors; from section The Gospel Of Sarvodaya, *The Mind of Mahatma Gandhi*, Ahmedabad, India, Revised Edition, 1967.

³¹ Andre Beteille, Universities as Institutions, *Economic and Political Weekly*, Vol. 30, No. 11, Mar. 18, 1995, p.568.

Is Journal Impact Factor a Good Measure of Research Merit?

S. K. MISHRA

Introduction

On September 23rd 2009 the University Grants Commission notified its Regulation on “Minimum Qualifications for Appointment of Teachers and other Academic Staff in Universities and Colleges and Measures for the Maintenance of Standards in Higher Education”. Accordingly, publication of research papers/articles in reputed journals has become an important factor in assessment of the academic performance of teachers in colleges and universities in India. One of the measures of reputation and academic standard of a journal is the so-called ‘Impact Factor’, which, with some qualifications, is the average number of citations for papers published in a particular journal. It is obtained as the ratio of the total number of citations received by the papers published in the journal to the number of papers published in the journal. The impact factor was devised by Eugene Garfield. Garfield is the founder of the Institute for Scientific Information (ISI), which is now part of Thomson Reuters. Impact factors are calculated annually for those journals that are indexed in Thomson Reuter’s *Journal Citation Reports*. However, *Journal Citation Reports* covers science subjects more exhaustively and includes only a few social science journals. Therefore, in social sciences, other organizations are doing this job. For example, RePEc does the job of computing the impact factor of journals in Economics.

The computation of impact factor uses a simple formula. As described in the *Wikipedia*, in a given year, the impact factor of a journal is the average number of citations to those papers that were published during the two preceding years. For example, the 2007 impact factor of a journal would be calculated as follows:

$A =$ the number of times articles published in 2005 and 2006 were cited by indexed journals during 2007

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$B =$ the total number of “citable items” published in 2005 and 2006. (“Citable items” are usually articles, reviews, proceedings, or notes; not editorials or Letters-to-the-Editor.)

$$2007 \text{ impact factor} = A/B$$

Note that 2007 impact factors are actually published in 2008; it cannot be calculated until all of the 2007 publications have been received by the indexing agency.

The UGC Regulations assign different levels of importance to the impact factors in natural sciences/engineering and humanities/arts/social science streams of higher education. For this purpose, they classify Engineering, Agriculture, Veterinary Science, Sciences and Medical Sciences in one category and Languages, Arts, Humanities, Social Sciences, Library, Physical Education, and Management in the other category. Table 1 shows how the UGC Regulations assign importance to impact factors in these two categories.

Engineering/Agriculture/Veterinary Science/ Sciences / Medical Sciences [The Sciences Category]	Languages, Arts/ Library/ Humanities/ Social Sciences/ Physical Education/ Management [The Non-Sciences Category]	Max. points for university and college teacher position
Refereed and indexed journals with impact factor 0.0 but less than 1.0	Refereed journals which are <i>not indexed</i> and thus have no impact factor	15 per publication
Refereed journals with impact factor 1.0 and below 2.0	Refereed journals which are indexed publications with impact factor less than one	20 per publication
Refereed journals with impact factor 2.1 and below 5.0	Refereed journals with impact factor 1.0 and below 2.0	30 per publication
Refereed journals with impact factor 5.1 and below 10.0	Refereed journals with impact factor 2.0 and below 5.0	40 per publication
Vernacular & Indian language journals in all disciplines without any impact factors included in the list of journals prepared by UGC and hosted in its website	Vernacular & Indian language journals in all disciplines without any impact factors included in the list of journals prepared by UGC and hosted in its website	10 per Publication
Non impact factor national level research papers in non-refereed/ journals but having ISBN/ISSN numbers and the list of journals prepared by UGC and hosted in its website.	National level research papers in non-refereed/non journals but having ISBN/ISSN numbers and the list of journals prepared by UGC and hosted in its website.	10 per publication
Full papers in conference proceedings, etc. (Abstracts not to be included)	Full papers in conference proceedings, etc. (Abstracts not to be included)	10 per publication

Note: Class intervals of IF as given in the UGC Regulations are faulty. What if the IF lies in the interval [2, 2.1)?

On this account several questions can be and have been raised from different corners. Some view it as a discrimination against ‘sciences’ and favour to non-sciences (without any disparaging connotation, of course). Others (e.g. Seglen 1997, Krell 2002) think that even within the ‘sciences’ there is so much of difference in the journal impact factors that no single yardstick can be used to assign importance to them. In support of their argument they point out that there are few journals in Mathematics that have an impact factor above 5.0 while such journals abound in life sciences (HTST 2004, International Mathematical Union 2007). There are still others (e.g. Wagner 2009) who think that instead of using the crude journal impact factor for assessment of importance one should use the ‘normalized’ impact factor and possibly, the average impact factor (computed over, say, five best journals in the discipline) may be considered as 100.0 and other journal impact factors (in the discipline) should be normalized with respect to that such that all journals in the discipline score between 0 and 100.0. And lastly, there are many (e.g. Seglen 1997, Hirsch 2005, Oh and Lim 2009) who believe that the journal impact factor, as it has been defined, is a surely misleading indicator of academic importance especially when the inter-disciplinary comparisons are made.

What Statistics Says

We have collected some data on the journal impact factors for two points in time; for the year 1994 (source: <http://www.mkk.szcie.hu/~fulop/Res/If/If.htm>) and for the year 2006 (source: <http://www.icast.org.in/Impact/subject2006.html>). We have been constrained by unavailability of data especially in the ‘non-sciences’ and therefore we have used the data for the year 2002 (Source: http://www.staff.city.ac.uk/~sj361/here_you_can_see_an_excel_spread.htm). For Economics, the *Internet Documents in Economics Access Service* (IDEAS) journal impact factors are available and are updated regularly (<http://ideas.repec.org/top/top.journals.simple.html>). We assume some sort of stability in the journal impact factor (without which assumption it loses all its value) and thus, in spite of the obvious limitations, we venture upon comparing them.

Methodologically, we have included only those journals that have positive (larger than zero) impact factor. The journals that are indexed but have not yet gained any impact factor are thus excluded from our analysis. Then we have used mean and standard deviation of the (\log_{10} transformation of) journal impact factors in different discipline groups and their frequency

distribution to arrive at the conclusions. We have also computed the median and the skewness of the distributions. The most up-to-date (for the year 2006 for sciences and engineering, and the year 2002 for Psychology and social sciences) information on the impact factors reveal that the frequency distributions in the subject groups of engineering, social sciences and Psychology, the mean and the median are both negative. In particular, engineering and social sciences have quite low mean impact factor. Distribution of impact factor in these subject groups exhibit negative skewness too. On the other hand, in case of Biology, Chemistry and Physics, the mean and the median are both positive. However, the skewness is positive for Physics alone (Table 2). In particular, skewness in Chemistry and Physics is mild. Distributions are presented in the graphs presented in Fig.1 and Fig.2. It may be noted that major characteristics of impact factor distributions have remained more or less constant over the years (1994 and 2002).

Table 2: Statistical Description of Journal Impact Factor Distribution in Different Subject Groups-2006

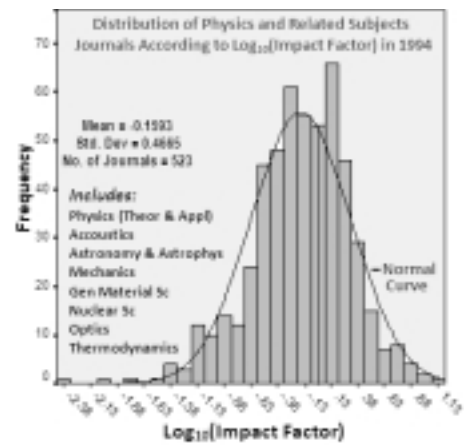
Subject Group	No. of Journals	Mean	Median	Minimum	Maximum	Std.Dev.	SEE[Mean]	Skewness	SEE[Skew]
Biology	1043	0.2884	0.3300	-1.4400	1.8000	0.4336	0.0134	-0.3111	0.0757
Chemistry	433	0.1837	0.1900	-1.2900	1.4200	0.4266	0.0205	-0.0321	0.1173
Engineering	706	-0.2477	-0.1900	-1.0000	1.0200	0.4565	0.0172	-1.0619	0.0920
Physics	294	0.0942	0.0900	-1.3600	1.5251	0.3968	0.0231	0.2372	0.1421
Psychology	421	-0.0813	-0.0700	-1.5100	0.9400	0.3835	0.0187	-0.3145	0.1190
Social Sc.	1301	-0.2182	-0.2100	-1.9600	1.0700	0.4366	0.0115	-0.8901	0.0678

Distribution of Logarithms of Impact Factors is Pearsonian of Type-IV

Mansilla *et al.* (2007) observe that journal impact factors (IF), irrespective of the discipline, exhibit their adherence to a specified rank-size rule. Egghe (2009) makes an attempt to give a theoretical explanation for the IF rank-order distributions observed by Mansilla *et al.* (2007). Waltman and Eck (2009), while concluding that Egghe’s analysis relies on the unrealistic assumption that the articles published in a journal can be regarded as a random sample from the population of all articles published in a field (and Egghe’s analysis is not in agreement with empirical data and hence he does not give a satisfactory explanation for IF rank-order distributions), observe:

Egghe interprets the IF of a journal as the average of a number of independent and identically distributed random variables. Each random variable represents the number of citations of one of the articles published in the journal. Using the central limit theorem, Egghe’s interpretation implies that the IF of a journal is a random variable that is (approximately) normally distributed. Egghe also makes the

assumption that for a given scientific field *each journal in this field can be considered as a random sample in the total population of all articles in the field*. This assumption has the implication that the IFs of all journals in a field follow the same normal distribution. (emphasis in original)



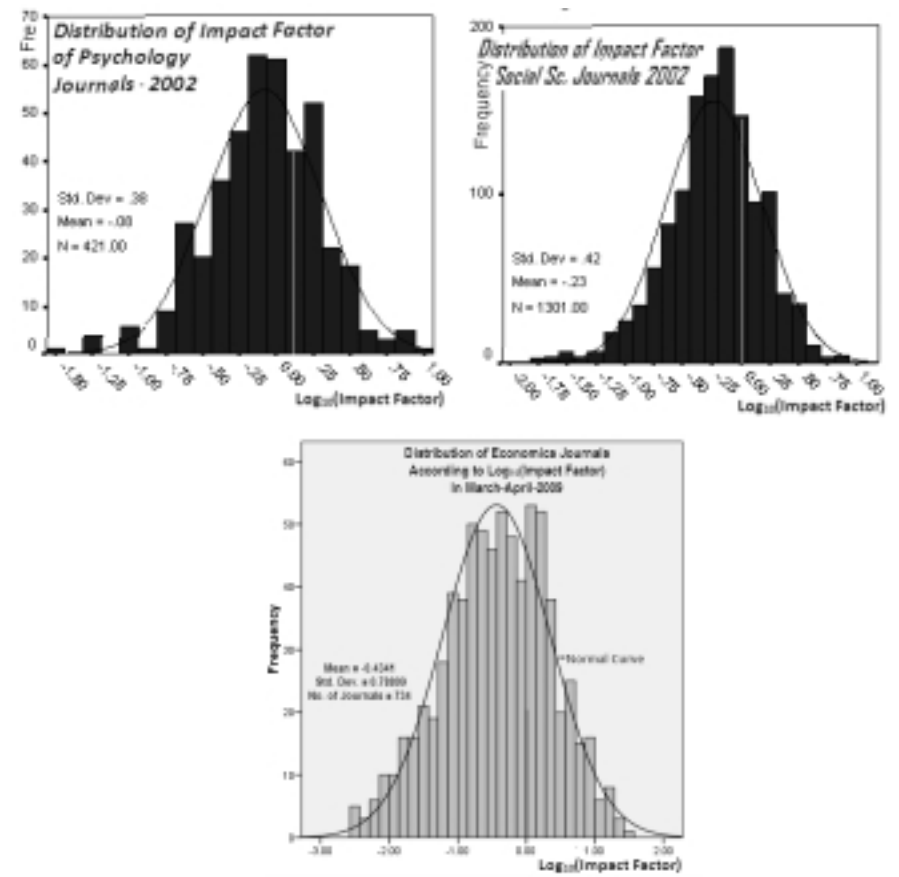
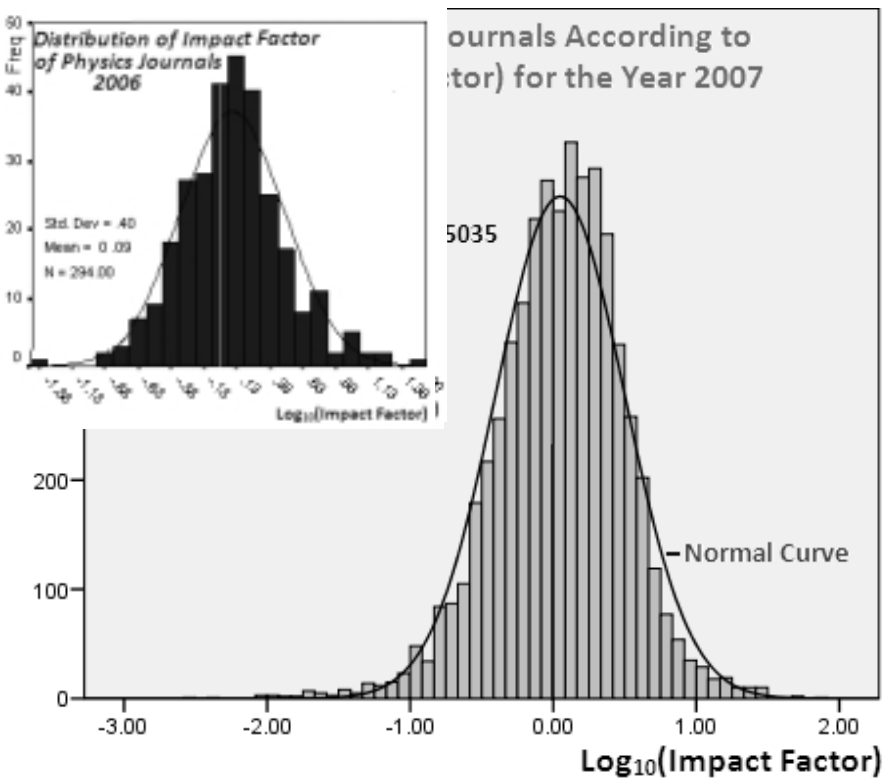


Fig.2. Statistical Distribution of Journal Factors in Various Subject Groups in 2002/2006

Subject-Group(year)	N	b_0	b_1	b_2	Root of $f(x)$	Skewness	Kurtosis	Pearson- κ	Type
Biology(2006)	1043	-0.13245	0.04095	-0.09840	0.2081 ± 1.1414	-0.31155	1.33611	0.03216	IV
Chemistry(2006)	433	-0.18150	0.00710	-0.00011	32.6043 ± 24.5635	-0.03335	0.00232	0.63792	IV
Engineering (2006)	706	-0.15391	0.15781	-0.08690	0.9080 ± -0.9736	-1.06030	2.86756	0.46550	IV
Physics(2006)	294	-0.11677	-0.03084	-0.08505	-0.1811 ± -1.1576	0.23610	0.98391	0.02394	IV
Psychology(2002)	421	-0.12049	0.04583	-0.05942	0.3856 ± -1.3707	-0.31400	0.66766	0.07333	IV
Social Sc.(2002)	1301	-0.13851	0.07492	-0.06681	0.5608 ± -1.3262	-0.49133	1.00031	0.15166	IV

Note: Minor variations in some statistics reported in Tables 2 and 3 are due to accuracy used in computation.

These observations suggest that we should carry out further investigations into the statistical distribution of the IFs in different disciplines. In this regard we think it appropriate to fit Pearson's Distribution to the IF data for different subject groups.

It is well-known that the Pearson's distributions can be specified by the first four moments of a given set of data, i.e., coefficients of the equation $f(x) = b_2x^2 + b_1x + b_0$ are determined in terms of mean, variance, skewness and kurtosis (Gupta and Kapoor 1970: 543-52, also see *Wikipedia*: "Pearson Distribution"). The values of b_0 , b_1 and b_2 determine the shape of empirical distribution. The details of all these statistics are given in Table 2 and Table 3. It may be noted that in all subject groups, the distribution of IF exhibit Pearson's Type-IV distribution with varied skewness and kurtosis. These empirical evidences support the criticism of Egghe's arguments made by Waltman and Eck (2009) and thus we cannot assert that the distributions of journal impact factors across the discipline groups are more or less identical or normal. Thus, the comparison of journal impact factors across the disciplines would be absolutely misplaced and misleading.

Does the Impact Factor Provide an Accurate Measure of a Journal's Importance?

In counting citations, only papers published in the past two years are considered. In fact, many papers are appreciated after several years of their publication and then referred while many other papers continue influencing others' research for much longer period. Also, items such as news articles and editorials that are the regular features of some journals are not counted in the denominator of the impact factor, but citations to those news articles may be included in the numerator, inflating the impact factor of journals that publish such articles. Due to these and several other limitations, the impact factors may only poorly measure the quality of a journal (Kurmis 2003).

Review articles are often much more highly cited than the average original research paper, so the impact factor of review journals can be quite high. In some fields, there have been reports (Hemmingsson *et al.* 2002) of journals that have manipulated their impact factors by such tactics as adding news articles, accepting papers preferentially that are likely to raise the journal's impact factor, or even asking authors to add citations to other articles in the journal.

Should the Journal Impact Factor be used for Evaluation of an Individual Publication or Researcher?

As pointed out in the *Wikipedia*, "the impact factor is often misused to evaluate the importance of an individual publication or evaluate an individual researcher (Seglen 1997). This does not work well since a small number of publications are cited much more than the majority. For example, about 90 percent of *Nature's* 2004 impact factor was based on only a quarter of its publications, and thus the importance of any one publication will be different and on the average less than the overall number (Editorial: *Nature* 2005). The impact factor, however, averages over all articles and thus underestimates the citations of the most cited articles while exaggerating the number of citations of the majority of articles. Consequently, the Higher Education Funding Council for England was urged by the House of Commons Science and Technology Select Committee to remind Research Assessment Exercise panels that they are obliged to assess the quality of the content of individual articles, not the reputation of the journal in which they are published. To quote:

As is the case with any process, peer review is not an infallible system and to a large extent depends on the integrity and competence of the people involved and the degree of editorial oversight and quality assurance of the peer review process itself. Nonetheless we are satisfied that publishers are taking reasonable measures to maintain high standards of peer review... The perception that the RAE (Research Assessment Exercise) rewards publication in journals with high impact factors is affecting decisions made by authors about where to publish. We urge HEFCE to remind RAE panels that they are obliged to assess the quality of the content of individual articles, not the reputation of the journal in which they are published. (HTST 2004).

Even the scholars in medical sciences (that have a very high IF) question the validity of the journal impact factor as a measure of relevance of individual articles or scholars (Oh and Lim 2009). Some scholars hold that the rise of

the journal impact factor is a result of the perceived value of quantification measures in the contemporary society and the restructuring of capitalism. A key implication of this acceptance is an increase in global academic dependency (Luyt 2009). It may be noted that in India we have hardly any journal that has an impact factor greater than one. For example, even the IDEAS (which is especially indexing Economics and some Statistics journals) index only six Indian journals in Economics and the highest IF is less than one. Interestingly, the *Indian Economic Review* of the reputed Department of Economics, Delhi School of Economics has an impact factor of only about 0.24. For physical and life sciences journals too, the conditions are not much better.

Use of journal impact factor for academic evaluation of individuals is widely deplored (Russell and Singh 2009). If journal impact factor is used to assess the academic performance of individuals (for the purpose of selection, promotion, etc) and it is not borne in mind that due to vast differences in the nature of distribution of impact factors across the disciplines they are not justifiably comparable, a below average scholar in the one discipline will rank higher and will be honoured (and benefitted) more than a better scholar in some other discipline. The International Council of Industrial and Applied Mathematics (ICIAM), the Institute of Mathematical Statistics (IMS), and the International Mathematical Union (IMU) – institutions representing the world wide communities of mathematicians and statisticians – are troubled by the possible misuse of mathematical concepts or statistical indicators such as the journal impact factor (International Mathematical Union 2007). Further, even in the university departments there are specializations with low impact factor journals and other specializations with very high impact factor journals. But the teachers/researchers of different specializations in the departments compete with each other for promotion. For example, in the life sciences, taxonomy is one such specialization. Its long-term relevance, few specialists and lack of core journals put it outside ISI criteria (Krell 2002). Will the researchers with an unfortunate specialization (wherein the journal impact factor is subdued) receive justice on such criteria? The answer is clearly in negative.

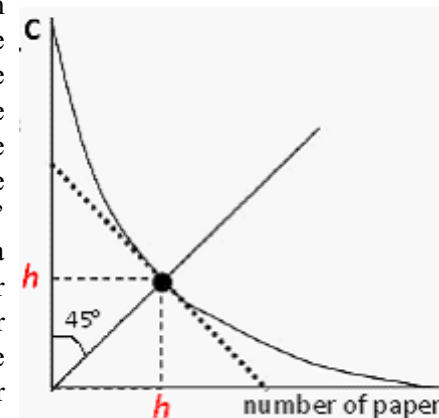
Measuring Quality, Productivity and Academic Impact of Individual Scholars

Once we question the use of IF for evaluation of an individual scholar's research quality, his/her productivity and the academic impact made by his/

her research work, we must propose some other measure that may be a better substitute of the journal impact factor. Such an index is the *h-index* (Hirsch 2005) proposed by Jorge E. Hirsch, a physicist at the University of California, San Diego.

The Hirsch Index (or *h-index*) is an index that attempts to measure both the scientific productivity and the scientific impact of a scientist. The index is based on the set of the scientist's most cited papers and the number of citations that they have received in other researchers' publications. As Hirsch defines it: a scientist has index *h* if *h* of his or her *N_p* papers (that is, the total number of papers written by him/her) have *at least h* citations each and the other (*N_p - h*) papers have *at most h*

Fig.3. A schematic presentation of *h-index*



citations each. To illustrate, let a scientist be an author of a total of 20 (=N_p) papers which arranged (in a descending order) according to the citations received by them makes Table 4 presented below:

Paper no (n)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Citations (c)	18	17	9	9	9	4	2	1	7	6	6	5	4	4	4	3	3	1	1	0

It is readily seen (in Table 4) that up to the 8th one, all papers receive citations greater than 8. However the 9th paper of the author receives only 7 citations. Thus, the author's *h-index* is 8. In Fig. 3 we present a schematic curve of number of citations versus paper number, with papers numbered in order of decreasing citations. The intersection of the 45° line with the curve gives *h*. The total number of citations is the area under the curve.

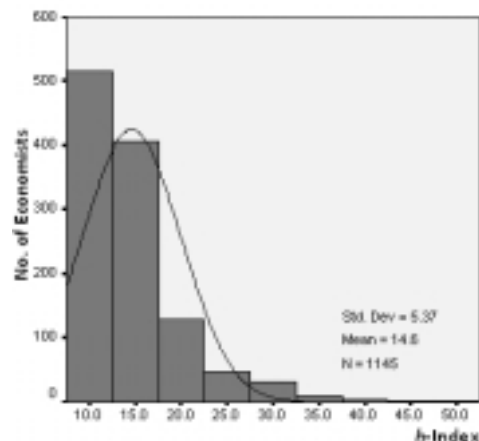
The Google Scholar (<http://www.scholar.google.com>) can be conveniently used to obtain the *h-index* of a scholar. Harzing (2008) argues that the Google Scholar *h-index* might provide a more accurate and comprehensive measure of journal impact and at the very least should be considered as a supplement to ISI-based impact analyses, which implies that

the Google Scholar database is more comprehensive. Once the name of a scholar is fed into the search window and the Google Scholar is asked to search, the list of the scholar's publication/paper (it may run in several pages) appears with the data on the number of citations received by the publication/paper. Fortunately, in most cases (barring a few cases where the scholar may not be the first author) we obtain the list arranged in a descending order of the citation received by the publications/papers. One has to go down the list until the serial number of the paper becomes larger than the number of citations received. Nevertheless, care must be taken to see that the list may be a mixture of the publications of the authors with the same name, or the same author may on one occasion use his/her initials and the full name or the first name only at others. With these precautions, the h-index of an author/scholar may easily be determined.

The Hirsch Index as a measure of individual author's productivity and academic influence has been widely accepted (see Ball 2005). Schaefer (2009) obtained the ranking of 572 living chemists in the world who have the h-index 50 or larger, displayed by *Chemistry World* online. *The RePEc* (2009) provides the h-index of top 5% economists on its data-base, having over 21 thousand authors. Palsberg (2009) provides the h-index of scholars in Computer Science. There are a number of programmes that may be used to compute h-index (see *Wikipedia: Computing the h-Index*), including scHolar index and Harzing's publish or perish. However, in the present author's experience, these online software programmes do not work so often and it is better to use the Google Scholar manually.

Hirsch, in his paper, suggested that "for faculty at major research universities, $h = 12$ might be a typical value for advancement to tenure (associate professor) and that $h = 18$ might be a typical value for advancement to full professor. Fellowship in the American Physical Society might occur typically for $h = 15-20$. Membership in the National Academy of Sciences of

Distribution of h-Index of Best 5% Economists in the World



the United States of America may typically be associated with $h = 45$ and higher, except in exceptional circumstances". Hirsch also noted that "results confirm that h indices in biological sciences tend to be higher than in physics; however, they also indicate that the difference appears to be much higher at the high end than on average". Thus, h-Index also should be used cautiously while making interdisciplinary comparisons or even inter-specialization comparisons.

Tol (2008) notes that "the main shortcoming of the h -index ... is that it ignores the number of citations in excess of h ". Egghe (2006) and Jin (2006) therefore introduce the g -index: Like the h -index, the g -index only counts papers of a minimum quality. A higher g -index means more and better papers. Unlike the h -index, the g -index also increases with the number of citations over the threshold". Therefore, Tol proposed a successive g -index and a rational g -index (to increase discrimination of Hirsch's h -index), which we will call Tol's g -index. The Google Scholar can be effectively used for computing Tol's g -index as well.

Concluding Remarks

We began this paper by raising this question – is publication in journals with recommended impact factor as a measure of quality of scholar for the purpose of appointments and promotion to different positions in the academic institutions just or appropriate? We find that use of the journal impact factor for the said purpose is inappropriate. Instead, a measure such as h-index which quantifies the quality as well as productivity of an individual author/scholar is more appropriate than the journal impact factor. The h-index may be fine-tuned and the g -index or Tol's index may be used. Nevertheless, even the h-index and Tol's index would not be appropriate to the purpose of inter-disciplinary or inter-specialization comparisons. A more informed and balanced judgment of the expert committee for selection, appointment and promotion purposes will continue to be extremely important.

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Book Review

Ramesh Sharma and C.Joshua Thomas (eds), *Ageism-Problems and Prospects*, New Delhi: Akanksha Publishing House, 2010, 441p, Rs.1200, Hardbound.

*How we wish to live happily ever after
To grow old with joy and laughter
To look back at the years gone by
With a smile and a sparkle in the wrinkled eye*
[By the reviewer]

The present volume is an attempt to call attention to the problems of the aged. Twenty two chapters categorized in three sections along with the inaugural address form the content of the book. The articles in the first section throw light on the bio-medical aspects of ageing. Subbulakshami Jagadeesan (inaugural address) and Kalluri Subba Rao, in their respective papers, mention at the outset that India has a large population of aged people and the latter goes on to say that “India can be proud” of the “grand parents’ boom”, which is the outcome of improved medicare and increased health awareness. Proud we want to be but are forced to take a pause before deciding to be actually happy about it or not. Longevity of life has to be coupled with quality of living. Rao clearly states that India has failed in implementing programmes to control population and is now failing to make the elderly population assets for the nation. This is a vital point, as both ‘ailing’ and ‘aged’ are, in common parlance, taken as dependents, to be provided for. The general attitude is more about “doing things” for the aged. We need to ask and challenge ourselves to research further about how to convert the aged into national assets and not to take them as a burden. The article by Ramesh Sharma elaborates on the dietary restriction as one of the intervention strategies to avoid and cure age-related health problems. M.K.Thakur provides a detailed account of the implications of the Alzheimer’s disease, not any less known problem of the old age. In this informative write up he elucidates on the types of dementia, its symptoms and cure. Arun P. Bali adds a new dimension to the deliberations on the issue. He emphasizes that gender issues do not diminish with age and that elderly women have less access to health care. They face specific health

problems like arthritis, osteoporosis, cervical and breast cancer and most of all depression. Indira Jai Prakash further calls attention towards “feminization of poverty” (p.107) with older women being poorer.

Section II of the book focusses on socio-psychological aspects of ageism. Indira Jai Prakash discusses at length the “Agequake” phenomenon. She makes a comparative study of the decadal growth, fertility rate, crude birth rate etc between India and Meghalaya. She provides quantitative data on the health and well being of older persons in Northeast and rest of India and writes that “a planning commission report states that rural poverty in Meghalaya has worsened over the last decade”. However she does not throw light on the causes responsible for the same. Further requirement of the paper was to give the rationale of comparing the health status of the elderly in Northeast India with the rest of the country. In fact, the heading of Table 2 (p.109) “Health and well being of older persons in India and North East” can rake up a stormy debate if one reads between the lines. “North east and the mainland” or “north east and India’ is commonly used by all and sundry, but their usage by scholars, intellectuals and the like is definitely not excusable. One needs to exercise prudence prior to using such labels. The article by Indrani Chakravarty and S.K.Chakravarty make an interesting read as they address some age related issues in the region against the backdrop of the current age of Information and Communication Technology (ICT). A geographer’s input in the life of the old takes the discussion of the latter to yet another level. Debendra Kumar Nayak correlates geography with aging. He draws attention to the fact that Northeast India witnesses a unique demographic situation, one marked by high fertility rate along with an increase in life expectancy. As a result of this the number of elderly people has increased considerably. However this pattern is not uniform in the whole region. Variation in different geographical pockets within the region has been taken into account to understand the variation in demography.

Despite the fact that India is being recognized as a power to reckon with bulk of the Indians live in villages and any discussion on ageing is incomplete without adequate coverage of the aged in the rural areas. The urban-rural dichotomy carries with it differing notions of life styles or ways of life. K.L. Sharma, while writing about the rural elderly of India, not only presents the urban-rural divide pertaining to ageing but also extends the comparison to the global canvass by elucidating the worldwide trend of 60 plus population between 1980 and 2020. The Maintenance and Welfare of Parents and Senior Citizens Act, 2007 seems to be a bright ray of hope for

the elderly in India. It is ironical that the state has to intervene to ensure that parents and senior citizens are decently treated and cared for. Sharma, while detailing about the government schemes for care and support of the aged, draws attention to some lacuna in the Act. The article by G.S. Saun titled "Psychological Wellbeing and Elderly" is a well-penned work, succeeding in touching the emotional and psychological chord. He subtly weaves the specific and technical meanings of commonly and mechanically used terms like 'aging', 'wellbeing' and 'adjustment' in such a way as to make a fabric of warmth and concern for the aged. It is absolutely pertinent to be sensitive to the psychology of the elderly to ensure that they truly enjoy overall good health. A deliberate effort is required to walk that extra mile to make them feel special, for it does not take them long to succumb to a gnawing feeling of loneliness, to the feeling of being at the fag end of their journey and being no longer 'needed'.

Section III of the book brings together papers which focus on the socioeconomic aspects of ageism. In his article K.K.Lakshaman draws attention to the sidelining of human values with the implementation of the new Indian economic policy, 1991 and its chief components – liberalization and privatization. This has further quickened the pace of the disintegration of the joint family. He writes: "The grandparents guiding, helping the young in household duties, sharing their experience on health, family budgeting, children education and all such activities became commercialized. As a result more income is required and the younger generations start leaving home for work with elders left alone." (p.215). The author points out that the aged people in India do not form a homogeneous group and that older people in lower classes of the society are biologically older than those in the upper strata. He enumerates various problems faced by the elderly, ranging from ill health to the gruesome murders and robberies of old people living alone in cities.

A considerable number of pages of the book are devoted to understanding old age issues in Northeast Indian states. Chandana Sarmah discusses the socioeconomic condition of the Assamese elderly of Guwahati. She highlights a rather common phenomenon of the present times of the elderly living in urban areas in connection with their occupation or their children. They look back at their original home with a lot of nostalgia and longing to return to their villages. One witnesses that there has been a growing trend of the parents wanting to live independently in their old age and not with their sons' families. There is a popular saying, "A son is a son till he gets a wife but a daughter is a daughter for the whole life". The present volume falls short

of any discussion on gender behaviour towards the aged.

Linus Neli and Ch. Priyoranjan Singh, in their respective articles, write about aging scenario in Manipur. Neli concentrates on the hill people (*Chingmi*) of Manipur. He points out that the ethnic turmoil in Manipur has a traumatic impact on the elderly people there leading to psychological depression. C.J. Thomas and F.T. Diengdoh discuss issues pertaining to aging in Meghalaya and highlight the trends in the growth of elderly population, in old age financial security, in status of health of the elderly etc. Writing about the trends in informal care given to the elderly, the authors discuss the matrilineal social system in Meghalaya. They make some much needed recommendations and suggestions to address the problems of the aged in Meghalaya. Lianzela and Vanlalchhawna's article focusses on aging in Mizoram and the trends of aging in Nagaland have been covered by A. Lanunungsang and Visielie. The issue of aging in Tripura is taken up by Manoshi Das, Paramita Saha and Jayantha Choudhury in their respective articles. Manoshi Das's study focusses on aging among tribes in Tripura and concludes with a hard hitting line, "The aged and elderly are not afraid of death, but are afraid of life". Many papers in the book provide a detailed description of government programmes and policies for the welfare of the aged. There is no dearth of such schemes but Jayanta Choudhury and Elizabeth Sangliana write in their article that the success of any programme depends "mainly upon the implementation which revolves around a strong awareness campaign, strong monitoring structure and active participation of the people."

Finally, the title of the book *Ageism* calls for some comments. The word 'ageism' signifies discrimination or prejudice towards the aged. The articles in the book deal basically with 'ageing' rather than with 'ageism'. There is less scope of giving the benefit of doubt by bringing 'ageism' within the purview of 'aging' or 'problems of the aged' as the term "ageism" has a very specific connotation. The title of the book and the contents within are hence not in synchrony with each other. This is a major flaw as "ageism" sets the mood of the reader to read about something which he/she does not actually find in the book. Despite this shortcoming this volume is a commendable attempt to bring in various interrelated dimensions of ageing under one canopy. It sensitizes the readers on problems of the aged and appeals to make this world a better place to live in for our senior citizens.

Who is this old man at the bent of the road?
It's you and it's me in the years to unfold,
Hold his hand today, for he is our tomorrow,
Looking back and calling us to follow.
[By the reviewer]

Reviewed by:
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