

***Conservation of Deepar Beel Wetland
Through Community Participation &
Human Resources Development.***

FINAL TECHNICAL REPORT

Project No: SWP 2020910AS36

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Organization:

Aaranyak

Samanwoy Path (Survey)
PO : Beltola, Guwahati – 781 028
Assam :: India
e-mail: aaranyak@vsnl.net
www.aaranyak.org

I. **Summary of results of the project:**

Deepar Beel wetland is a Ramsar Site located between 90°36'39" E and 91°41'25" E and 26°05'25"N and 26°09'26"N at the south bank of river Brahmaputra, about 18 km south west of Guwahati city in Kamrup district, Assam, India. It has been declared as a Wildlife Sanctuary by the State government in 1989 under the Wildlife Protection Act 1972. The wetland is surrounded by fourteen (14) revenue villages.

The project aimed at the conservation of *Deepar Beel* wetland through local people's support and participation for a sustainable utilization of bioresources for their livelihood.

As per the first objective of the project, a socio-economic survey was carried out in all the fourteen (14) villages in the *Deepar Beel* fringe. The survey revealed that 22.63% of the surveyed households depend fully on the bioresources of the wetland for their livelihood, while 17.33% is partially dependant. 56.45% families depend on the wetland for fodder. Hence, the survey suggest that while converting the wetland into a full fledged Wildlife Sanctuary, the question of the diversified livelihood of the fringe villagers need to be parallely addressed.

As per the second objective of the project, the conservation value of *Deepar Beel* Wild Life Sanctuary has been estimated based on Comparative Biological Values that stands at 21 out of 30. The θ Index Values has been estimated at 3.425. It suggests that the conservation issue of the wetland be given high priority.

The third objective of the project was to sensitize the people about their role in the conservation of the wetland. For this, three (3) awareness camps and ten (10) informal group discussions were held which have raised the awareness level of the people. At least six hundred (600) fringe villagers are now better motivated regarding the sustainable use of resources and they have come forward to join hand with government, semi-government and nongovernmental agencies for an integrated approach for the conservation of the wetland.

A bibliography of all Published and unpublished literature on wetland of the region has been compiled. This would act as an information base for future use.

The workshop for local expertise development has brought out a group of 25 new generation workers including students, researchers and NGO activists who can be instrumental in carrying out future conservation works regarding wetlands.

During the survey it was learned that a cross section of the villagers are living below poverty line*. For them Aaranyak organized two free training workshops, one on *food preservation techniques* and the other on *horticulture*. Aaranyak has also promoted one Self Help Group (SHG) in the area. These training workshops and the SHG would provide them options of diversified income generating activities which will reduce pressure on the bioresources of the wetland. The potable water conditions of some of the villages have found to be very poor. Hence, Aaranyak took initiative to put pressure on Assam Science Technology and Environment Council, which resulted in the digging up of 5 wells in the area. Another 5 wells are on the cards.

Two motivation workshops for government officials have brought most of the concerned departments on a common platform. The interaction between the officials has revealed the conservation gaps. They are now better motivated to take the Deepar *Beel* issue more seriously. Five concerned departments, namely Assam Science Technology and Environment Council, Assam Forest Department, Assam Tourism Department, Assam Pollution Control Board and Assam Fisheries Development Corporation have agreed to work in coordination with each other and to follow a participatory & more people friendly approach for the management of Deepar *Beel*.

* Families that earn less than Rs. 22,000.00 per annum

II. Project implementation:

a. Activities: Activity list attached in the **annexure I**.

b. Outputs: The project produced the following outputs: -

1. A comprehensive socio-economic survey report on Deepar Beel fringe: -

A comprehensive socio-economic survey report has been produced which reflects the age bar of the family head, family size, sex ratio, livelihood of the villagers, drinking water facilities, sanitation facilities, land status and land holding capacity, support for Wild Life Sanctuary, educational status, sources of light, types of vehicle at home, sources of daily information, dependency on the catchment forest, cooking fuel, dependency for fodder, social categories and community structure.(the detailed survey report is given in **annexure II**)

2. A leaflet on Deepar Beel conservation: -

A leaf let in local language has been prepared and distributed in the fringe areas. The leaf let has been targeted for the mass people, students, teachers and wetland enthusiasts.

3. A booklet on wetlands: -

A booklet in local language has been published containing information on the wetlands of the region, their bio resources including fishes, aquatic vegetation, mammals, and other animals. Prof. Abani Bhagowati, head of the department of Geography of Gauhati University is the chief author of the booklet. The booklet also reflects the problems pertaining to the conservation of the wetlands in the region.

4. A poster on wetland conservation: -

A bilingual poster in English and Assamese has been published depicting the role of the wetland as – habitat, water reservoir, source of drinking water and source of aquatic bioresources. As the literacy rate of the region is very low, the poster has been made catchy and the languages of the slogans have been easy to understand.

5. A T-shirt on wetland conservation: -

A T- shirt containing the slogan “No wetland no water” has been prepared and distributed during the training workshop for local expertise development. It has also been to the volunteers from the villages who helped the project team in various project related activities.

c. Problems encountered in project implementation:

The following problems were encountered in project implementation: -

i. Non-cooperation of a cross section of fringe villagers: -

The project team members faced initial hurdles in establishing good contacts with a cross section of the fringe villagers depends on fishing for their livelihood. However this problem has been eased by sending our ladies staff to establish contacts and then discuss about the issues.

ii. Poor road condition and transportation facilities: -

Most of the roads going through the fringe villages are in very pathetic condition. During the rainy seven villages become delinked because of mud over the road. Hence our project team members faced some problem during the heavy rainy days in keeping touch with the villagers.

iii. Lack of potable water: -

Lack of quality potable water is a major problem in some of the villages. When the survey was started, some of the villagers were using pool water, pond water or they had to travel a long distance for collecting drinking water. The project team members had to take utmost precaution in this matter and often carry water in sufficient quantities while in field work in the area.

iv. Political interference: -

The fishermen community is largely dependant on political leaders for decision-making. On the other hand the political leaders are using them for their own benefits. The fish mahaldars (business tycoons) are also using them for the vested interest of the rich. Such adamant attitude of a section of fishermen put hurdles to our staff to collect some narrow sectarian gain.

v. Difference of opinion between two antagonizing groups of villagers:

There are two groups of villagers. One group is dependant on the wetland for fishing and collection of other aquatic resources for their livelihood. The other group is not dependant on the wetland for any purpose. The dependant group opposes the creation of a Wildlife Sanctuary while the other group supports it.

d. Steps taken to address these problems:

- i. Participatory Rural Appraisal (PRA) techniques were followed to build a rapport with the villagers.
- ii. Certain places were visited on foot & certain others by boat to avoid the bad road condition.
- iii. We approached Assam Science Technology and Environment Council (ASTEC) & ASTEC have dug

- out 5 wells in the fringe villages. Planning of another 5 wells is being done.
- iv. Awareness drive was carried out and people have been organized into Self Help Group (SHGs) for their empowerment.
 - v. We had listened to them separately, did own home work to work out a tactful plan to avoid any short of conflict.
 - vi. As part of our strategy, we sent our ladies staff to problematic villages to establish the initial contact and rapport building. Once the rapport are built, the programme as per agenda was carried out in consultation with the village heads.

3. Assessment of results of the project:

By and large the project goals have been achieved. All the proposed activities have been carried out. The awareness level of the fringe villagers has been raised. They now know about the sustainability concept and this awareness will hopefully lead to the reduction of anthropogenic pressure on the wetland. Now about six hundred (600) villagers have come forward to work with the NGOs and government departments for the conservation of the wetland. During the process of socio- economic survey the villagers extended cooperation and some of them also volunteered in the process. They have begun their own initiative for self-sustenance through alternative livelihood options and conscious effort has been initiated for the conservation of their own wetland. The two training workshop for diversified livelihood have been great help for them to plan their economy through an alternative to fishing. Concerned government & semi government department officials are now better motivated for conservation efforts. During the motivation workshop, they have identified the conservation gaps and have decided to work cooperatively. They have also decided to follow a bottom up approach for the conservation for the wetland and to take the grass root level peoples and workers with them while planning or executing their plans. A detailed socio-economic database have been prepared, which will help the forest department in deciding for their eco development works and also to address the question of rehabilitation of the actually needed families during the final notification of the wetland as a Wild Life Sanctuary. A bibliography of wetland related documents have been prepared which will help the future workers. A team of new enthusiast has been trained to work for wetland conservation. They can now take up wetland conservation as their agenda.

Immediate benefits to target groups:-

1. Local communities:

- a. During the project drinking water scarcity was felt very acutely. Hence the project team took the initiative to put pressure on Assam Science Technology and Environment Council (ASTECC) to provide wells in the fringe villages of Deepar *Beel*. Under such circumstances ASTECC provided five wells in 2 fringe villages, namely Chakardo and Matia Pahar where drinking water problem was more acute. This has solved

the drinking water problem of the two villages and they have expressed their thankfulness to the project team publicly in an awareness meeting. Another five wells are in cards now. ASTEC is planning to dig out these five forthcoming wells in another two needed village.

- b. Looking at the poor economic condition of the villager, the project team tried to organize the people and has promoted one self help group (SHG) in Keotpara, one of the fisherman villages at the north bank of the wetland. The SHG promoted has been linked with State Institute for Rural Development (SIRD). They have already submitted a project on Diary farming and bank linkage is expected soon.
- c. To address the problem of economic backwardness and to provide the villagers some alternative choice to fishing, two training workshops were organized. One of the workshops was on Food preservation techniques and its commercial prospects and the other one was on Horticulture and its commercial exploitation. These training workshops on diversified livelihood options have helped the villagers to plan their economic activities. They now have a better understanding about the resources available in their regions and how to commercially utilize those resources for a sustainable economic growth.

2. Women:

Special attention was given to the women folk of the region during the project. For this the Field Officer and the Public Relation Officer of the project were recruited from among the women working in the area who are from the same district of the wetland. During the socio-economic survey special attention were paid to the problems and issues of the women. One special group discussion with the women was held at Keotpara. This has brought into light the problems of the women in the region and the possible avenues of their self empowerment.. They have learned through the interaction about different options for diversified livelihood. They have been made conscious about sustainable use of bioresources, which will reduce the pressure on the wetland.

3. NGOs:

During the project, volunteers from five NGOs, namely North East Yuba Kalyan Samity, Society for Northeast Heritage, Mainakhorong Mainaparijat, Chemonia Sangha and Hirapara Yuba Sangha were involved in carrying out various activities of the project. They could learn the different methodologies of wetland conservation related activities and the socio-economic survey procedure. Through the training workshop on wetland management representatives of the following NGOs were empowered for wetland management-

- Early Birds
- Society for Northeast Heritage
- Green Village
- Prashanti

They are now potential enough to give inputs for the cause of wetland conservation.

Expected future benefits to target groups:

1. The SHG is already in touch with State Institute of Rural Development (SIRD), the state government agency for rural development in Assam. Their project on Dairy farming has already been approved by SIRD and bank has initiated the first phase of paper works for a loan for their project. This will create an opportunity of employment to the youth of the village. If the SHG continues to function smoothly, then SIRD has got plan to further extend the project in other villages through formation of more SHGs and thereby forming a cluster of Dairies.
2. If the trained villagers take up *floriculture* or *food processing* professionally, that can be a viable alternative to fishing. Floriculture gardens around the area are all very productive and Horticulturists recognizes the area as one of the most potential floriculture ground. As the villages around Deepar *Beel* are at close proximity to the city of Guwahati, the largest city in northeastern India, which have a growing demand of flowers in the market. Unlike fishing floriculture has no off-season, so the villagers can earn a handsome amount round the year through floriculture. On the other hand, Kamrup district and the adjacent areas produce ample vegetables and fruits. If the villagers can apply their knowledge of food processing and can start small-scale processed food manufacturing units, there is good possibility of getting a reliable source of income.
3. If the ladies take up the suggested activities especially weaving and kitchen gardening their economic condition as well as the self-esteem will be raised.
4. All the above three will improve economic conditions better health, better education and more devotion toward sustainable development.
5. The empowered NGOs, are now capable of taking up wetland conservation initiative as a major component of their agenda. NGOs and private entrepreneurs may take up eco tourism as a joint venture, which can be another viable option for income generation.

Extent to which the project was beneficial to the conservation of the ecosystem:

1. The socio-economic survey conducted will form the baseline data or will act as the opinion poll regarding the status of Deepar *Beel*. It can be instrumental in formulating strategic plans in the rehabilitation programs if the wetland is finally notified as a Wildlife Sanctuary and if the question of alternative livelihood needs to be addressed.
2. The awareness level of more than 1000 villagers have been raised up to the extent that they have turned pro-conservationist and pro-active in the field of conservation.

3. Five government departments are now motivated enough to coordinate with each other to fill up the gap and act for the improvement of Deepar *Beel*.
4. The conducive atmosphere created by the project activities has open up the way for a better bottom-up approach in a more participatory manner.

b. What were the main strengths of the project:

The main strengths of the project can be enlisted as: -

1. Aaranyak has a long track record of working in the field of conservation in the region. Volunteers of Aaranyak have extended all possible help towards the State Forest Department as and when they got an opportunity. Hence, it has a very good rapport with the State Forest department. The State Forest department readily granted the permission for the project and the project team got every possible support from the department, particularly the Chief Conservator of Forest (Wild Life), Divisional Forest Officer, the Range Officer & the field staff.
2. There is a management committee constituted by Assam State Government called the Deepar Beel Management Committee that looks after the management aspects of the wetland. Assam Science Technology and Environment Council is in charge of the committee. Aaranyak has been working for the conservation of the wetland for the past ten years and is constantly in touch with the management committee. Hence, the project team got all possible help from the committee.
3. The Deputy Commissioner of Kamrup district has been cooperative in the erstwhile work of Aaranyak. He took keen interest in the project and extended the support of his machinery.
4. Timely response from the other concerned departments like Assam Pollution Control Board, Assam Tourism Department, Assam Fisheries Development Corporation.
5. Timely cooperation from NGOs like WWF-India (Northeast), Centre for Environment Education (North-East Cell), Society for Northeast Heritage, North East Yuba Kalyan Samity, Mainakhorong Mainaparijat, Hirapara Yubak Sangha and Chemonia Parishad.
6. Cooperation of the teachers & community leaders during the socio-economic survey, training programs and awareness programs. Teachers of the following schools extended their gratuitous help in different project related activities-
 - I. Mainakhorong Majalia Vidyalaya.
 - II. Parijat Academy.
 - III. Anon Ingti Lower Primary School.
 - IV. D. B. T. Phukan Middle English School.
 - V. Garakhohonia Lower Primary School.
 - VI. Maghuwapara Lower Primary School.
 - VII. Hirapara Lower Primary School.

7. Qualified staff for the project with local field knowledge has been found as added advantage. Special care was initiated in selecting the staff for the project with sound social touch and experience on various local language and dialect.
8. Timely response from the libraries, wetland experts & conservation workers of the region. This has helped the project team in literature survey, information collection, data analysis and other project related activities.

c. What were the weaknesses of the project:

The main weaknesses of the project were: -

1. The duration of the project was shorter than the need. For the short duration some remote areas could not be visited frequently. Also awareness drive needed to be of longer duration to yield a comprehensive participatory conservation effort.
2. Because of poor road condition, regular back up could not be given in certain pockets. Seven villages are located in the foothills of the Rani-Garbhangha hill range. The road through these seven villages is the only road to the watchtower of the wetland. This road is in very poor shape. So transportation during the survey and other activities particularly in rains was very difficult. The road through Hirapara and Borbori are also in pathetic condition.
3. There are two antagonizing groups of villagers, of which one support the creation of the Wildlife Sanctuary and the other opposes it. The difference of opinion between the two groups took some time of the project. The project team had to work out on that point to handle the situation tactfully.
4. Most of the villagers were uneducated & poor. Their prime need is food and not conservation. Hence it took time to make them realize about the environmental problems and the conservation needs.
5. There was no response from Guwahati Metropolitan Development Authority (GMDA) & Guwahati Municipality Corporation (GMC), who are major controlling agencies of the wetland towards the project. GMDA declared Deepar *Beel* as the most important storm water basin for the city of Guwahati. But when they were called for the motivation workshop, no representative of the agency turned out.

d. What are the lessons learned from the project:

The lessons learned from the project are: -

1. A cross section of the villagers is dependent on the bioresources of the wetland. So, they need to be vocationally rehabilitated before declaring the area as a Wildlife Sanctuary or their right of fishing in the fringe area may be allowed to continue as per subsection 2(c) under section 24, chapter IV of The Wildlife (Protection) Act, 1972 (as amended by The Wildlife (Protection) Amendment Act, 2002). Further careful discussion in this matter will provide

- acceptable solution to establish harmony with Deepor Beel Bioresource conservation.
2. The present approach of the concerned authorities has been more or less top down. This need to be rectified and scope should be given to the local villagers for more participation in the process of decision-making process to accomplish a successful bottom-up management plan.
 3. Poor road condition is adding to the woes of the villagers. They don't get market for their products because of the transportation gap. Hence, the road needs to be constructed immediately.
 4. Some stakeholders like Guwahati Metropolitan Development Authority, Guwahati Municipality Corporation, Northeast Frontier Railways didn't turned up for the motivation workshop because of the reasons better known to them. They need to be motivated in some other way or otherwise compelled by the government.
 5. The time frame of the project should have been longer. Because of shortage of time some needed intervention points could not be addressed.

III. **Future possibilities:**

- a. The project may be extended for at least another one/two years to continue with the awareness drive and motivation. Aaranyak has prepared a proposal for the alternative livelihood avenues of the actually needy villagers. This would ensure economic self-sufficiency & reduce pressure on the wetland.

Aaranyak also have a plan to replicate a similar project to conserve "Sareswar Beel", an Internationally renowned wetland in Dhubri district of Assam in future.

- b. **Fund raising activities towards other donors:** Realising the need of continuing the efforts in Deepor Beel for another year to stabilize the capacity building of local people, Aaranyak is looking for further support, both in kind and financial with various government agencies and also exploring possibilities with International Donor agencies. Assam Science Technology and Environment Council (ASTECC) have shown keen interest on long term conservation of Deepor Beel, and Aaranyak is working with ASTECC to make this long term conservation dream a reality.

Annexure 1:

Sl. No.	Date	Venue	Programme	Activities	Target group	No. of Participants	Other organization associated
1	1 st February, 2003	Gauhati University Bio-tech Gallery	A Seminar on Management and sustainable Resource Utilization of Deepar Beel: A wet land of International Importance	Additional Deputy Commissioner of the District attended the seminar. Director of Forest School, Scientific officer from ASTEC, Professors and Readers of the University and eminent wildlife experts of the region graced the occasion with their valuable deliberations	College and University Students, Researchers undergoing Ph.D. and social leaders.	75	ASTEC and Department of Zoology and Biotechnology, Gauhati university
2	2 nd February	Deepar Beel Wetland	Nature trial cum bird watching camp a Deepar Beel	Students from Gauhati University, local colleges and nature lovers participated in the programme	Students, Youth and general people	25	ASTEC and Department of Zoology and Biotechnology, Gauhati university
3	21 st February	Chakerdeo Village	Community interaction meet at Chakardeo.	This community level interaction was held in order to create awareness among the villagers resources utilization and development of eco-tourism as potential income source in their fringe villages. They were also made to know regarding sustainable bio- about the requirement of proper socio-economic survey in their respective villages for future actions.	Villagers specially youth and woman	19	Village community and para Samity\i
4	23 rd February	Regional Science Centre, Khanapara	Teacher Orientation Workshop on Environmental Education	This orientation camp was held involving teachers from schools nearing Deepor beel wetland with an aim of making them aware about the immense importance of Deepor beel wetland. The camp tried to impart necessary information regarding Deepor beel and its rich biodiversity, also its importance for those in the fringe areas. The teachers were made aware of the potential role they could play in conservation of Deepor beel.	Schoolteachers from fringe villages as well as from the Guwahati city.	14 teachers	Regional Science Centre

5	25 th May	Regional Science Centre, Khanapara	Workshop on Environmental Education	This orientation camp tried to motivate the teachers to play a pivotal role in the movement for biodiversity conservation by mobilizing the students in the right path. The various negative aspects of unprecedente biodiversity loss were discussed, viz; flood, drought, climate change etc	Volunteers from the fringe villages of Deepar Beel.	10 Teachers	Regional Science Center
6	5 th June	World environment day celebrated	Mainakhorong Majalia Vidyalaya, Mainakhorong	The day long programme to celebrate world environment day involving mainly targeting the school students highlighted the importance of wetland conservation thus giving voice to the International theme for the year 2003, 'water'. A drawing competition was held for the school students to bring forth the active participation of children in this environmental movement. This programme tried to bring the students closer to the realm of nature through interesting environmental game, and informal discussions. The students actively participated in the programme	Villagers Local students and educated youth and panchayat members.	Nearly 400 Students and villagers	Mainakhoran Majalaya Vidalaya and Mainakhorag Mainaparijat
7	22 nd June	Awariness camp with central theme 'People role in wetland conservation'	Khanamukh L.P. School, Khanamukh	Dr. D. C. Goswami, Gauhati University, inaugurated this awareness camp for the villagers. This camp indented to make the people of the fringe areas of Deepor beel wetland aware about their role in conservation of wetland and sustainable bio-resources utilization. The programme was marked by active participation of villagers and women organizations of that area. This awareness camp was participated by different sections of the society, viz; noted scientists, wildlife enthusiasts, journalist, and above all, people from the fringe villages of Deepor beel.	Village people in the fringe area of Deepar Beel	Nearly 300 persons from fringe village of Deepar Beel	Khanamukh Lakshmi puja Committee and Khanamukh Sanmitra Yovak Sangha

8	6 th to 19 th July	Regional Science Centre, Khanapara	Teacher's orientation workshop on environment education.	Teachers from different districts of Assam participated in this workshop organized in two phases.	The workshop aimed to build the capacity of teachers in effective science and environmental education at school level. The teachers were encouraged to play nodal role in driving environmental protection force by motivating their students.	16 teachers from different districts of Assam	Regional Science centre
9	23-25 th July	Directorate of Agriculture, Guwahati.	Training camp on Diversified livelihood options (Fruit Preservation)	The fringe villages of Deepor Beel are dependant on the wetland for their livelihood support, putting enormous pressure on the wetland ecosystem. Hence, this training camp made an effort to cater the fringe villagers with diversified livelihood options, which if pursued could minimize the anthropogenic pressure on the wetland resources.	Youth and women from the fringe villages of Deepor Beel	20 educated youth boys and girls	Assam Horticultural Society and Director of Agriculture
10	8-10 September	Directorate of Agriculture, Guwahati	Training camp on Diversified livelihood option (Floriculture)	The fringe villages of Deepor Beel are dependant on the wetland for their livelihood support, putting enormous pressure on the wetland ecosystem. Hence, this training camp made an effort to cater the fringe villagers with diversified livelihood options, which if pursued could minimize the anthropogenic pressure on the wetland resources.	Youth and women from the fringe villages of Deepor Beel	12 educated youth boys and girls	Assam Horticultural Society
11	13-15 September	Mainakhorong Majalia Vidyalaya, Hirapara L.P	Nature appreciation camp	Three day long camps have been organized in the fringe villages of Deepar Beel wetland to invoke the respect of nature among the villagers	School children and villagers.	School students and villagers.	WWF-India.

		School.		and drive them towards conservation of this wetland.			
12	27 September 2003	Community Hall, Chakerdo	Awareness camp at Chakardeo.	Interaction with villagers on community based wetland conservation prospects.	Villagers of Chakerdo, Matiapahar and Deochotal	Nearly 30 villagers attended the meeting.	
13.	29 September 2003	Keotpara Manasa mandir, Keotpara, Azara.	Informal meeting with the women community.	<p>A daylong informal camp for the women from families engaged in fishing in Deepar Beel has been held in an attempt to bring about the participation of women in the conservation of this wetland. This informal interaction meet focused on motivating the women to play a key role in the economy and thus help in diversification of their livelihood source, thereby minimizing the pressure on the wetland ecosystem due to commercial fishing.</p> <p>The camp was cited by <i>naam</i> (religious ceremony) performed by the women folk, followed by interaction with the organizers about various matters relating to diversified livelihood options.</p>	Village women.	60 village women from fisherman families attended the meeting	
14.	19 th -20 th Oct, 2003	Herbarium hall, State zoo, Guwahati.	Motivation workshop for government officials	The workshop was noted by the participation of both village representatives from the fringe areas of Deepar <i>Beel</i> , as well as representatives from concerned government departments and regulatory bodies, viz; Assam	(i) Fringe village community. (ii) Government departments concerned with conservation of Deepar <i>Beel</i> .	22 Villagers from fringe villages of Deepar <i>Beel</i> . Government departments : Assam pollution	

			<p>pollution control board, State forest department, Assam fisheries developmental corporation, Assam tourism, National institute of hydrology, Assam science and technology and education council.</p> <p>This workshop helped the village representatives bring forth the socio-economic and other pertaining problems of the fringe villages of Deepar <i>Beel</i>, which are posing real threat to the future conservation of the wetland. The concerned government departments and other agencies were appealed to take up immediate measures towards a more practical and effective conservation of Deepar <i>Beel</i> wetland. Other relevant problems regarding the conservation of Deepar <i>Beel</i> were highlighted in the workshop. Grave issues like pollution of the wetland mainly due to the untreated city sewage canal, encroachment of the wetland area for industrialization and unplanned urbanization, non-forestry activities in the adjoining</p>		<p>control board, State forest department, Assam fisheries developmental corporation, Assam tourism.</p> <p>Other Agencies: National institute of hydrology, Assam science and technology and education council.</p>	
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				hill reserves adding up to the Siltation of the wetland, and the mounting human pressure on the wetland resources were given priority in the workshop.			
15.	1 st -2 nd November 2003.	Herbarium hall, State zoo, Guwahati.	Training Workshop for expertise development on wetland management.	Two day workshop involved experts in various fields of wetland management starting from noted environmentalist, wildlife expert, environment lawyer, botanist to impart basic training on wetland conservation and management. The workshop also provided a field-based training on wetland bird watching and identification of wetland flora to the participants.	<ol style="list-style-type: none"> 1. Graduate and Post-graduate students. 2. Local NGOs working for conservation of wetlands. 3. Other interested individuals. 	25 participants including students, NGO representatives and educationists.	

Annexure: II

Socio Economic Survey:

Deepar *Beel* wetland is a Ramsar site located 8km away from the city of Guwahati, the largest city in Northeast India. Deepar *Beel* is under threat due to many stress factors of which anthropogenic pressure (especially over fishing and over exploitation of bio-resources) is a major factor. To conserve Deepar *Beel* and protect the wetland from human pressure the State Forest department had declared the wetland as a wildlife sanctuary vide a preliminary notice in 1989. But the fishermen community protested the creation of sanctuary and demanded that their right of fishing in the wetland should continue. They claimed that there are over one thousand families who depend solely on fishing for their livelihood. Considering their demand the state government denotified Deepar *Beel* in 2002. But timely intervention of the concerned Non Governmental Organizations, researchers and wetland experts of the region have compelled the government to immediately cancel the denotification order. Under such circumstances Aaranyak felt the need of a detailed socio-economic survey of the 14 fringe villages around the wetland to find out the dependency of the fringe villagers on the wetland & to find out any possible alternative to fishing.

The survey revealed the socio-economic condition of the villagers and the extent of dependency on the wetland. A total of 1134 households exist in as many as 14 fringe villages around the wetland. Of these 1134 households, 760 households were surveyed. A structured questionnaire was used for the survey. For better rapport building and understanding the female folk, the Field Officer and the Public Relations Officer of the project, who are female incumbents, organized special discussions with the ladies and visited door to door to know the situation.

The analyzed data of the socio-economic survey have been presented below with graphs:

1. Age Bar of the Family Head:

Most of the households (35%) has been represented by the family members falling under the age group 31-40 followed by sample size of 30% who are above 50 years of age. 23% of the sample occupies the third position (41-50) years. 12% of the sample falls under 21 years to 30 years age group. (Fig. 1)

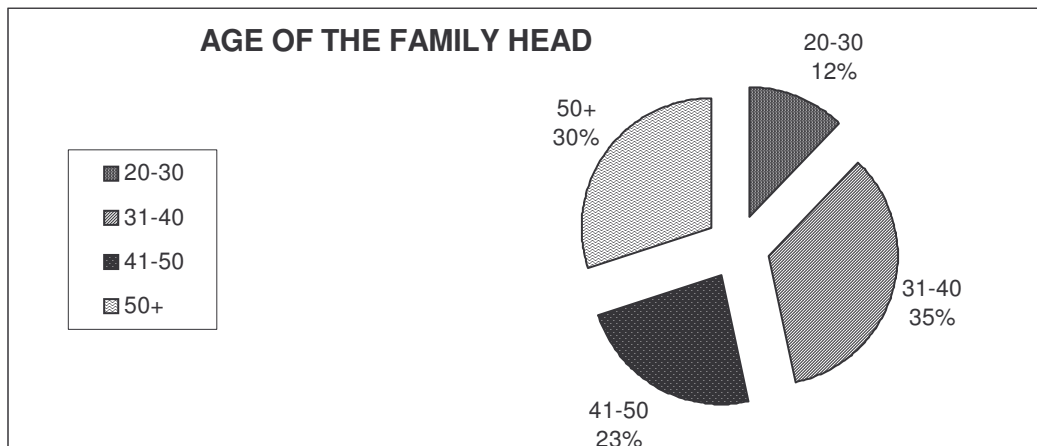


Fig. 1

2. Family size:

Family size has direct bearing on the socio-economic status of population. Hence the sizes of the families were found out. Most of the sample households represented by families of moderate size having 4-6 members (64.60%) followed by 17.63% of the sample maintaining 7-9 members. 14.63% of the sample has 1-3 members followed by 5.13% of the sample maintaining large sized family i.e. more than 10 members. (Fig. 2)

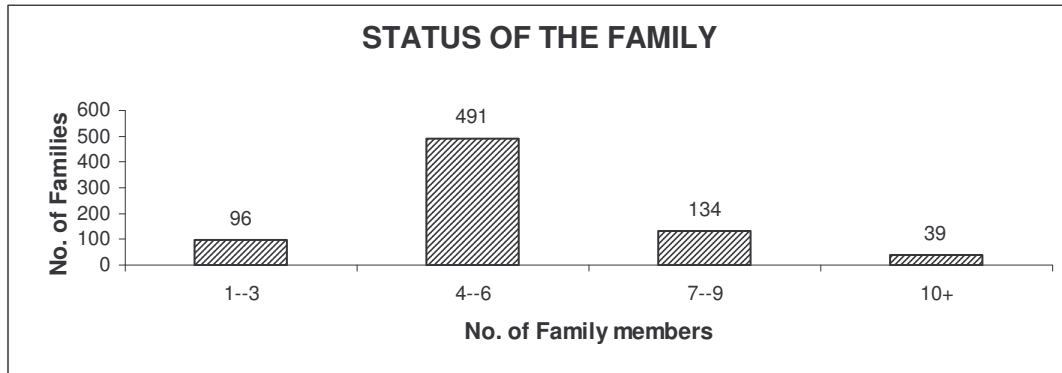


Fig. 2

3. Sex Ratio:

The survey revealed that 51.31% of the sample population is represented by males against the 48.08% of females. (Fig. 3)

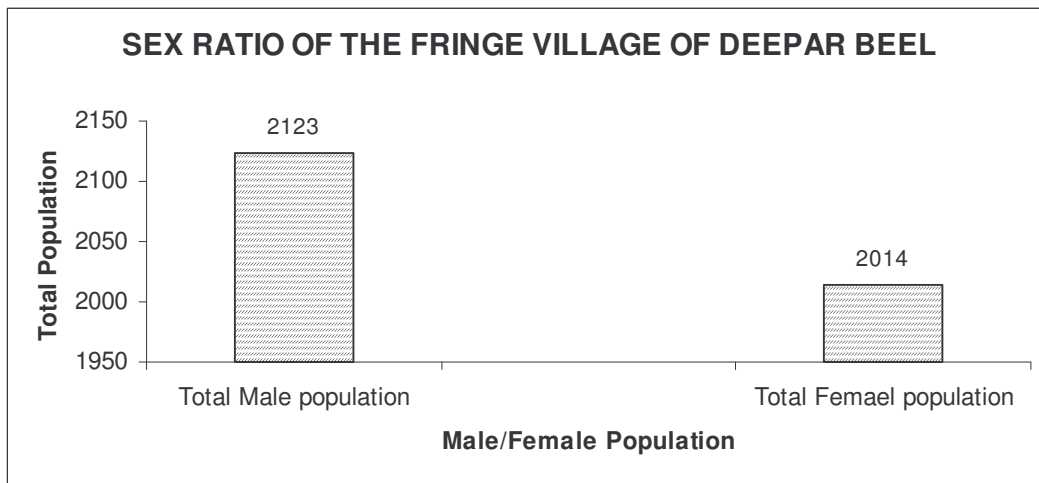


Fig. 3

4. Livelihood of the villagers:

Commercial fishing is the chief source of livelihood of the majority of the fringe villagers situated in the northern boundary of Deepor Beel. About 22.63% of the sample exclusively dependent on commercial fishing in the wetland as their source of income. Agriculture is the chief source of occupation of 16.71% of the sample. 14.86% of the sample obtains their daily bread by working as a labour on the daily basis whereas 11.31% of the sample population relies on business as source of income. 8.28% of the

population is Govt Service holder as against 1.44% private service holder. Pottery, Firewood selling, driving etc are another source of livelihood among the villagers. About 17.33% of the samples are partially dependent on Commercial fishing apart from depending on other source of income generation. (Fig. 4)

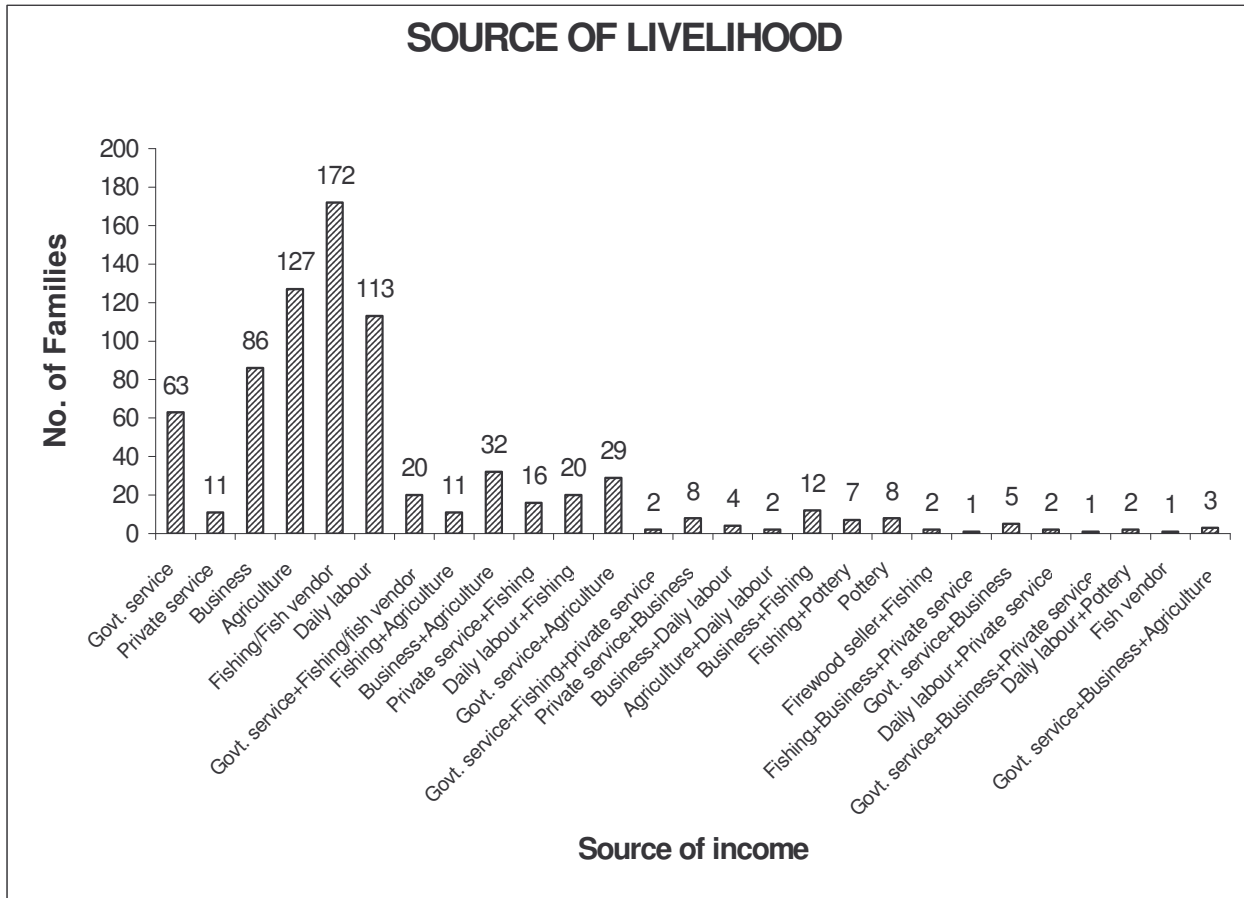


Fig. 4

5. Drinking water Facility:

33.42% of the sample households rely on own tube well to obtain potable water as against 15.52% of the sample depending on Government supplied tubewell. 9.605 of the sample population owns earthen well whereas 8.15 5 of the sample population depends on both supplied water as well as concrete well. The remaining population relies on stream and neighbor’s well for potable water.(Fig. 5)

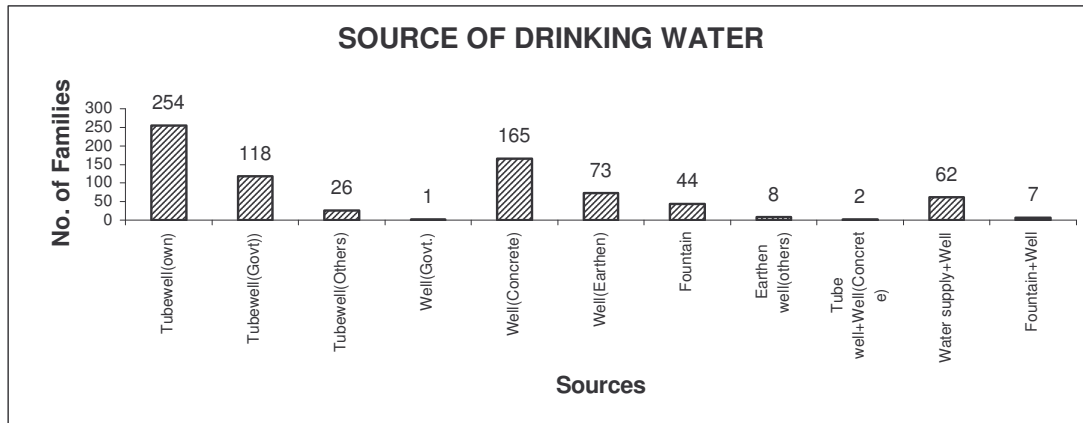


Fig. 5

6.Sanitation Facility:

The sanitation arrangements by the fringe villagers reflect a very poor economic status. Majority of the households (41.44%) relies on adjoining areas of the wetland or own open area to defecate. 29.60% owns non concrete arrangements as against 26.84% of the population who have proper concrete arrangements to defecate. A marginalized population (2.10%) relies on neighbour’s toilet for the purpose. (Fig. 6)

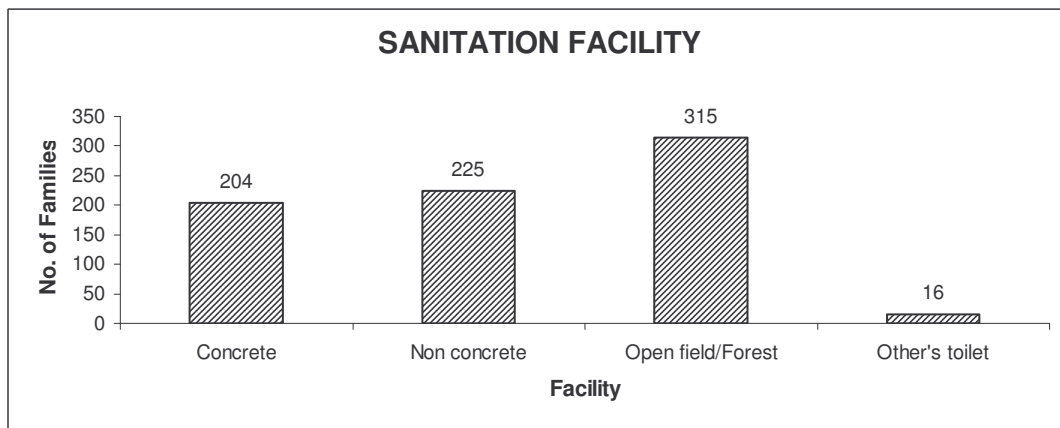


Fig. 6

7. Land status and land holding capacity:

54.07% of the sample own Myadi¹ Land. 19.21% own Eksonia² land and Government land is owned by 14.60% of the sample population. Remaining population found in the survey were also facing problems with their land pattern owning combined land ie Myadi And eksonia; Myadi and Touzi³; Myadi and government etc. A marginalized population (2.36 %) do not have own land and so, staying in other’s land. (Fig 7)

¹ Myadi- This are the lands having proper legal document of land ownership

² Eksoniya- This are the lands with one year lease given out by the government to villagers

³ Touzi-



Fig. 7

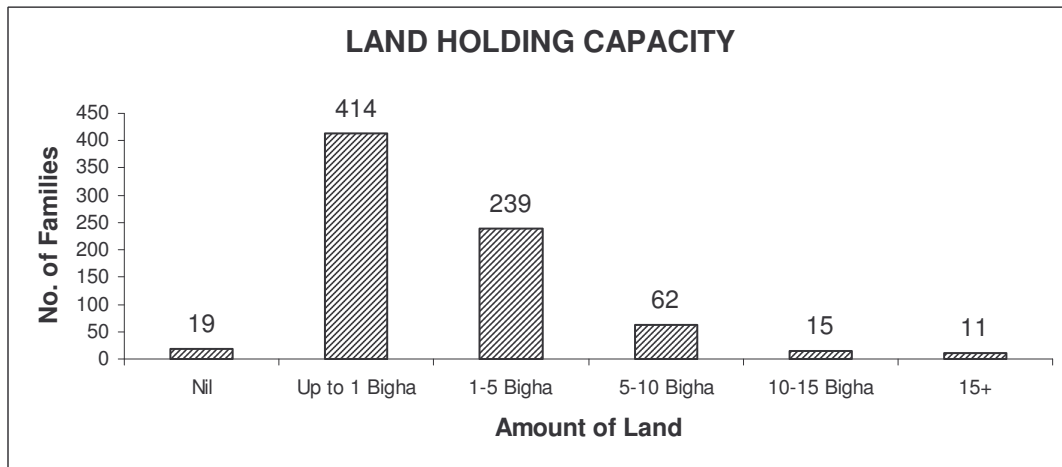


Fig. 8

8.Supporter of Wildlife sanctuary:

Commercial fishing being predominant occupation among the villagers, majority of them (43.94%) opposed the formation of wildlife sanctuary in the wetland. According to them if the wetland was declared as a sanctuary they will be deprived of their sole source of income generation. However, Another 43.15% of the population supports the matter if alternative occupation of livelihood is implemented among them. There was no comment regarding the issue from 9.34% of the sample. (Fig. 9)

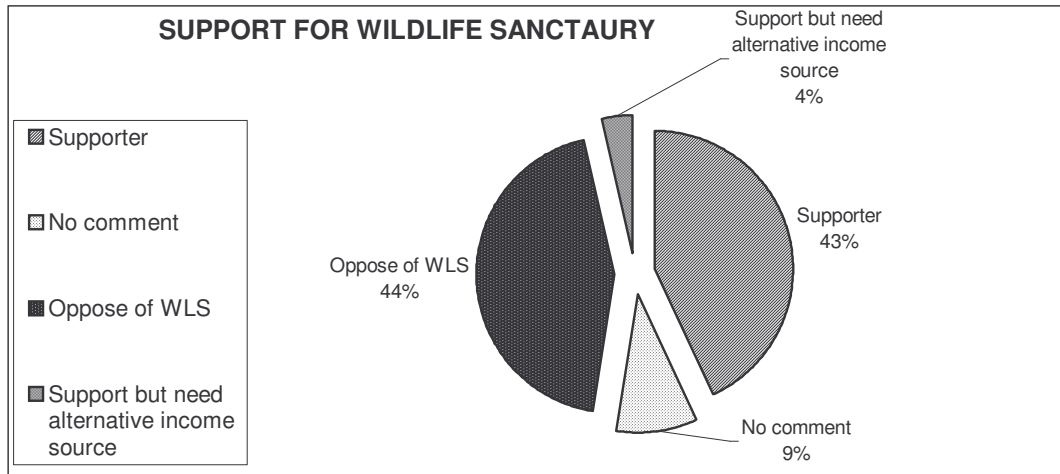


Fig. 9

9. Educational Status:

It has been revealed by the survey that the villagers are lowly educated and most of them leave school at the lower primary and middle school stage. Nearly 30% populations are illiterate in the area of which 12.56% are male and 27.6% are female. Due to the lack of higher educational institution and economic backwardness villagers cannot continue with their higher education . (Fig. 10)

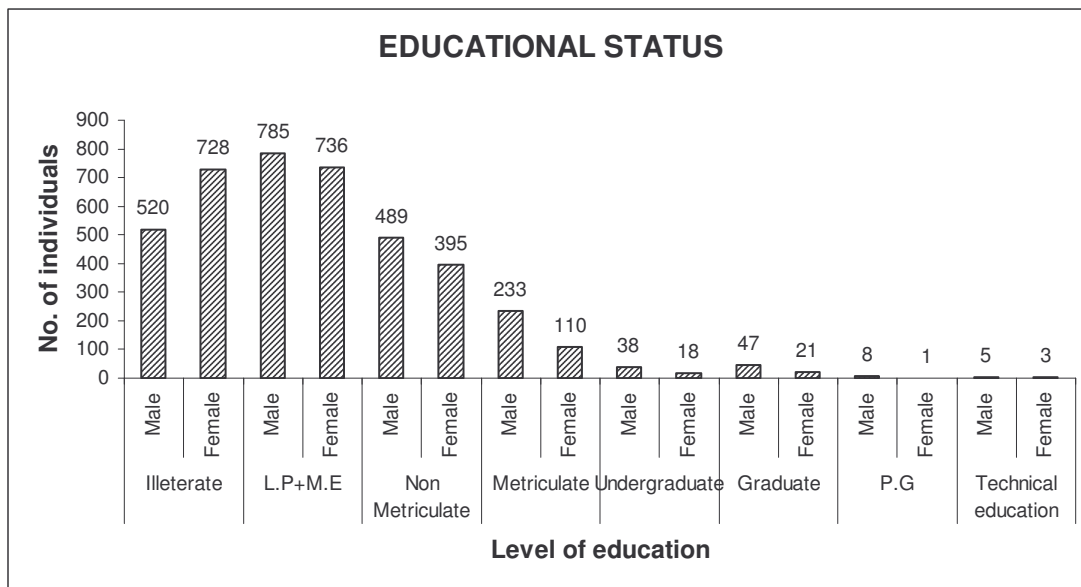


Fig. 10

10. Source of Light:

62.76% of the sample relies on Kerosene as a source of light. On the other hand, 33.78% of the sample have access to electricity. Remaining 1.44% of the sample depends on both electricity and kerosene as a source light. (Fig. 11)

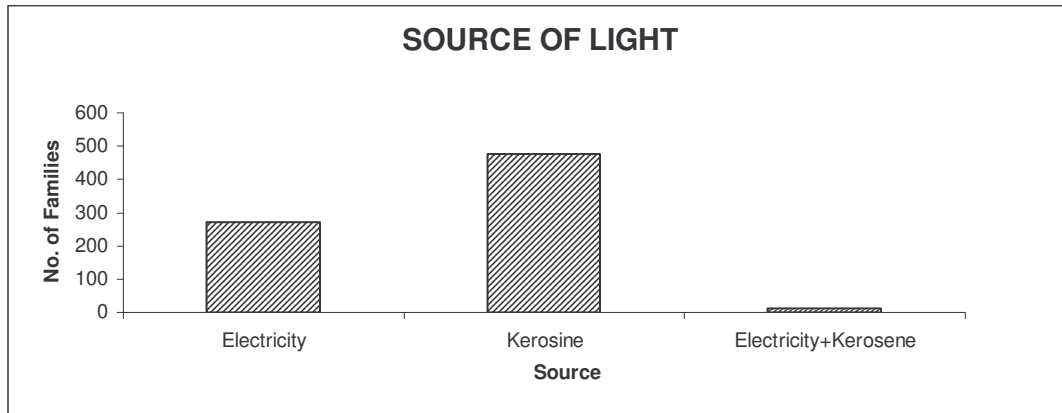


Fig. 11

11.Types of vehicle at home:

59.21% of the sample population own cycle as a mode of private transportation as against 28.81% of the households having no mode for transportation. A marginised population own car, truck, motorcycle etc. (Fig. 12)

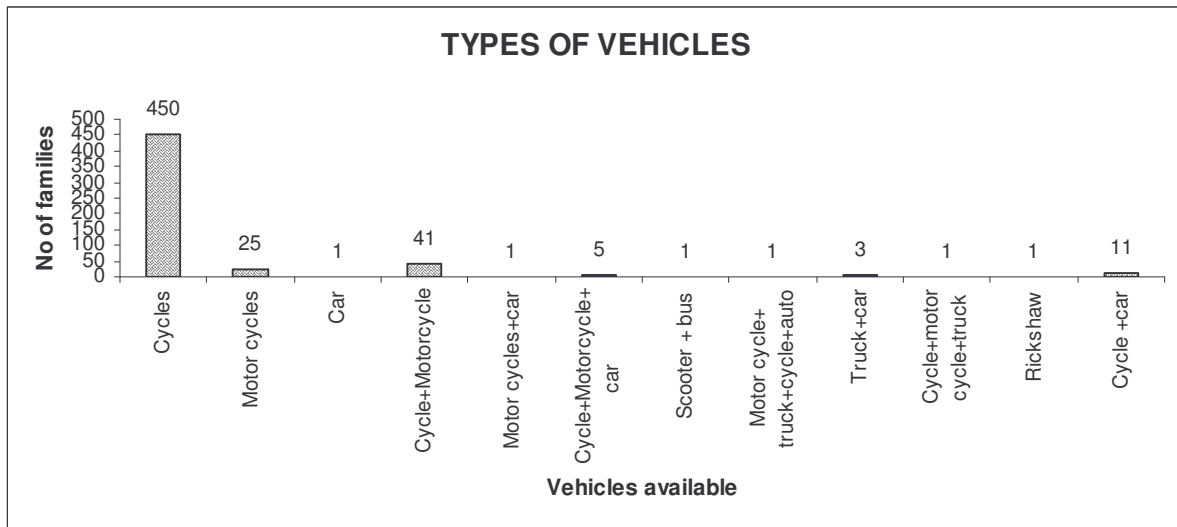


Fig. 12

12.Source of Daily Information:

5.26% of the households have direct access to media. 22.63% of the sample own both radio and TV at home. On the other hand 10.78% of the sample own only TV and 24.73% of the sample have only access to Radio. To the opposite of this entire sample, 35.92% of the households have no access to media. (Fig. 13)

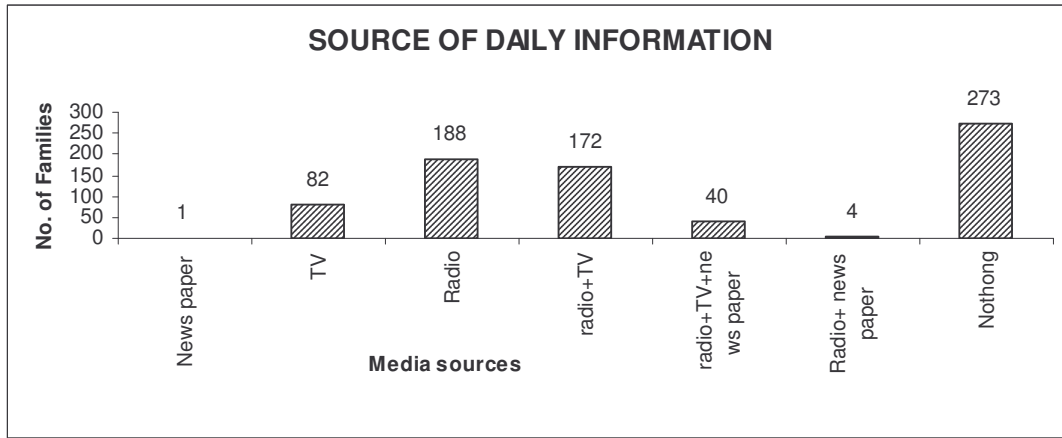


Fig. 13

13. Dependency on Forest:

The adjoining Reserve forest of Deepar Beel wetland is an integral part of the fringe villagers. 68.42% of the sample are entirely depending on the Forest to obtain firewood. 19.02 % of the population relies on the forest to obtain woods, bamboos etc for building houses apart from firewood collection. 12.55 of the sample on the other hand don not have any dependency on the forest. (Fig. 14)

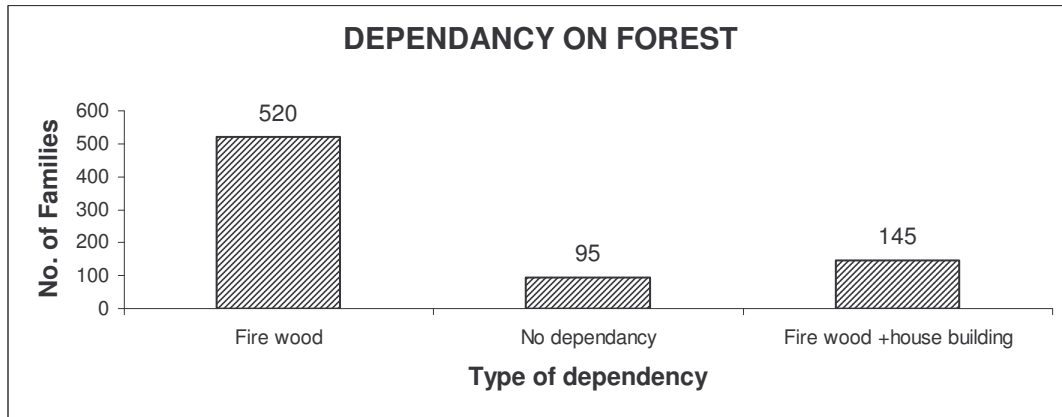


Fig. 14

14. Cooking Facility:

Majority of the households (67.6%) relies on firewood as a chief source of livelihood. Gas, for the same purpose, is used by 18.68% of the sample. &18.68%, on the other hand, use both firewood and gas as a source of livelihood. (Fig. 15)

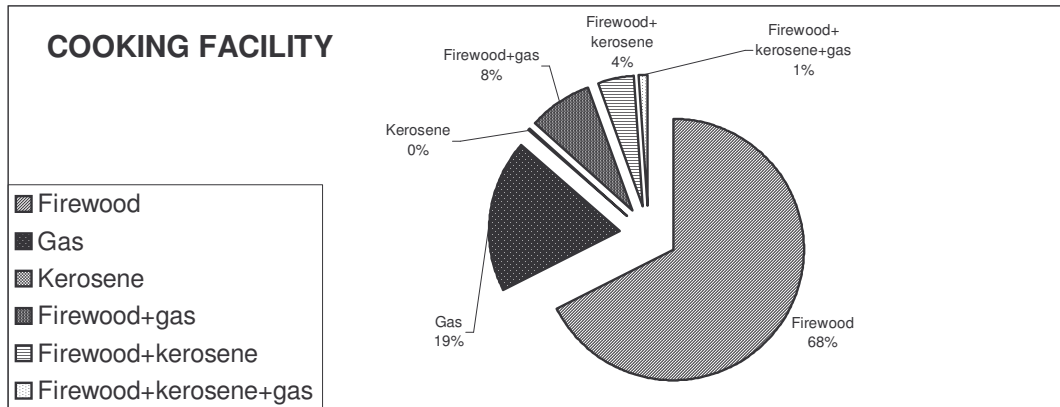


Fig. 15

15. Fodder for Animal:

The fringe villagers depend on the wetland for fodder collection to nourish their livestock. Apart from the wetland, own land and field area are also used for fodder collection by 24.73% of the households. (Fig. 16)

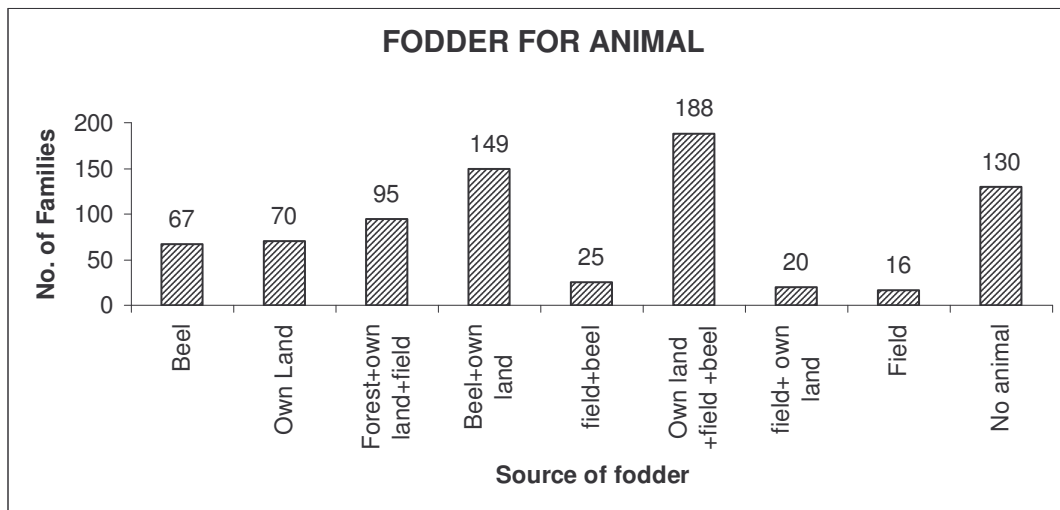


Fig. 16

16. Social Categories:

Majority of the households (48.81%) belong to Scheduled Caste categories (a backward caste people). The next position occupied by 32.89% of the sample belonging to Scheduled Tribe² category. However, 12.76% of the sample belongs to General category and a marginalized population (5.52%) in the villages belongs to general category. (Fig. 17)

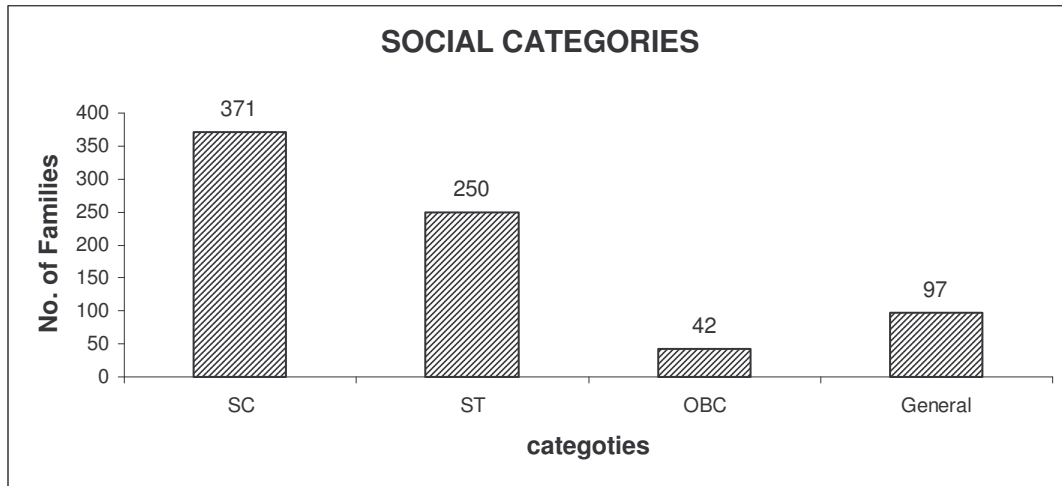


Fig. 17

17. Communities: -

Diversified sub castes have been noticed in the survey. However, 22.10% of the populations belong to Kaibartta caste. 22.10 % population is Karbi people. The remaining population as shown in the figure belongs to diverse sub caste like Nepali, Boro, Rabha, Bengali, Baishya, Kayastha, Sunni, Bihari etc. (Fig. 18)

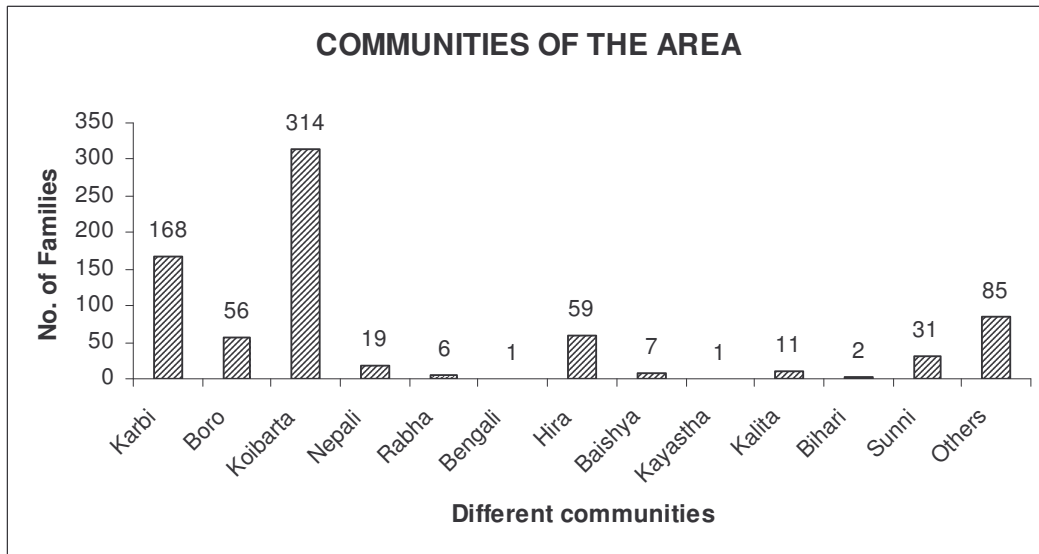


Fig. 18