



Access to Information

for Improvement of Rural Livelihood

Experience from Nilphamari, Bangladesh



Access to Information for Improvement of Rural Livelihood Experience from Nilphamari, Bangladesh

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Edited by

Ananya Raihan

Written by

Md. Forhad Uddin

Mahmud Hasan

Copy Edit

Syeda Shamin Mortada

Cover

S. M Ashraf Abir

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Development Research Network (D.Net)

6/8, Humayun Road, Block-B, Mohammadpur, Dhaka 1207, Bangladesh

Tel: +880-2-8156772, +880-2-9131424, +880-2-8124976

Fax: +880-2-8142021

E-mail: info@dnet.org.bd

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Research Team

Abu Hena Mostofa Kamal, Akib Ara Jesmin, Ananya Raihan, Angshu Jyoti Fouzder, Farhana Fatehin, Fatema Ferdous, Ferdousi Akhter, Fida Mehran, Hasna Shireen, Khadiza Khanam, Mahmud Hasan, Md. Forhad Uddin, Md. Masum Billah, Md. S.M. Rezaul Bari, Mohammad Saiful Alam, Mst. Qumrunnahar Begum, Munia Islam, Nazrul Islam, Rifat Karim, Sabrina Khandaker, Saif Uddin Ahmed, Santana Ayub, Selim Ahmed, Shadhan Kumar Das, Shayla Parveen, Suparna Roy, Suvashish Karmakar, Tahira Nasreen, Taposhi Sarker.

Infomediaries



Protap Chandra
Sarkar



Umma Salma



Jabedul Haque



Arju Khatun



Ruhin Ansari



Rubina Akter

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Research Initiatives, Bangladesh (RIB)

Content development partners

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Local partner

Local Citizen Committee (Nagorik Committee)

About D.Net

D.Net (Development Research Network) is a not-for-profit research institution in Bangladesh, established in 2001. D.Net's vision is a society where information and knowledge facilitates all stakeholders' participation in generation of wealth and its equitable distribution for poverty alleviation. Its mission is to become a premier organisation in Bangladesh and beyond by undertaking research and various action programmes in the areas, where information and knowledge can contribute to poverty alleviation, economic growth and peace.

During initial years of activities, D.Net's main focus was research on Information and Communication Technology (ICT) for Development. D.Net's in-depth research in the area of ICTs for poverty alleviation has drawn attention of stakeholders not only in Bangladesh, but also across the globe.

Under its Mission 2010, D.Net's five year strategic plan, D.Net conducts research and implements important action programmes primarily in six thematic areas:

- ◆□ Access to Information and Knowledge
- ◆□ Enhancing Business Competitiveness for Economic Growth
- ◆□ Governance and Human Rights
- ◆□ Human Resource Development
- ◆□ Institutional Capacity Development
- ◆□ Economic and Development Policy Research

D.Net also undertakes policy influencing activities, for bringing burning issues before the policy makers and stakeholders to create awareness and to take proper actions. D.Net has started to play a visible role in the research arena within the national boundary and in South Asia. It also has gone beyond South Asia through telecentre.org, Canada and ELDIS, UK. D.Net is a member of Global Knowledge Partnership (GKP), OneWorld SouthAsia, and PANAsia Network of IDRC. D.Net received the Global Gender and ICT Award 2005, at the World Summit on the Information Society for its innovation - linking new ICT mobile telecommunication for improving access to livelihood information by the poor people, particularly women and the handicapped, through the introduction of the "mobile lady".

For further information please visit our website www.dnet.org.bd

About RIB

Research Initiatives, Bangladesh (RIB) is a non-governmental, non-profit research-support agency, registered under the Companies Act 1994 of Bangladesh. Its Board of Directors is composed of seven eminent citizens of Bangladesh with rich and varied background in education, research and international affairs.

The main objective of RIB is to promote and support research on poverty alleviation in Bangladesh. Towards that end, RIB has undertaken a research-funding programme with support of the Royal Government of the Netherlands. Through this programme, RIB seeks to provide funding and technical support to researchers who wish to undertake research on poverty alleviation.

In achieving its objectives, RIB is guided by the following main considerations:

- RIB wishes to develop an approach to research on poverty alleviation, which views poverty in its totality. RIB believes that there is a need for society to recognize that the needs of the poor go beyond adequate income and other basic requirements of life such as food, health, education and shelter, and encompass other areas such as justice, equality, good governance, human rights, healthy environment, security, culture, opportunity for creative and aesthetic pursuits, etc. Research should help to bring focus on this reality.
- On the basis of the above perspective, RIB wishes to support research initiatives on all aspects of poverty including its causes, nature and ways and means of its alleviation.
- RIB expects that the research themes submitted to it for funding, would be demand-based. In other words, the ideas should emanate, in one way or another, from those for whom the research projects are being undertaken, i.e. The poor themselves. The latter should thus be involved in the research process from beginning to end to the extent possible. The output of the research should be of direct use to the poor or should be of help to them, at least indirectly, through its use by policy makers, either in the government or in the non-governmental sectors.
- RIB recognizes that research activities in Bangladesh are generally undertaken by persons with university education. Apart from such persons, RIB is also interested in creating an alternative research community with new and young researchers who may not have this background. These would include the poor themselves who are engaged in the search of knowledge in their own ways, or those who are involved in various developmental works for the poor but who do not have the requisite background for this purpose, as well as young students who wish to undertake research activities. RIB wishes to provide support for the development of research capacity of such persons.
- RIB recognizes that there is a large community of persons and organizations in Bangladesh who are engaged in various activities related to poverty alleviation. RIB would like to help coordinate their efforts in order, inter alia, to avoid duplication and to promote replication of the best examples

For further information please visit our website www.rib-bangladesh.org

Foreword

Among many research projects supported by Research Initiatives, Bangladesh (RIB) since its creation more than five years ago, a two-phase project executed by D.Net on the topic entitled: 'Access to Information for Improvement of Rural Livelihood' is one of the most promising. Both the phases of this project are now over. The present paper dwells on the findings of the Second Phase. The paper on the First Phase is contained in a publication brought out by RIB in November 2006. We are proud about the outcome of the research and are gratified that the work of D.Net is fast becoming well known and well recognised all over the world.

It can perhaps be said without hesitation that through this research D.Net has made the task of bringing modern information technology to the doorsteps of the rural community much easier. While only a few years ago the international community was not sure how best to bridge the great divide separating urban and rural communities on information technology, D.Net has shown us a way. It has shown that rural communities can indeed benefit from the achievements of modern science only if it is brought to them in a way that understands their needs, and recognises their constraints. It is in this latter regard that RIB has perhaps played a key role through its participatory ideas.

When the D.Net project proposal was presented to RIB, we immediately saw immense possibilities in it to advance one of our key objectives: that of promoting research aimed at poverty alleviation in which the poverty groups themselves play a key role. In other words, they would be subjects of the research process and not merely the objects; they would be on the driver's seat to decide on what they need and how best they could obtain them. Others involved in the process from outside would be facilitators on the basis of equal partnership. There were some earlier doubts as to how the rural folks could play such a role on such a highly technical subject. However, these were soon removed as the D.Net team got into the process. We were happy to have shared our ideas with them at different stages. They had, however, improved upon them and came out with outstanding results. The first phase report contains relevant information on how this was done and how much the research outcome benefited from this participatory approach.

I cannot resist the temptation here to share some fascinating anecdotes with the readers that the researchers had brought to us during their many periodic sittings with us. We were extremely gratified to learn at these sittings how much the researchers themselves had benefited from the process. How they were humbled by the rich insights of the village folks. There were farmers, for example, who brought dead insects in their palms, which they had collected from their fields and on which they wanted information on how to deal with them effectively. There were farmers who told them how, in the absence of preservation facilities, they would harvest only a portion of a green gourd (lau) at a time and leave the rest of it on the plant, covered by a piece of cloth to

stave off the insects, for later picking. There are many other similar stories testifying to their knowledge and experience as well as their active interest in benefiting from modern science and technology. It would be very valuable to have a whole new report simply on the process documentation of the entire exercise. We would very much encourage D.Net to do that.

For readers who did not have the opportunity to go through the First Phase report, let me simply add here that it provides a very useful list of information needs that rural folks have themselves identified in various fields—from agriculture, to health, to education, to medical needs, to rights, to livelihood and so on. The Second Phase dealt with measures and means on how to meet those needs on a sustainable basis. Already a number of Palli Thathya Kendros (Rural Information Centers) have been set up by D.Net in different parts of the country on the basis of its research findings. We are happy to learn that the model which emerged from the research has been acclaimed for its innovation both at home and abroad and that the prospect for the opening of other such centers in the country is becoming brighter with increasing world recognition of D.Net's work. RIB is proud to have made some contribution in this regard. Let me take this opportunity to congratulate the entire D.Net team and all others who helped in one way or another in the research process, including RIB's programme staff. They have proven the immense value of direct participation of the people for whose benefit any poverty research is undertaken.

There is a lot that other agencies like government and NGOs can do to spread the experience of D.Net in other parts of the country.

Shamsul Bari, PhD
Chairman, RIB

Preface

This publication presents findings of the action research titled "Access to information for improvement of rural livelihood" (Phase II), focussed on development of alternative business models with "Information Intermediary Concept" for improving access to information for rural livelihood. The research was conducted during March 2005 to August 2006 supported by Research Initiatives, Bangladesh (RIB). Identification of information need by the rural people was the focus during the first phase which was conducted by D.Net during January to December, 2003 and has already been published by RIB in 2006.

Livelihood information does not reach end users effectively and timely although it exists in different forms in different organisations and institutions in Bangladesh. The existing information is not demand driven i.e. those are not easily available at the moment of end-users need them. Relevant knowledge has also not been converted to a form that can be easily understood by end-users. This publication emphasises on the findings of how an information and knowledge system in form of a telecentre with modern information and communication technologies (ICTs) can improve access to information for the development of rural livelihood.

Development of user friendly information and knowledge base named Jeeon-IKB; setting up appropriate information delivery channels (offline, online, mobile phone based Helpline, audio-visual media); adding relevant services for maximization of resources and income generation; establishment of a common access point (Rural Information Centre) in the community and process documentation of the major research activities, are elaborated in this publication.

Infomediary (a person who has the capacity for understanding villagers' specific livelihood queries to provide solution using information and knowledge system) is a key player in the whole process. This publication is capable to explain the *infomediary* concept for ensuring access to information using ICTs at the point of need in rural Bangladesh where most of the people are illiterate and non-user of ICTs.

This publication talked about not only the success factors but also about the failures and challenges identified during the research period. Information seeking through ICTs is relatively a new phenomenon in rural Bangladesh. Thus, trust building on the services, availability of livelihood content in appropriate forms, purchasing power of the poor people, willingness to pay for information services and short duration were amongst the major challenges for developing the business model from this study.

It is to be noted that this publication highlights only experiences in Nilphamari, where one of the experimental centres was located. However, D.Net established four information and knowledge centres in four districts. A complete picture of the whole research is going to be presented in a monograph very soon. I believe that the findings of the experiment would be

useful to researchers, practitioners, policy makers, media, academia and other stakeholders.

The beauty of Pallitathya research is that the research team was formed with combination of academic and barefoot researchers. All of my colleagues involved in the research made it possible to produce a good publication for sharing the findings with broader constituency. I deeply appreciate their contribution. I am grateful to all community leaders and barefoot researchers, who are the real heroes and heroines for proving that access to information and knowledge is an essential dimension of poverty paradigm.

I acknowledge all our partners, who helped us in content development technology solution design and research design. I would like to express sincere gratitude to our well wishers, who was always with us in all difficult moments. I would like to apologize for omitting any name mistakenly, whose contribution played an important role in reaching a meaningful end.

Ananya Raihan, PhD
Executive Director, D.Net

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Acronyms

ADB	: Asian Development Bank
AIDS	: Acquired Immune Deficiency Syndrome
ANOVA	: Analysis of Variance
BBS	: Bangladesh Bureau of Statistics
BDT	: Bangladeshi Taka
BRAC	: Bangladesh Rural Advancement Committee
CD	: Compact Disk
CENTAD	: Centre for Trade and Development
CPD	: Centre for Policy Dialogue
D.Net	: Development Research Network
DF	: Degrees of Freedom
ELDIS	: Electronic Development Information Source
ENT	: Ear Nose Throat
FGD	: Focus Group Discussion
GKP	: Global Knowledge partnership
GPRS	: General Packet Radio Service
HSC	: Higher Secondary Certificate
ICRIER	: Indian Council for Research on International Economic Relations
ICTSD	: International Centre for Trade and Sustainable Development
ICTs	: Information and Communication Technologies
ID	: Identification Number
IDRC	: International Development Research Centre
IKB	: Information and Knowledge Base
IQ	: Intelligence quotient
ITES	: Information Technology Enabling Services
MJF	: Manusher Jonno Foundation
MOU	: Memorandum of Understanding
NGOs	: Non Government Organizations
RIB	: Research Initiatives, Bangladesh
SAPANA	: South Asian Policy Analysis Network
SPSS	: Statistical Package for the Social Sciences
SSC	: Secondary School Certificate
UK	: United Kingdom

EXECUTIVE SUMMARY

The action research titled *Access to information for improvement of rural livelihoods* experience from Nilphamari, Bangladesh, was conducted during March 2005 to August 2006. There were two steps (preparatory and operation) during the period. Preparatory steps included team formation, demand driven livelihood content development, baseline study, location selection for establishment of a common access point named *Pallitathya Kendra* (Rural Information Centre), local partner selection for operation of *Pallitathya Kendra*, identification and capacity building of *infomediary* (information intermediary), information delivery channel selection, necessary service selection, price fixation for all services and establishment of *Pallitathya Kendra* at rural level. Operation step included analysing livelihood questions for updating information and knowledgebase (*Jeeon-IKB*), effective operation of *Pallitathya Kendra*, promotion of services to the community people, mobilizing the community people, documentation and necessary modification based on the lessons.

Babrihar is one of the poorest village of Bangladesh situated in Nilphamari district where a *Pallitathya Kendra* was established experimentally. The *Pallitathya Kendra* was established with necessary equipments (computer, printer, mobile phone, internet connectivity hardware, digital camera, nebulisar, soil test kit etc.) and soft resources (information and knowledge base, Helpline, *infomediary*, local partner, community people, mobilization etc.). In November, 2005 *Pallitathya Kendra* was introduced to local community as a common access point for getting livelihood information and relevant services through a launching event.

Four different ICT channels were designed for access to information by the rural people. The channels were: i) digital offline livelihood content (*Jeeon-IKB*) in Bangla; ii) mobile phone based Helpline - a live consultation channel by the rural people with domain expert (agriculturist, doctors,

lawyers etc.) through mobile phone; iii) video documentary related to new income opportunities, awareness, education etc.; and iv) internet browsing for information, which time to time updates information on areas like job, admission. These channels made the information services effective i.e. no people were refused or excluded for receiving livelihood information from the *Pallitathya Kendra*. Some relevant ancillary services like soil test, computer composing, commercial mobile phone service, email, body weight measurement, diversity visa application etc. were provided from the *Pallitathya Kendra* for income generation. No services were provided free of cost from the *Pallitathya Kendra*. However, service charge was exempted for information services in many cases as for example, charge of legal information was free for some instance, video information for children was free, awareness video information was provided with free of cost. The prices were fixed through consultation with the community people. Paying capacity of the poor people was also taken into consideration during price fixation. Baseline survey was conducted to capture existing socio-economic condition and to capture the pattern of fulfilling of information needs by the villagers. Baseline survey also helped the team for prioritising the content area for development.

Infomediary was the key component in the whole process. The *infomediaries* were selected carefully from the locality using the previously developed criteria and through a competitive test. Their capacity was developed through a 15 days training focusing to build their technical skills, to increase the understanding level of livelihood problems and provide answers, communication skills, quick learning capacity, time management and documentation process. Mobilisation and promotion plans were developed for successful operation of *Pallitathya Kendra* because access to information through ICTs is a new phenomenon to the community. Documentation process was developed before starting the operation of

Pallitathya Kendra for capturing lessons and for tracking individual service recipients. Bangla *Pallitathya Kendra* operational manual was developed for the *infomediary* which also helped them for providing the services effectively.

The publication covers the data of 258 days and a total of 32 villages. A total of 2,337 service recipients (averaging 9 recipients/day) received livelihood information and ancillary services during the period which covered only 2% of the total population of the villages. Data for each service recipients were captured using a service card register. Increasing of the service recipients in a month was dependent on the regular mobilisation effort. Although information services are new phenomena in the area, the rate of taking information services (46.64% of total services) was encouraging compared with the rate of ancillary services (53.36%). Trust building among the community people was a key factor for promoting the *Pallitathya Kendra* services. Over 40% people visited *Pallitathya Kendra* more than once for getting services; this may be an indicator of the satisfaction level of the people. Furthermore, it can be concluded that the centre appeared as an alternative source of services for the community. A total of 34.32% women received services from *Pallitathya Kendra*. It was achieved due to the gender sensitiveness during *infomediary* selection and service designing. Illiteracy and old age did not pose any difficulties for the people for getting livelihood information services due to the deployment of *infomediary* concept. *Pallitathya Kendra* was a useful meeting point for the students and housewives in the area.

Access to health information attracted the highest number of recipients followed by education information and legal information were used by the least number of recipients. Mobile phone based Helpline was found to be the most popular channel which satisfied the requirement of 39% of information seekers. Offline CD based *Jeeon-IKB* was another popular channel which was used by 17% of information seekers. People had an inclination to consult with helpdesk expert for their livelihood problem and the *infomediaries* had a tendency to forward questions to helpdesk expert

without searching CD based content. This was a weakness at the *infomediary* end. Refreshers training of *infomediaries* helped to tackle this situation. Issue-based camp was also popular among the people because it was an opportunity for face-to-face consultation with the domain experts. Offline CD based channel was mostly used for access to agricultural information; mobile phone based Helpline channel for access to health information; internet for access to education information; issue based camp for consultation of legal problem and audio-video media was mostly used for access to income generation related information.

The study showed that the *infomediary* was a matter of success of rural ICT-based access points. Information and knowledge system, i.e., content base was the key factor for making the centres not just an ICT service centre. Seeking information through ICTs is a new phenomenon for the rural people; it requires behavioural change, which does not happen in a short period of time. Mobilisation effort for changing behaviour as well as increasing service recipients and trust building on the new services among community people ñ are to be considered as factors of success. Probably, one year of operation is not adequate for developing a business model of *Pallitathya Kendra*. Addition of relevant ancillary services which will not interrupt the information services can enhance the income scope of *Pallitathya Kendra* for financial viability. Computer composing, photography and nebuliser on rent were found to be some income generating services.

The key learning from this research is that if carefully designed ICT-based access point can make a difference in terms of improving livelihood of poor people. D.Net is in the process of handing over the centre to the local community and will continue its research examining if the investment in the centre was worth comparing it with the benefit received by the community. That research would give specific impetus towards thoughts of sustainability and business model for community based ICT access points.

1. INTRODUCTION

The development paradigm has evolved during the last three decades in Bangladesh as well as around the world, particularly in the developing countries. While poverty alleviation was the ultimate goal of all development efforts, the focus was to improve income poverty situation and it was gradually shifted to non-income issues. Although, access to information is one of the key factors for improving the livelihood of people, it has largely been ignored from the perspective of poverty alleviation paradigm and development. It is well known that obstacles to accessing resources in a sustainable way play a crucial role in drawing the line between haves and have-nots. From pure economic perspective, in a market economy framework, access to information is crucial in terms of having access and getting price advantage in the market. Unfortunately, there is no separate market for the poor producers of goods and services. Accordingly, access to information may drastically change the situation in favour of the poor producers within and for a country in the global context. On the other hand, while access to information related to market access is important, it is also important to ensure access to information related to better production technology of goods and services, appropriate technology, information about self-employment related facilities, and wage employment for ensuring alleviation of income poverty. For addressing the non-income issues, the access to information related to education, technological know-how, affordable health care, legal and human rights are very crucial. In short, one can coin the gamut of information needs as 'livelihood information needs'.

Lack of access to information is a critical source of disempowerment for the rural poor. This makes them vulnerable to exploitation by the

middlemen, leaves them exposed to preventable diseases and accidents, deprives them from justice due to lack of availability of legal aid services and necessitates significant costs for finding simple information, among many other consequences.

The present research paper highlights the findings on how a system of information and knowledge system with modern information and communication technologies (ICTs) can improve access to information for the poor rural people.

Envisioning tremendous potential of ICTs and understanding importance of participation of grass roots people in designing intervention, Development Research Network (D.Net) undertook an umbrella programme titled 'Pallitathya'. Under this programme D.Net conducted a research titled 'Access to Information for Improving Rural Livelihood' [RIB, 2006]. That research focused on identification of information needs of the rural people, which can be served through ICTs. Based on the research, D.Net started to develop livelihood content in nine areas, which was subsequently released as 'Jeeon-IKBi' [www.jeeon.com]. D.Net also tested less fashionable and more spread ICT like mobile phone in the rural community. The experiment with mobile technology titled 'Pallitathya Help Line'¹ was tremendously successful and received Global Gender and ICT Award 2005. The experiment was about deployment of female information worker with a mobile phone [popularly known as 'mobile lady'], who moves door-to-door in villages and facilitates women and people to talk to experts on various livelihood subjects. This intervention made significant impact on the life of poor people, particularly women and disabled.

1. Helpline is designed for providing livelihood information through mobile phone. A lady with a mobile phone moves around villages to assist the villagers for asking their livelihood related queries using the mobile phone to the helpdesk where experts in different fields are answering those questions.

Based on the success of interventions, D.Net proceeded further with establishment of common access points for the rural community in four selected remote locations of Bangladesh. The common access point was named as *Pallitathya Kendra*. Surrounding the common access point, D.Net attempted to build up a *ieco-system* where both local community and technology creates synergy and derives benefit for them. The *systems approach* was followed for designing the intervention. As a part of the system every component of the intervention was an integral part of the whole and essential for its successful implementation.

This paper is based on findings from the intervention in *Babrijhar* village of Nilphamari, where a *Pallitathya Kendra* was established in collaboration with local community. It should be noted that *Babrijhar* is one of the poorest villages in Bangladesh, which was selected on the basis of poverty map produced by CPD. This paper focuses on all components of the system: common access point, *infomediary*, content, mobilisation and ICT channels. The report highlights not only moment of glory, but also the challenges.

During the research period, a total of 2,337 service recipients (male 65.68% & female 34.32%) received livelihood information and ancillary

services from the *Pallitathya Kendra*. Most of them received health information (44%) using different channels. Age group of 11-20 years was the highest (45.79%) user of services delivered by the *Pallitathya Kendra*. Secondary level educated people were the highest service recipients. The average growth rate of service recipients was 10% per month indicating that the positive general growth trend over the month.

Objectives of the research

The primary objective of the action research is to develop alternative business models with *Information Intermediary Concept* for improving access to information for rural livelihood.

The following activities were taken for achieving the objectives

- Development of contents in Bangla on agriculture and health issues for the web on a continuous basis in collaboration with other domain organizations
- Establishment of *Pallitathya Kendra*: a common access point for getting livelihood information and necessary services
- Experiment business model of the *Pallitathya Kendra*
- Mobilisation and process documentation

2. METHODOLOGY

2.1 Duration and location selection

The research was conducted from March 2005 to August 2006 in the village of *Babrijbar*, Nilphamari Sadar *Upazila*, Nilphamari. Location for *Pallitathya Kendra* was selected following some factors i) diversity of economic activities in the area ii) educational status of the locality iii) existence of local entrepreneur group iv) availability of different institutions in the locality and their effectiveness v) participation of women in development activities vi) participation of youths in development activities vii) availability of ITES viii) availability of electricity ix) availability of internet facilities x) urban centre but no too close-by xi) willingness of local people/organization to participate in such innovative and challenging initiative xii) access to some other villages xiii) political stability and xiv) political stability.

2.2 Partner selection

2.2.1 Selection of local partner

Local partner was a critical issue for operating *Pallitathya Kendra* at the local level who was the next level operator and the owner of *Pallitathya Kendra* to continue the services for the community after the project phase. In this context, the local partners were identified from the communities, who were involved in social activities had a commitment to work for the people, was willing to run this type of initiatives, was eager to be a partner, had a sharing mind-set, institutional stability.

2.2.2 Partner selection for content development

Information need identification research in the first phase supported by Research Initiatives, Bangladesh (RIB) helped D.Net develop the taxonomy of content that had demand among the rural people. Based on the content list the potential subject matter experts, organisations and institutions were identified, who subsequently

contributed to the process of content development by providing necessary raw materials, comments, expertise which included research paper, articles, books, photography, video etc. Government and non-government organisations, both participated in content raw materials sharing, which facilitated the process of content development.

2.3 Information need identification

Rural people were in need of livelihood information for their development, identified in the need assessment research conducted in 2003 through a participatory approach. D.Net formed a joint research team with researchers from Dhaka at potential project locations and stayed more than a month in villages to understand information needs and their existing sources. An action research *‘Pallitathya Helpline’* was conducted by a seed grant support of Global Knowledge Partnership (GKP) for developing a model on delivering demand based information to rural people through mobile telecommunication technology. Although the action research mainly emphasised on access to livelihood information for rural people of Bangladesh, it was a new approach to identify the real time information need of the rural people using the cell phone technology. The information need also identified during the baseline study through the individual interview with representative of different groups of people. A semi-structured questionnaire was followed for the interview. From the baseline study, new information requirement identified than that of the earlier research. From those study, ten boarder areas of livelihood information requirement identified which were agriculture, health, education, legal and human rights, non farm activities, appropriate technology, awareness, disaster management, rural employment and directory.

2.4 Infomediary selection

Infomediary was a key element of this research who mainly built a bridge between ICTs and rural people for easy access by all. The first criterion for *infomediary* selection process was that they must be from the locality (in the selected area), be educated and committed to the purpose. The emphasis on local young educated people was for two reasons: their social acceptance and capacity to understand the pulse of the villages quickly and easily than the outsiders. For selecting the *infomediary* within the locality, initially vacancy announcement was published in the local newspapers, printed copy was circulated in the mass gathering place with interview date, place, eligibility criteria and salary. They were selected through two round of competitive test with local leaders in the selection process. The criteria considered for selecting the *infomediary* were: i) minimum educational background (HSC); ii) capable to operate computer; iii) quick learning and capturing capacity; iv) committed and willing to work with rural people; v) intellectual ability; vi) young and energetic; vii) well acceptance and reputation among rural people; viii) good networking ability with rural people; ix) positive attitude towards loyalty and accountability of work; x) ability to ride by-cycle.

2.5 Mobilisation

Local workshop, individual group meeting, issue based campaign (agriculture, health, education and legal and human rights), meeting with local service providers, door to door visits, meeting at the villagers working places, i.e., at the paddy fields, at the kitchen with the housewives, at school with teachers and students etc. were conducted by the *Infomediary* regularly following a weekly work plan. Sometimes research team from Dhaka joined the *infomediary* to conduct meeting and workshop in the area.

2.6 Promotion

Leaflet, bulletin, visiting card, banner, bill board, sign board, video documentary, miking, local song etc. were used for the promotion of *Pallitathya Kendra* services and activities of the rural people.

2.7 Documentation

A service form was developed for tracking the individual service recipients which included service receiving date, service delivery date, user ID, name, address, age, sex, education status, profession, service category, service delivery channels with price as well as the place to put questions asked by the people. A user identification card was also developed to provide each new service recipients including name of *Kendra*, user ID, name and address etc. Money receipt was also developed for documentation of accounts. Bank registrar, daily income and expenditure registrar, salary authorisation sheet, salary register, incentive bonus form, leave registrar, receipt of asset, property register and phone call registrar were produced for documentation of each points.

2.8 Service selection

A large set of livelihood information was the core service for the rural people. Simultaneously, some ancillary services were identified in consultation with the community which had demand to the rural people like soil testing, composing, printing etc. As the prevalence of asthma is high in Nilphamari, the community people suggested to keep *nebuliser* for the rural doctors, who can rent it for the treatment of patients. These ancillary services were for income generation for the *Pallitathya Kendra*. It also ensured maximum utilisation of equipments and facilities that were available in *Pallitathya Kendra*.

2.9 Impact analysis

For impact assessment baseline survey, focus group discussion (FGD) was conducted before starting the operation. Case was collected from some individual service recipients and FGD was conducted to get the picture of impact of *Pallitathya Kendra*.

2.10 Data analysis

All collected data were preserved and coded for quantification and entered using SPSS-12 software. Frequency, percent, cross tabulation, multiple set analyses, ANOVA, regression analysis, t-test and graphical presentation was done by MS-Excel and SPSS software.

3. IMPLEMENTATION OF THE RESEARCH

3.1 About the project location

The project location of *Babrijar* village is 21 km from Nilphamari district headquarter. This location was selected based on the success of the *Pallitathya* Helpline project conducted from December 2004 to March 2005. Potato, tobacco and rice are the main crop in the area; metallic and non-metallic road condition; bus and rickshaw are the main mode of transport; four NGOs operate in the area; there is no religious and social barrier for women to go outside, electricity and mobile phone connectivity are available, people are willing and motivated for accepting the project initiatives (Raihan et al. 2005). The catchment area was considered about 10 km radius taking *Pallitathya Kendra* at the centre, where, the number of village was 33; number of Union was 5; area 28,434 (acres); number of households 25,790; number of population 120,372; sex ratio 51.62:48.38 and average literacy rate 36.4%. Male was more literate with 42.2% than 30.1% of female (BBS, 2002).

3.2 Information need identification

3.2.1 Base line survey

Baseline survey was conducted to capture existing socio-economic condition and information demand in the rural areas. The study aimed at understanding the size and nature of the information demand by looking at sources of information, problems and opportunities as well as identifying the information demanders' present livelihood pattern and understanding the potential of information to improve this situation. The survey was conducted in the catchment areas of 32 villages in five *Unions* of Nilphamari district using semi structured questionnaire. Focus Group Discussions (FGD) were also conducted with separate groups of in order to collect the nature of problems which might not be observed through individual survey.

It was found that NGOs in general did not put a lot of focus to provide the necessary information related to the livelihood of the rural people.

Government initiative to provide livelihood information was also inadequate. Rural people were largely dependent on informal sources to collect their livelihood required information.

Thus, the indicators that were set to understand the potential impact of information intervention included wider range of livelihood spectrum. The baseline survey tried to understand the existing livelihood pattern in different livelihood areas. In agriculture, emphasis was given on understanding the existing agriculture productions, seed quality verification process, readiness during disaster, testing soil condition before production, crop preservation process, present agriculture diseases process and their control mechanism, marketing mechanism and their barriers, present information sources and their effectiveness, knowledge level about proper irrigation system etc. Health segment indicators included disease pattern, source of information regarding suggestion for treatment and their effectiveness, primary health awareness, family planning awareness, maternity care, safe birth of children, child immunisation, safe drinking water usages, arsenic awareness, present sanitation pattern, awareness about AIDS etc. Education indicators included attendance rate in schooling, reason for dropout, information about higher education opportunity etc. Non-farm economic activity indicators included existing practices and problems with non-farm economic activities, existing know-how of different activities, local NGOs supporting to promote non-farm economic activities, process of raw material collection, marketing pattern, training information sources etc. Indicators considered for legal and human right situation of the community included incidence of violation of law and human rights, existing institutions for legal redress and their effectiveness, land related problems and their pattern, effectiveness of local court, local judiciary system etc.

It also identified the usage of different ICT

channels to acquire information from existing sources. It is remarkable that majority of the people used mobile phone to acquire information from different sources. The research also focussed on existing income and expenditure pattern of individual household to understand potential impact of information to increase income opportunities and reduce cost of livelihood.

3.2.2 Analysis of livelihood questions

Rural people visited *Pallitathya Kendra* for receiving livelihood information using offline CD based content Jeon-IKB, mobile phone based Helpline, video documentary and the Internet. *Infomediaries* also went door to door of the rural people for reaching the livelihood information particularly for those who were incapable to come to the *Pallitathya Kendra* due to their physical and social barrier and also had close engagement for family maintenance. During the research period, lot of questions asked by the people had been used to analyse and identify the diversified and real time information needs of the people in the area. All questions asked by the people through different channels were noted in the service forms and continuously analysed for up gradation and validation of CD based livelihood content. Issue-based campaign was another tool to identify the information needs of the rural people. This campaign was mainly arranged to promote the need for information and activities of *Pallitathya Kendra* to the rural people. Campaign created an opportunity for rural people to meet directly with the expert panel and local service providers like lawyers, block supervisors, doctors etc. for consulting their livelihood problem with the experts. The questions asked by the rural people in the campaigns were recorded and analysed to understand the information requirements and these queries helped the research team to upgrade the content database.

3.3 Bangla Content development

Specific content requirements by the rural people were identified from the need identification research conducted in the Phase I. The information needs were also identified through the individual interview with representative of civil society like school teachers, members and

chairmen of *Union Parishad*, NGO workers, youth group, farmers, small traders and women during the baseline survey. Delivering demand based information through mobile technology (A project of *Pallitathya Helpline* supported by Global Knowledge Partnership-GKP, Malaysia) also helped identifying the specific livelihood queries of rural people. All of the approaches applied in the area created a new ground to develop a priority list of content that were provided from a common access point in the community.

Content development was mainly focused on collecting and organising the villager's livelihood related information in such a manner so that it can be easily retrievable and useful for the rural people. The rigorous process of content development included collection of information in related field, organising and rewriting the content in such a way that villagers can easily understand it. The developed content comprises text, picture and sketch and are served through a software developed by D.Net. Addition of pictures and sketches were also done, so that the text could be easily explicable and yet the infomediary and self-browsing users could easily understand the topics.

3.3.1 Steps of content development

Through a trial and error process D.Net has developed a content development know-how, which is described below:

Step 1 : Team formation

- Team formation started with choosing young scholars in different livelihood areas on which content development were focussed. For example, an agriculture graduate was invited for agriculture content development, medical graduate for health content development etc..
- The selected team was trained on how to develop in an easily understandable format for the-rural people
- Physical set-up for content development team was also made which essentially required computer with internet, telephone for communication and selected software for typing, converting into web-enabled format and image editing etc.

Step 2 : Partner identification and collaboration: Two types of content development partners were involved in this project, i) content resources partner and ii) implementation partner at the local level. Content resources partners were those who had provided their consent either in written form or verbal conversation to provide with domain knowledge, which were to be used for content development. Identification of content resources partners was important for the following factors:

- Ensuring steady flow of content development process
- Immediate delivery of research result after successful field implementation of agriculture and health content
- Ensuring authentication of developed content

After completion of content development, proper acknowledgements were cited for each of the contributors in the content areas. A number of government agencies, government and private research organisations, NGOs, private organisations and individuals had participated for content development.

The formal relationship with content development partners was important for the following reasons:

- The relationship facilitates preserving intellectual property rights of the partners, where applicable
- The ultimate liability of content will not fall on D.Net, and
- Acceptability of content increases among last mile users when it comes from original sources.

Step 3 : Prioritisation of content area: Content areas were prioritised as target content development was subjected to availability of information and urgency of the user. The primary step for prioritisation of content areas was to identify livelihood information need of the people targeted as information recipient. The information needs subsequently were ranked according to content availability in secondary sources as well as strength of the content development team. At this step a separate content

structure for each thematic area was prepared. It was needed as the content tree for each content area is different. For example, the structure suitable for agriculture content development might not be as of health or appropriate technology.

Step 4 : Collection of raw materials for content development: At this stage content raw materials were collected from various sources, among which mainly following items were collected;

- Research reports, report on technical innovations, books, periodicals on relevant topics
- Survey was conducted to collect information from different service providers about service type, procedure, cost etc. within the mobilisation point of the local people

Step 5 : Development of content: Identified livelihood content requirements were categorised into ten broader areas: agriculture, health, law and human rights, education, non farm economic activities, appropriate technology, awareness, disaster management, rural employment and directory information. Under this project, agriculture and health content were developed to make them accessible to the rural people from the *Pallitathya Kendra* and web site. The content development activities were as follows:

- Compilation of information from raw contents were put into a prescribed format;
- Digitisation of content with all references as well as the use of own domain knowledge of the subject matter of the specialists, who are involved in the content development process;
- Attachment of relevant pictures where applicable and possible;
- Development of a database system and data entry for a directory database
- Validation of content by *infomediary* and rural users to get first hand feed back on content structure, information type and user-friendliness;
- Posting of content in a common resource pool (CD based offline system) software called Jeeon.

Step 6 : Content up gradation: It was important to note that content development was not a one shot task. User feed back and questions analysed continuously and identification of new content demands, were incorporated with existing content base. So, content development was required to be upgraded on a continuous basis. The steps for content upgradation are following:

- Compiled regular feedback from the service recipients on different issues;
- Raw information and materials collected from different sources based on demand and feedback
- Conducted survey on service provider to upgrade directory database
- Added newly developed/edited content into the common browser

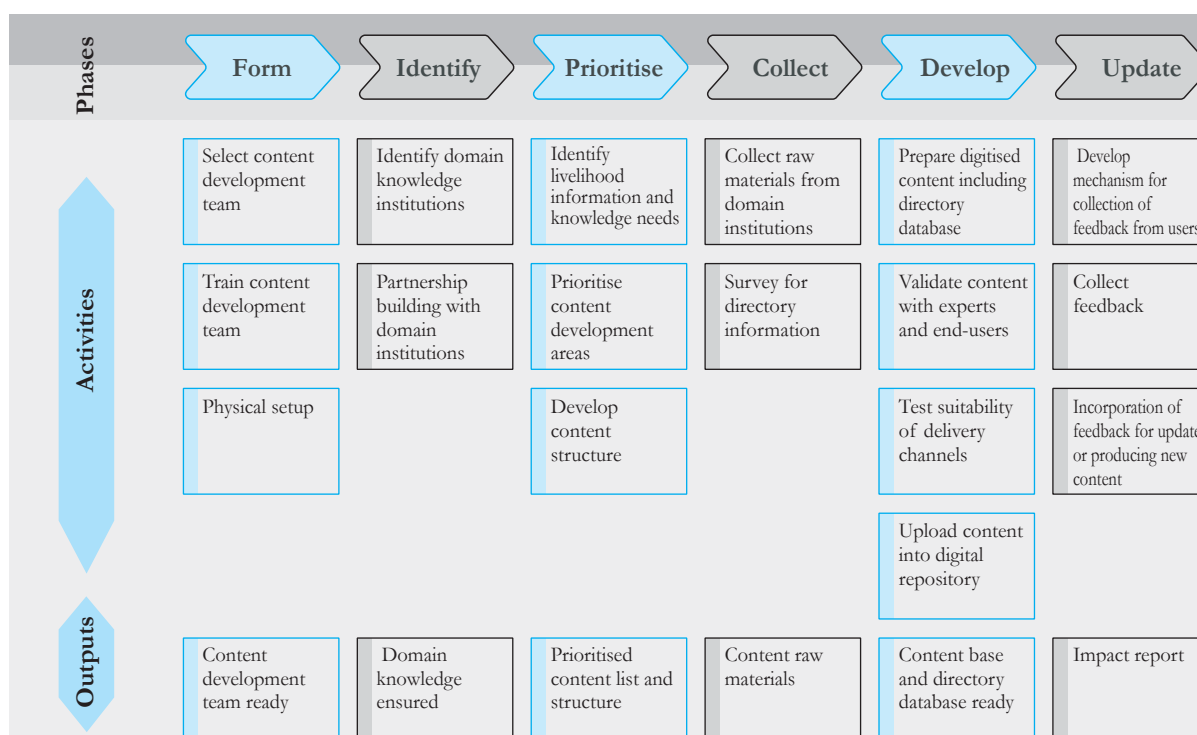


Figure 1: Content development flowchart

3.3.2 Content validation

Test of usability by user and infomediary: The developed content was demonstrated to the end users and was initially validated by them in terms of usefulness and effectiveness of content and relevance to specific problems. The first hand user of the content was the *infomediary* working in the *Pallitathya Kendra*. Their feedback on content was enormously important for content development. In this research *infomediary* feedback had been captured in two phases:

- During their training *infomediaries* were asked questions and told to describe real life problems as a villager (roll playing session)

and the research team provided answer by searching the content database. The input primarily helped the research team to concentrate more on content structure and language;

- After launching of the *Pallitathya Kendra*, *infomediaries* provided feedback on three issues when they used content for responding to queries, e.g. new content demand, incompleteness of existing content and lack of readability.

Validation by expert: Developed content was also validated by experts and specialists of each livelihood areas. Main functions of the experts/specialists were

- to validate content
- to provide references for relevant data
- to help prioritize content items according to needs of end-users
- to respond to questions and issues raised by end-users that were channelled to them by the Help desk.

3.4 *Pallitathya Kendra* establishment and operation

Pallitathya Kendra is a common access point in the community for getting livelihood information and services using information and communication technology. The *Kendra* provides livelihood information on agriculture, fisheries, poultry and livestock, health, legal and human rights, education, non farm economic activities, appropriate technology, awareness, rural employment, disaster management, directory etc. as well as some ancillary services which demand to the people and does not create conflict with the information service. D.Net has established four *Pallitathya Kendras* around the country with support of RIB, IDRC and its own resources.

3.4.1 Local level set-up

- a) Consultation was done with local civil society and leaders to find a suitable location in the village. A tin-shed building was selected which was close to the local market, roadside and women had easy access to the place.
- b) Partnership was the key for establishing local level ownership. D.Net mobilised local groups to allocate space for the centre, free of cost. D.Net incurred cost of refurbishment of the centre.
- c) A local steering committee was formed for centre operation. The major role of the steering committee was defined as to provide strategic guideline to the centre staff, mobilise villagers and intervene in case of any crisis situation related to centre operation.

- d) Physical set-up of the centre was accomplished in November 2005 with 3 desktop computers, 1 printer, 2 mobile phones, 1 digital camera, 1 nebuliser, 1 blood presser measuring machine, weight measuring machine, soil test kit, by-cycle, content database and necessary documentation materials and furniture. Internet connectivity through GPRS facilitated strengthening communication and documentation facilities.
- e) A centre manager, two *infomediaries*, a mobile lady and a security guard have been recruited within the village level for providing services.
- f) A user-tracking system was developed to keep regular profile of service recipients. This system helped to preserve some basic information of the user groups including name, sex, age, location etc. as well as the service category received by the people.

3.4.2 Central set-up

A Help Desk was set-up centrally at D.Net office with eight domain specialists on agriculture, health, legal & human rights, education, non farm economic activities, appropriate technology, disaster management and miscellaneous. The basic hardware components of the Help Desk were mobile phone with headsets, computer, voice recorder, printer, content base and directory database. The setup mainly emphasised on live consultation of villagers with the expert group. In some cases, the response was not available in the content base located at the centre, where the *infomediary* connected the villager with expert at the help desk through mobile phone. In addition, when the mobile lady moved door to door the help line was in operation.

The biggest challenge for setting up of the Help Desk was to identify suitable personnel for the task, as the Help Desk was not simply responding to the questions of the villagers. The Help Desk researchers had to develop some special skills to accomplish a set of activities. When a call started, s/he had to receive the call, start recording the conversation, listen to the query, search answer to the query, search the answer from database,

provide a serial number to the mobile Infomediary and finally save the recorded conversation in a database software. As all calls came from villages and most of the villagers were poor, it was important to make a call for not more than one or two minutes. Thus, within a short time, Help Desk Associates did perform all these tasks sequentially. A rigorous training was provided to the Help Desk Associates.

3.4.3 Development of a set of Services

Pallitathya Kendra offered a range of services, which falls under two categories: i) livelihood information and ii) necessary ancillary service.

Livelihood information: Livelihood information was the core service, which was provided from the *Pallitathya Kendra*. Four different channels were used to deliver livelihood information viz. i) digital offline livelihood content in Bangla language titled iJeeon-IKB [Information and Knowledge Base]; ii) mobile phone based Helpline; iii) video documentary and iv) internet browsing in some cases.

i. Digital offline livelihood content (Jeeon IKB): *Jeeon IKB* is a off-line content database which has been developed in Bangla and aimed at improving livelihood through accessing required information and knowledge for solving various livelihood problems [See Annex A for detail of *Jeeon-IKB*]. *Jeeon IKB* is particularly suitable for rural people ñ even those unable to read and write, with the assistance of *Infomediary*. People get response to daily queries such as what, where, why, how in ten areas of livelihood information requirement. Information from the *Jeeon-IKB* is provided in two ways; by self-browsing and by getting information verbally with the help of infomediary. A user also can take information in print form for preservation if s/he finds it useful later.



Figure 2: Snap of *Jeeon-IKB* browser (www.jeeon.com)

ii. Mobile phone based Helpline: Helpline is designed for providing livelihood information through mobile phone by experts. Mobile *infomediary*, generally a female information worker called 'mobile lady' goes door to door in rural area to assist the villagers asking their livelihood related queries using the mobile phone to the helpdesk where experts in different fields answer those questions. There are four options to ask question and to receive answer from the Helpline, i) asking question and receiving response through mobile phone instantly, ii) asking question and receiving answers within three days through mobile phone; iii) asking question through mobile phone and receiving answer through email/letter within 7 days and iv) asking question and receiving answer through letter/email 15 days. Selection of option depends on urgency and the availability of information with the expert panel. Experts are generally subject matter specialists sitting at the help desk to respond to the queries of the villagers.



Figure 3: Mobile *infomediary* is helping the villager for asking livelihood queries to the Help Desk

iii. Video documentary: Video documentary is another key effective channel to deliver necessary livelihood information to the villagers. Two types of video film have been shown to the villagers: videos related to new income opportunities and improving production and marketing, and videos related to rising awareness on various livelihood issues including empowerment of underprivileged groups. Entertaining educative cartoon films like *Mina* are also shown to kids.



Figure 4: Kids are watching video documentary for livelihood information

iv. Internet browsing: In some cases internet browsing was another channel for collecting examination result, reading daily nationals, searching job information etc.

Ancillary services related to income generation: Soil test, photography, composing and printing, commercial mobile phone service, internet browsing and email, nebuliser on rent, blood pressure measurement, height and weight measurement, admission service, DV application, scanning and government forms are the ancillary

services integrated with the *Pallitathya Kendra* for income generation based on the demand within the community. Ancillary services have been identified through research, which were not competitive with the core information services. The description of ancillary services is as follows-

Table 1: Description of ancillary services selected for the *Pallitathya Kendra* at Babrijhar, Nilphamari

Ancillary Service	Service description
Soil test	Soil quality testing facilities are available in the <i>Pallitathya Kendra</i> . Based on the soil test result the farmers are advised on selection of crop and appropriate application of fertiliser based on soil quality.
Photography	Photography service is available in the <i>Pallitathya Kendra</i> based on the demand for educational, recreational, employment application etc.
Composing and printing	Composing and printing facilities are available for maximum utilisation of computer and printer in the <i>Pallitathya Kendra</i> . The service is availed by educational institutions, individuals, local NGOs.
Commercial mobile phone	Mobile phone in the <i>Pallitathya Kendra</i> is mainly used for livelihood consultation with experts at help desk. For maximising utilisation of this phone, villagers also can use the phone for general phone calls. The general call service is also available with Mobile Infomediary, who visits door to door with mobile phone.
Internet use	Internet facilities are available for those who can use computer themselves, for accessing various types of web sites, e-mail, chat etc.
Height and weight measurement	It was another popular service provided from <i>Pallitathya Kendra</i> . People measure their body weight and height. The measurement state of physical fitness from a balance chart is provided to the users. This information is then used for collecting health information from the <i>Jeeon IKB</i> or through consultation with doctors at help desk.
Admission form service	This service is offered to the higher secondary students. This service helps them to save their travel and accommodation cost for collecting admission form physically from the universities.
Diversity Visa application	This is a derivative internet-based service. Generally villagers travel to town and sometimes district head quarters for this application. Following the demand by the villagers this service was attached in the <i>Pallitathya Kendra</i> .
Nebulizer rental	In the area, the occurrence of asthma disease is high. Village doctors cannot afford to buy nebuliser to treat patients. Now they can rent nebuliser form the <i>Pallitathya Kendra</i> and treat their patients.
Blood pressure measurement	People in the area can measure their blood pressure with the help of Infomediary or by a village doctor.
Government forms	Bangladesh government produced digital forms for application of pass port, visa, driving license etc. Those forms are now available in the <i>Pallitathya Kendra</i> and people easily can take print as per their requirement.

3.4.4 Operation process of *Pallitathya Kendra*

Pallitathya Kendra functioned with one Centre Manager (male), one mobile *infomediary* (Female) and two *infomediaries* (male and female). Operation of *Pallitathya Kendra* is continuing with good reputation even after the project period. The Kendra could create trust within the community and people visited *Pallitathya Kendra* to receive various services. The Kendra was open for the community people seven days a week, except national holidays. The working hour of the Kendra was 0900 ñ 1700 hours. The schedule for the information worker was made in such a way so that each worker could enjoy a weekly holiday.

The activities of the Kendra are presented in Figure 5. Everyday one *infomediary* stays in the *Pallitathya Kendra* to provide information and ancillary services to the people. One *infomediary* stays in the field to collect queries and carry the response next day collected from the Kendra.

Another *infomediary* conducts group meeting with different groups for promoting *Pallitathya Kendra* services. The *infomediary* collects livelihood questions from the meeting and provides information either in the next meeting or invite them to the Kendra. The mobile lady goes to households in the village and listens to the problem of women. If any one wants to ask a question and the mobile *infomediary* can understand that the response to the question is available in the Kendra database then she does not forward the question to the Helpdesk, rather she brings the question to the Kendra and searches out the answer from the content database and provides it to the woman who asked it. The *Pallitathya Kendra* organises thematic campaign that helps linking local service providers and rural people for better service. The *infomediary* also sends feedback to the D.Net head office on new content requirement and improvement of quality of existing content.

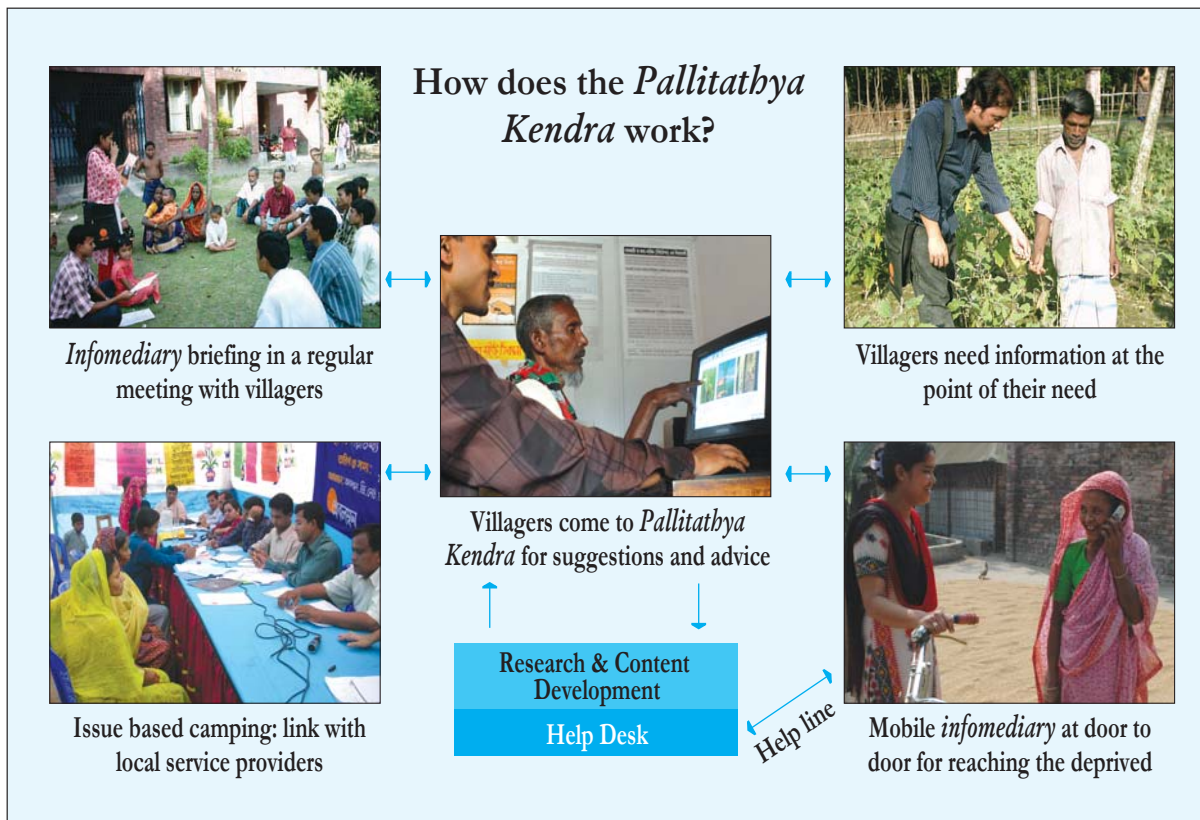


Figure 5: Regular function of *Pallitathya Kendra* at Babrijbar, Nilphamari

3.4.5 Pricing of services

Usually no service provided from the *Pallitathya Kendra* is free of cost. The pricing for livelihood information was fixed through consultation with the community people and local partners. In fixing the price for ancillary services existing market price was also assessed. Based on the reaction of the community people to the price list, it is revised occasionally (Annex-B).

3.5 Development of the concept of information intermediary

In making ICTs useful to the rural poor, the second critical question was how rural people who all are computer-illiterate and at least half of them alphabet-illiterate can take benefit of ICTs. The safe assumption was that most targeted end users of information services through *Pallitathya Kendra* are non-users of most of the ICTs available there. For instance, a farmer or an old man with asthma or the divorced housewife will hardly have any training to sit down at a keyboard and mouse and search for the information they are seeking. A farmer can describe his crops and ask for the going rates at different accessible markets; the old man with asthma can describe the symptoms of his ailment and ask for locations, fees and schedules of relevant doctors; the divorced housewife can explain her situation and ask for a possible recourse.

In each of these situations there is a need for a physical person who knows how to understand the end user's specific situation and find a solution in the *Jeeon-IKB*, in the websites or contact an experts at the help desk. This is precisely the role of the information worker or knowledge worker, a kind of information

intermediary or *infomediary*. The need for human interface between the contents and the ultimate users is thus dictated by the problem of illiteracy, lack of affordability, and cognitive aspects etc. Regarding the a human interface it was thought that it will be not possible to hire that interface from urban area again for feasibility reason. Thus, this person was identified within the village, where *Pallitathya Kendra* is located. The skill mix of the *infomediary*, the human interface for content dissemination to the rural people, was in strong correlation with style of presentation and readability of the content without losing their usability. The nature of content development was also dependent on cognition of the ultimate users and the *infomediary* how a villager asks a livelihood question or how s/he describes a livelihood problem. How an *infomediary* searches answer to the query or problem is also an important factor. In this regard, infomediary identification is a critical element for making the ICTs useful to the rural people.

Identification of *infomediary*: Identification of *infomediary* was a major challenge during the research phase. A set of criterion was developed earlier for the proper identification of *infomediary*. It became too difficult to find people with all required qualification and traits. Community involvement was instrumental in identification of Infomediary. The major challenge was to find someone with knowledge. At the beginning it was thought that Infomediary training would only focuses on information centre management and operation. Later it was observed that understanding of community lifestyle is not less important. To mitigate the challenges D.Net had taken a number of measures, which are elaborated in the Table 2.

Table 2: Challenges and strategies to mitigate *infomediary* skills

Challenges of the <i>infomediary</i> skills	Strategy to mitigate those challenges
Lack of computer skills	The training program included separate training on computer and Internet
Lack of understanding about livelihood problems and questions	A separate component in the training module was incorporated so that infomediary can identify key words from a problem described by a villager and then search information on that in the <i>Jeeon-IKB</i> .

Challenges of the <i>infomediary</i> skills	Strategy to mitigate those challenges
Deficit in communicating skills	The strategy was to find someone who has natural communication ability. After that simulation training was conducted so that the potential infomediary can understand the behavioural pattern with potential users.
Skills for quick learning	The nature of <i>infomediary's</i> role is such that she or he will have to learn new things very often to provide new services to the community. For that an Infomediary needs to learn and acquire new knowledge intuitively or quickly under guidance. Thus, during the identification of Infomediary, a test was developed to find quick learners.
Reading habit	Reading habit is important as the job of the Infomediary is to search, read and interpret content to ultimate users. Thus emphasise was given to those people who had reading habits.
Time management	<i>Infomediaries</i> were trained on how to prepare weekly and monthly work-plans and follow it accordingly
Documentation	A documentation manual was developed in Bangla and distributed among Infomediaries
Intention to promote ancillary services over content services	<i>Infomediaries</i> were more interested on promoting ancillary services because these were already popular among villagers. This effort sometime undermined information services. To mitigate the problem monthly target were fixed for the Infomediary emphasising for disseminating information services to the villagers. Besides, another attempt was made that; while <i>infomediary</i> visited villages for mobilisation, they were asked to bring questions and deliver responses in another day when they visited the same people, like 'post-man' services.

3.6 Mobilisation and promotion

3.6.1 Mobilisation

Inauguration of the Pallitathya Kendra: The inauguration of *Pallitathya Kendra* was the entry point for creating awareness. Villagers and members of local civil society were invited to the inaugural programmes.

Workshop: Grassroots level workshop played important role in mobilization of villagers which started from location selection, later during baseline survey. Local meetings with participation of groups of people were also very effective.

Camping: Issue based camps to offer face-to-face consultation to the villagers through participation of local service providers was also effective for creating positive image of the *Pallitathya Kendra*. Three legal camps were organized to provide advice on legal and human rights issues and consultation with the village people of Nilphamari district. The purpose of the camp were legal counselling, to raise legal

awareness and provide legal aid to the local people as per their needs. Representatives of the local government institutions participated in the camps and extended their support in providing legal aids to the community people. One health camp in the area was organised to promote the health content for access to health information as well as to provide primary medical treatment and to raise health awareness of the rural people. One education camp was conducted to promote the education content among students and teachers.

Consultation meeting with different groups of people: Consultation meetings were arranged with local business people, village doctors, farmers, students and women separately on how to make *Pallitathya Kendra* more effective to provide required information by them and create working relationship with the *Kendra*. A group of students worked as volunteers for the *Pallitathya Kendra*, they also used the content based information and browsing internet at a reduced price. Village doctors, students, farmers, business people and other professional group of people

shared their experiences and provided necessary input which was potential to make the content more resourceful.

Pallitathya Kendra decoration and rearranging: It was observed that the office centric arrangement virtually excludes the direct users of the computer and the Internet. Furthermore, this arrangement did not allow rural people to see how the required information is retrieved from the content base. Thus, the arrangement at the *Pallitathya Kendra* was changed which improved public access to the facilities. The display board for job advertisement was put outside the room for easy access without intervention of Infomediary. A news paper reading table was also placed on the centre corridor as people easily could read the daily newspapers. The Kendra was made informative with posters, leaflets, notice board so that people could be aware of services available in the Kendra as well as get some valuable information. After re-arrangement of the *Pallitathya Kendra* it appeared more spacious, the outside arrangement started to attract more people. Children gathered to read contents and watch movies and mothers were encouraged to see their children looking at the posters.

Cartoon show: Cartoon is the most effective tool to mobilise students and children. Regular cartoon show was arranged in the *Pallitathya Kendra*, where children, their friends, sometimes their mothers came to watch the video cartoon. The cartoon show became a very good promotional tool for the *Pallitathya Kendra* as children carried the impression and discussed with their parents, who eventually showed interest to visit centres.

3.6.2 Promotion of *Pallitathya Kendra* activities

Posters, sign board, banners were developed and displayed in different important places of the villages for promotion of services. Leaflets were also produced for distribution among villagers. *Pallitathya* bulletin was published every month (supported by IDRC) and distributed among the people through which they could receive information on livelihood issues in print and they

could preserve those. A promotional video documentary was also produced and displayed in the *Pallitathya Kendra* and different places for promoting services and activities of *Pallitathya Kendra*.

3.7 Documentation

A through documentation process with a number of formats was developed to track easily the service recipient of *Pallitathya Kendra* as well as to maintain the financial status. User ID card, service form, money receipt, video show registrar, daily income registrar, bank registrar, daily income-expenditure registrar, salary *authorisation* sheet, incentive bonus form, leave registrar, salary register, receipt of asset for centre operation, asset register formats were developed and used to take records of the data in the *Pallitathya Kendra*. The Kendra provided user ID card to every service recipient with an ID number and the ID number helped to track the service recipients. Profile of service recipients recorded in the service forms helped to analyse the recipients' profile, questions, category of service received and revenue earned from a single user. All documentation formats facilitated the smooth operation of *Pallitathya Kendra* as well as helped to maintain transparency and timely production of monthly report (See Annex C).

3.8 Development of local ownership

Local ownership and management was thought to be crucial for monitoring and operation of the *Pallitathya Kendra*. It was always very difficult to make the people understand the possible outcomes of the project, which they could not visualise before it was grounded and started functioning. Until the project activities started to show benefit for them, they remained generally skeptic. Villagers or local organisations could not imagine the potential benefit of the *Kendra* until it was demonstrated to them. The Kendra was established with a decision of all stakeholders of the village. As D.Net was skeptic about the scope for establishment of the centre for various reasons, that meeting decided to invite D.Net to establish the centre and took the responsibility of protecting it from any interference from any group.

4. FACTS AND FIGURES

4.1 Service recipients and coverage of *Pallitathya Kendra*

Pallitathya Kendra at *Babrijar*, Nilphamari was inaugurated on 26 November 2005 and functioned for 258 days during the project period ended on 31 August 2006. During the research period, a total of 2,337 service recipients received livelihood information and necessary ancillary services from the *Pallitathya Kendra*.

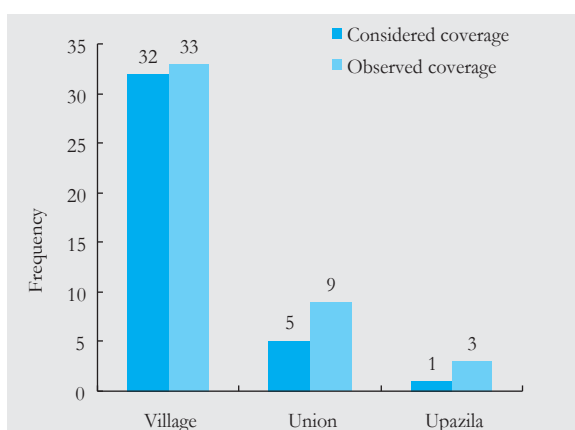


Figure 6: Coverage area of the *Pallitathya Kendra* at *Babrijar*, Nilphamari

Initially, the coverage area of the *Kendra* was 32 villages, 5 unions and 1 *upazila*. However, the record of service recipients shows that people from 33 villages, 9 unions and 3 *upazilas* around Nilphamari district came to the *Pallitathya Kendra*

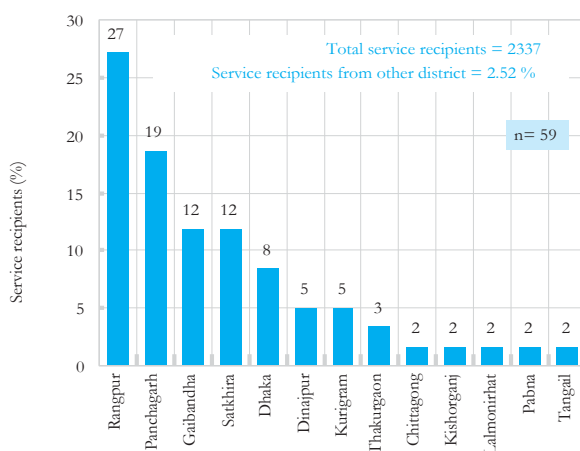


Figure 7: Service recipients from other districts during November, 05 to August, 06 at *Babrijar Pallitathya Kendra*

(Figure 6). Simple word of mouth may have caused such influx of visitors from outside the project area.

In addition, it was found that only 2% of the total population under the project area received various services from the *Pallitathya Kendra*, which is around 13% of households. Moreover, a total of 59 service recipients (2.52% of total users) came to the *Pallitathya Kendra* from other districts of Bangladesh. Out of which, the highest of 27% service recipients was recorded for Rangpur followed by 19% for Panchagar, 12% for Gaibandha, 12% for Satkhira, 8% for Dhaka, 5% for Dinajpur, 5% for Kurigram, 3% for Thakurgaon and collectively 2% for Chittagong, Kishoreganj, Lalmonirhat, Pabna and Tangail (Figure 7). People from other districts received services when they lived in this area with their relatives and/or some of the people received services when they visited the *Kendra* to know about the operation of the *Pallitathya Kendra*.

4.2 Temporal trend of service recipients

Weekly average number of service recipients was calculated to be 58 during the research period, where the highest number of users was 164 during the 24th week and the lowest number was 2 in 27th week (Figure 8). The highest number of service recipients was recorded during the health camp organised in that week.

A cyclical trend was observed in the number of recipients visiting the *Kendra*. An explanation of such trend can be obtained through analysis of the number of visitors by month.

Monthly average service recipient was found to be 234 during the research period, where the highest was at 383 in December, 2005 and the lowest at 15 in November, 2005 while the second lowest was at 123 in March, 2006. The lowest number of service recipient in the month of November, 2005 was due to the fact that the operation of *Pallitathya Kendra* started in the month and the number of working days was only 5. On the other

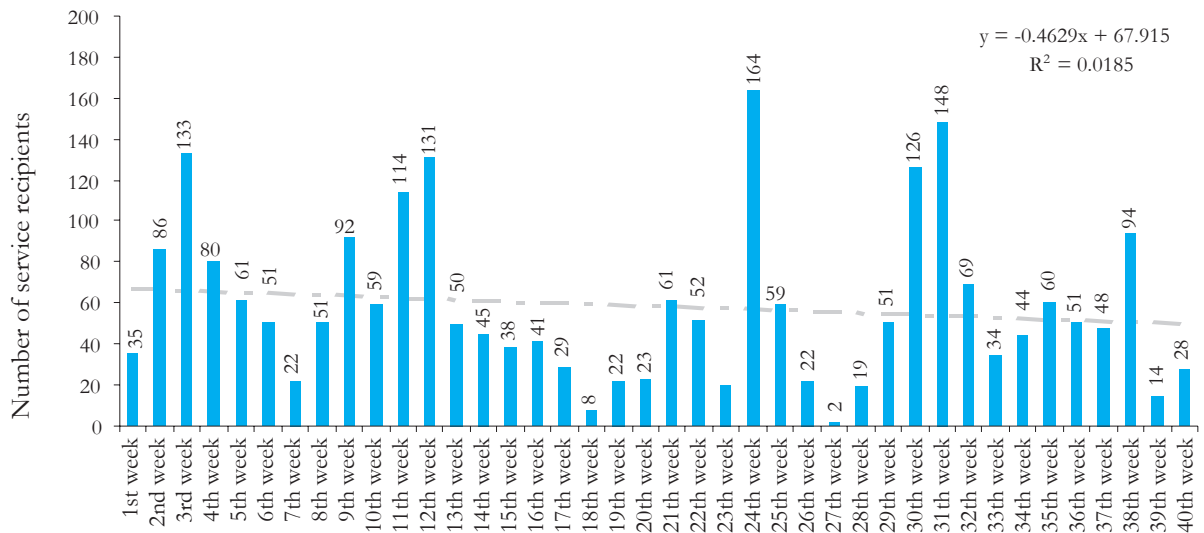


Figure 8: Weekly trend of service recipients at Babrijbar, Nilphamari Pallitathya Kendra during November 05 to August, 06.

hand, initially people in the area was curious about the Pallitathya Kendra so the highest number of people responds for receiving services in December 2005, during which the most of the recipients (59% out of 383) received body weight measurement service from the Pallitathya Kendra (Figure 9).

From March, 2006 number of service recipients increased sharply upto June, 2006 and again it decreased in the following months. The increasing trend may be attributed to the redecoration and rearrangement of Pallitathya Kendra that held in April, 2006. In the last two months, the staff of the Pallitathya Kendra were mainly engaged in camping and workshop that might have contributed in reducing the number of service recipients. However, the linear trend line clearly shows the general increasing trend of service recipients over the months and their

relationship was weakly positive ($R^2=0.0223$) but significant ($t=6.284$, $df=9$) at 5% level (Figure 9).

4.3 Monthly growth rate of service recipients

Growth rate of service recipients was calculated by using the formula $[(m_2-m_1)/m_1]*100$. During the research period, positive growth rates of service recipients were found 64%, 56%, 34%, 57% and 33% in the months of December, February, April, May and June respectively whereas, the negative growth rates were observed 38%, 67%, 30% and 17% in the months of January, March, July and August respectively (Figure 10). The average growth rate was 10% per month, where, the average positive growth was 49% and the average negative growth was 38%. The combined average growth rate of 10% indicates the positive general trend of growth over the months.

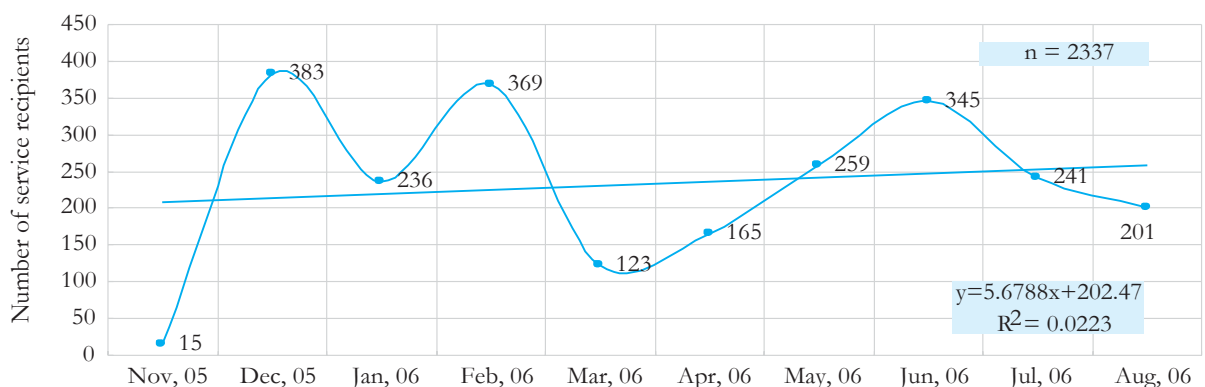


Figure 9: Monthly trend of service recipients for Babrijbar Pallitathya Kendra during November, 05 to August, 06



Figure 10: Monthly growth rate of service recipients for *Babrijbar Pallitathya Kendra*

4.4 Information Vs ancillary service recipients

Out of 2,337, 46.64% (1090) received livelihood information and 53.36% (1,247) received ancillary services from the *Pallitathya Kendra* during the research period. Monthly average information service recipients was 109 where the ancillary service recipients was 125. Figure 11, shows that the number of information service recipients varied by monthly interval but it increased sharply during March to June, 2006 and decreased in the following two months.

Regarding the ancillary service recipients, it was quite high in December, 2005 but decreased in March, 2006 and recovered slightly in the following months up to August, 2006 (Figure 11). Analysis of variance indicates that the inter relationship between information and ancillary service recipients was insignificant ($F=0.222$, $df=19$) at 5% level i.e. the information and ancillary service recipients was not related unit each other.

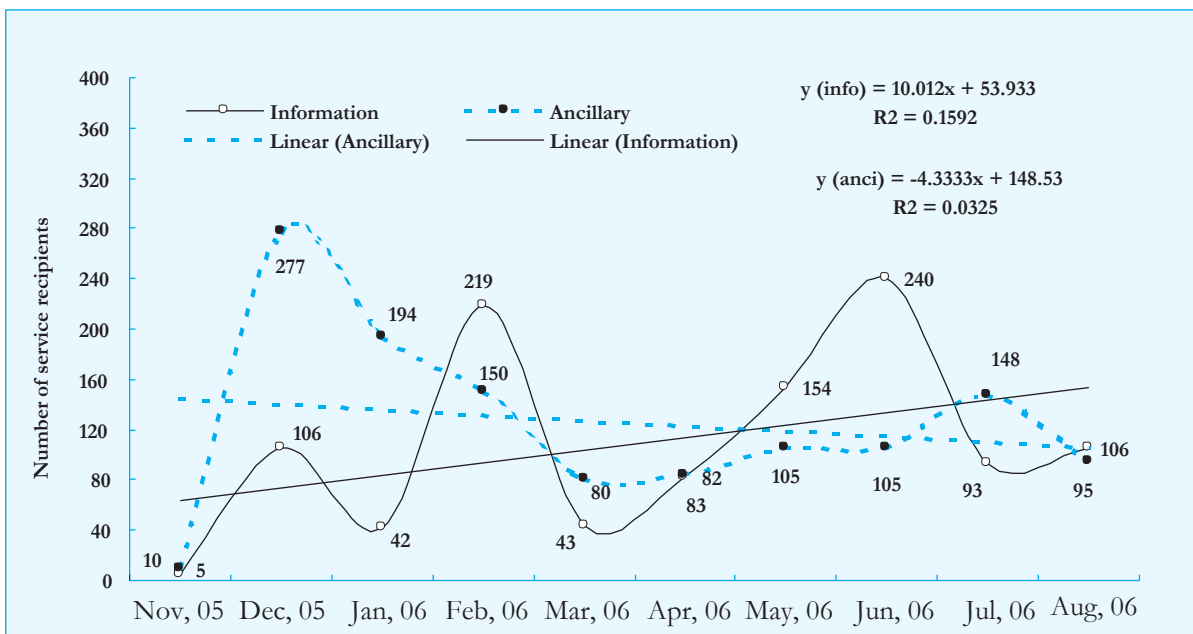


Figure 11: Monthly trend of information and ancillary service recipients for *Babrijbar Pallitathya Kendra* during November, 05 to August, 06

4.5 Operational manual

An operation manual for *Pallitathya Kendra* was developed in Bangla with text and graphics which helped the *infomediaries* to work systematically after receiving training (Annex-C). The manual included the guidance on how to provide information services through different channels, browsing technique of offline CD based content (*Jeeon-IKB*), use and operation technique of different equipments, steps to be taken to organise a thematic campaign, reporting style of meeting findings, search address of important websites and the proper ways of maintaining the accounts and administration related documents.

4.6 Business model

Development of a business model for sustainability of the *Pallitathya Kendra* after the project phase, was one of the objectives of this project. For making the *Kendra* autonomously functional, one of the key conditions was to make it financially viable. The idea of business model was centred on generating enough income so that dependence on project income is reduced. Thus, a number of ancillary services have been introduced which would generate income. Variety of ancillary services like photography, computer composing, soil test, blood pressure measurement, nebuliser use, body weight measurement, internet use etc. were integrated within the information services, as core activities of the *Pallitathya Kendra*. Tagging ancillary services with the information services to make the *Pallitathya Kendra* financially viable was a new idea not only in Bangladesh, but also in the global context.

Babrijar Pallitathya Kendra could earn from selling both information services and ancillary services. A total of BDT 12,406 was earned through providing both the information and ancillary services during November, 2005 to August, 2006. Income from the information services was BDT 5,019 which was 41% of the total income, and BDT 7,387 (59%) was earned from ancillary services. Among the information service categories, the highest of BDT 2,206 came from Helpline and the lowest BDT 116 from video

documentary. Among 1090 information recipients 26% received information using different channels free of cost and 74% received on payment. Total 58 information recipients watched video documentary and each paid only BDT 2.00 to enjoy it once. It was recorded that a total of 64 (34% of total *Jeeon-IKB* user) information recipients received information from *Jeeon-IKB* free of cost. A total of 221 (78% of the total participants in campaign) information recipients participated in campaign free of cost. Only 3 (0.73% of total Helpline user) information recipients used Helpline free of cost. No information was provided free of cost through video show or through Internet browsing.

Of the ancillary services, the maximum revenue of BDT 2,733 came from computer composing and the minimum of BDT 30 from selling government forms. It is to be mentioned that although the operation of *Pallitathya Kendra* started in November, 2005, photography and internet service started from April, 2006 and government forms started from June, 2006. Moreover, soil test and nebuliser or rent was a seasonal service.

The monthly average revenue of the *Pallitathya Kendra* is BDT 1378.00, which covers 9% of operating cost. As the monthly growth of revenue is 27%, it is expected that by next 3.5 years the centre will be able to recover fully the operating costs. Another important aspect is that, if people get benefit from the services, which is much higher than the price paid, and then there would be scope for charging normal price.

In terms of meeting information needs there is no doubt that the project was very successful. However, it is felt that for having a viable business model for *Pallitathya Kendra*, the one-year period is not adequate because of the following reasons:

i) Seeking information through ICTs for improving livelihood is a new phenomenon for the rural community. Seeking information from a source, which was previously unfamiliar to the community, is a matter of behavioural change, which does not happen in a short period of time;

Table 3: Monthly revenue earned by *Babrijhar*, Nilphamari *Pallitathya Kendra* from November, 2005 to August, 2006

Service items	Nov, 2005	Dec, 2005	Jan, 2006	Feb, 2006	Mar, 2006	Apr, 2006	May, 2006	Jun, 2006	Jul, 2006	Aug, 2006	Total (BDT)
Revenue earned from livelihood information service											
Jeeon	6	157	25	75	36	0	4	12	10	5	330
Helpline	8	150	140	720	263	14	9	579	103	208	2206
Video	0	0	0	10	2	82	8	10	8	8	116
Internet browsing	.	.	.	.	.	0	0	1131	273	18	1422
Campaign	.	.	.	0	.	0	0	.	0	945	945
Subtotal (BDT)	14	307	165	805	301	96	21	1732	394	1184	5,019
Revenue earned from ancillary service											
Soil test	0	25	0	0	0	25	0	0	0	0	50
Nebulizar rental	0	160	0	0	0	21	200	210	300	440	1331
Weight measurement	7	226	149	108	51	39	40	47	52	33	752
Blood pressure measurement	.	112	56	133	35	21	7	49	21	28	462
Photography	.	.	.	.	.	14	250	300	630	150	1344
Computer compose	24	378	369	168	140	244	288	223	307	592	2733
Commercial phone	0	65	105	80	75	75	140	60	85	0	685
Government forms	.	.	.	.	.	.	.	30	0	0	30
Subtotal (BDT)	31	966	679	489	301	439	925	919	1395	1243	7,387
Total (BDT)	45	1273	844	1294	602	535	946	2651	1789	2427	12,406

ii) Seeking information for improving livelihood on payment is a double challenge;

iii) Nilphamari is one of the poorest districts in the country and *Babrijhar* is also a very poor area, where demand for services is scanty. Information services are public goods, which benefit the community, but due to poor purchasing power, willingness to pay is low.

The experiment with pricing gives following cues about business model:

a. Due to behavioural issue, the number of service recipients is still low. This number of users would increase, if the centre operates for longer period;

b. Efforts for adding new services, which are in demand in the community would increase income of the centre;

c. Efforts for cost reduction are important. Possible areas of cost reduction have been identified:

- i. Cost of hardware
- ii. Low cost power back-up
- iii. Cost of internet connection
- iv. Phone charge
- v. Cost of content

d. In location of high poverty incidence, the demand for information services is low; however, information services could give maximum benefit in these locations. Thus, the business model is not only about generating income, but about sourcing financial and other resources, which would keep the centre functioning. The business model looks as follows:

Table 4 : Busiuess model matrix

Type of cost	Possible sources of financial resources	Possible source of in-kind resources
Space	Investment by local entrepreneurs	Union Parishad building
	Investment by local social organisations	Post-office
	Investment by government	Health complex
	Investment by community members	School
		Any place offered by local philanthropists
Hardware	Investment by local entrepreneurs	—
	Investment by local social organisations	
	Investment by government	
	Investment by community members	
	Partial or full financial support by development partners	
Human resource capacity building	Investment by local entrepreneurs	—
	Investment by local social organisations	
	Investment by government	
	Investment by community members	
	Partial or full financial support by development partners	
	Support by capacity building organisations in private and non-profit sectors	
Recurring cost including staff salary	Government support through local government institutions	Voluntary service by community youth
	Income from service selling	
	Contribution of community members	

The combination of sources would vary place to place, but would be adequate for maintaining the centre operation.

5. ANALYSIS OF IMPACT

5.1 Peoples visited repeated time for receiving services

Out of total service recipients, 40% of them received variety of services more than one time from the *Pallitathya Kendra*. Among the information recipients 26% visited *Pallitathya Kendra* more than once with different information requirements, while, for ancillary service 52% of recipients came more than once in the *Pallitathya Kendra* (Figure 12).

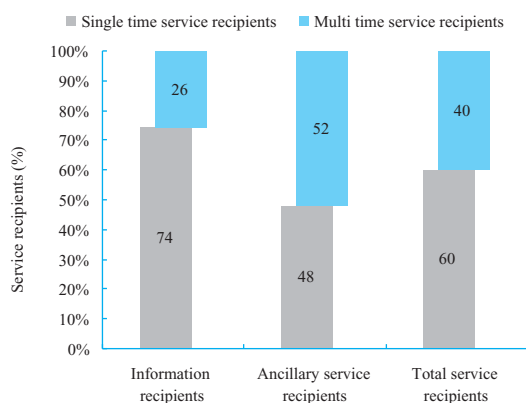


Figure 12: Repeated service recipients from *Babrijbar Pallitathya Kendra* during November, 05 to August, 06.

5.2 Gender distribution of service recipients

Males were found to be the majority with 65.68% of service recipients as compared to 34.32% of female in *Nilphamari Pallitathya Kendra* (Figure 13). In connection with broad categories of services, male recipients were slightly higher with 53.49% in case of information services (583) were whereas, they strongly dominated with 76.34% in case of ancillary services (Figure 14).

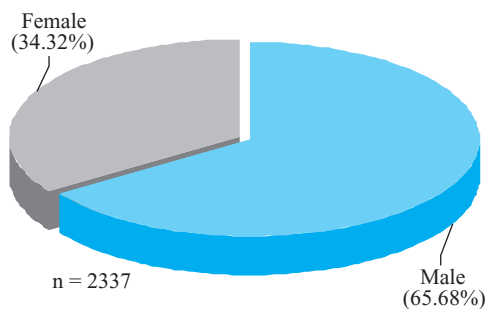


Figure 13: Gender distribution of service recipients from November 05 to August 06 at *Babrijbar Pallitathya Kendra*

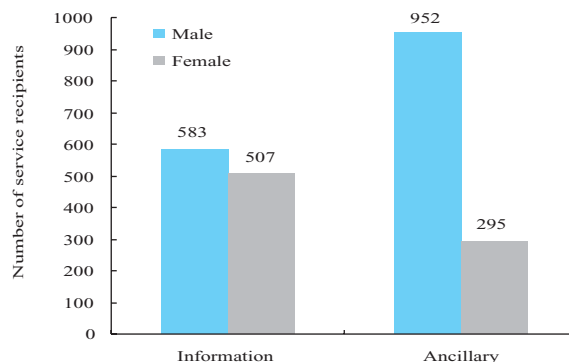


Figure 14: Gender wise information and ancillary service recipients from November 05 to August 06 at *Babrijbar Pallitathya Kendra*

Females in the rural areas generally do not move outside their homes, and so they are expected to be less frequent in receiving information directly from the *Pallitathya Kendra*. However, the participation of female for receiving livelihood information was much higher than expected because of the initiatives of the mobile *infomediary* who moves from door to door with mobile phones for reaching information at the door step. In addition, *infomediaries* collect required questions from the female and provide answers directly to their homes using different ICTs. On the other hand, most of the ancillary services can be made available to the recipients only from the *Pallitathya Kendra*. Lower participation of females as recipients of the ancillary services may be attributed to the fact.

5.3 Marital status of service recipients

Figure 15 shows that unmarried people were the highest service recipients with 57.21% followed by 41.55%, 1.20% and 0.04% for married, widow and divorcee respectively. The distribution of unmarried group were 57.37% as the recipients of ancillary services and 42.63% as the recipients of information services (570), whereas married and widow concentrated on information services with 51.18% (497) and 78.57% (22) respectively.

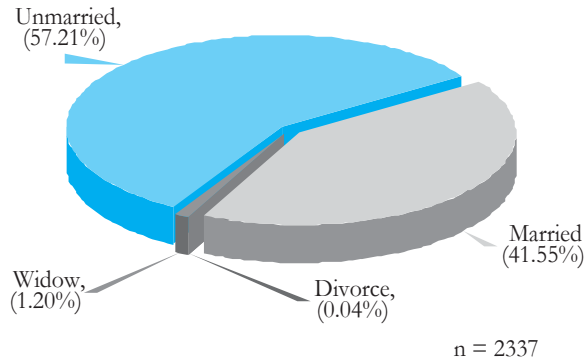


Figure 15: Distribution of service recipients by marital status from November, 05 to August, 06 at Babrijhar Pallitathya Kendra

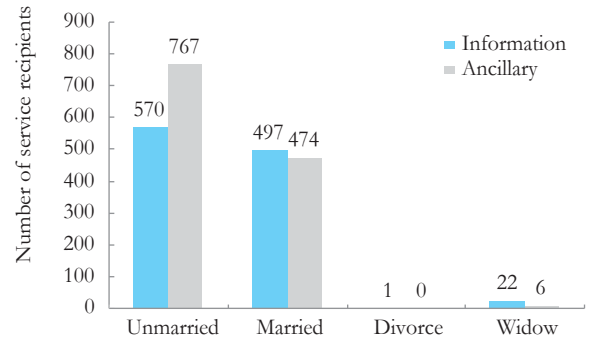


Figure 16: Distribution of information and ancillary service recipients by marital status from November, 05 to August, 06 at Babrijhar Pallitathya Kendra

5.4 Service recipients by age group

It was found that the young peoples (11-30 years) were the majority of service recipients (69.15%) from the Pallitathya Kendra. Service recipients of young age at the range of 11 to 20 years ranked first (45.79%) followed by 21-30 years, 31-40

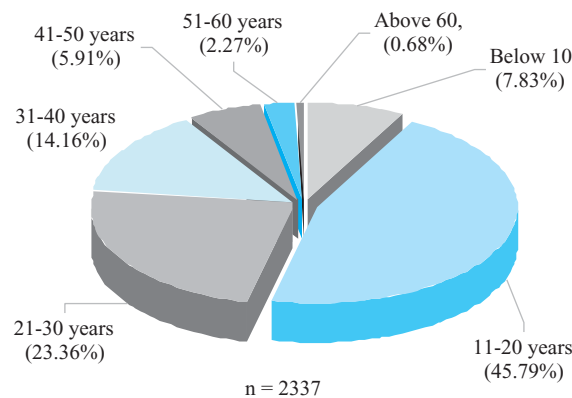


Figure 17: Service recipients by the different age group from November, 05 to August, 06 at Babrijhar Pallitathya Kendra

years, below 10 years, 41-50 years, and 51-60 years with 23.36%, 14.16%, 7.83%, 5.91%, 2.27% respectively. Above 60 years age group of people was the lowest (16, 0.68%) service receiver from the Pallitathya Kendra (Figure 17). The young group were found to be highly motivated in the area having huge livelihood information demand. Moreover, location of the Pallitathya Kendra also mattered. They were in a position to use the Pallitathya Kendra services in their common gathering place.

Data analyses on the information and ancillary service recipients separately came up with similar findings. The recipient of the age group of 11-20 years ranked first for receiving both information (519) and ancillary (551) services where 21-30 years age group ranked second among the different age groups of service recipients (Figure 18).

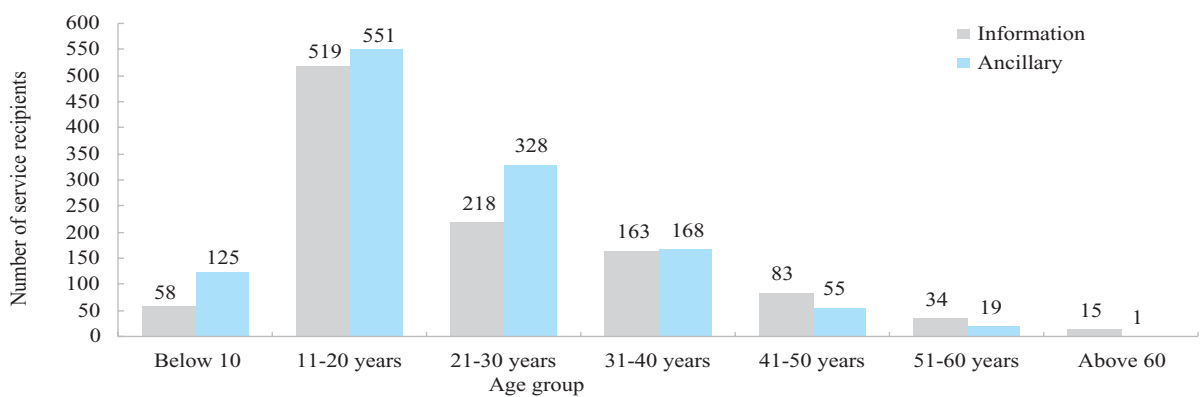


Figure 18: Information and ancillary service recipients by the different age group from November, 05 to August, 06 at Babrijhar Pallitathya Kendra

5.5 Education status of the service recipients

It was indicative that majority of the service recipients were less educated. Figure 19 shows 89.63% of service recipients had education up to HSC and below, and 7.06% were illiterate. Furthermore, it was found that only 10.65% were above HSC level and 2.65% were under aged among the service recipients.

Among the information service recipients, SSC level educated people were on the top (323 out of 1090 or 29.63%), secondary level educated group were second (273 or 25.05%) and the group at the bottom were found to have diploma education (2 out of 1090 or 0.18%). On the other hand the group with secondary level education were at the top with 28.23% (352) and the group with SSC level education ranked second with 19.73(246) among the ancillary service recipients (Figure 20).

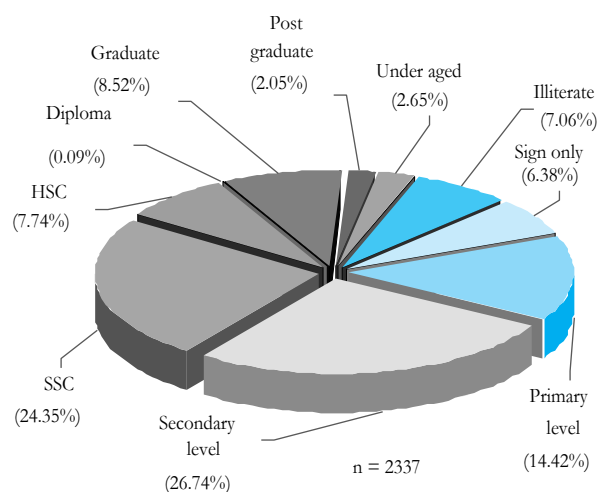


Figure 19: Service recipients by different education group from November, 05 to August, 06 at Babrijbar Pallitathya Kendra

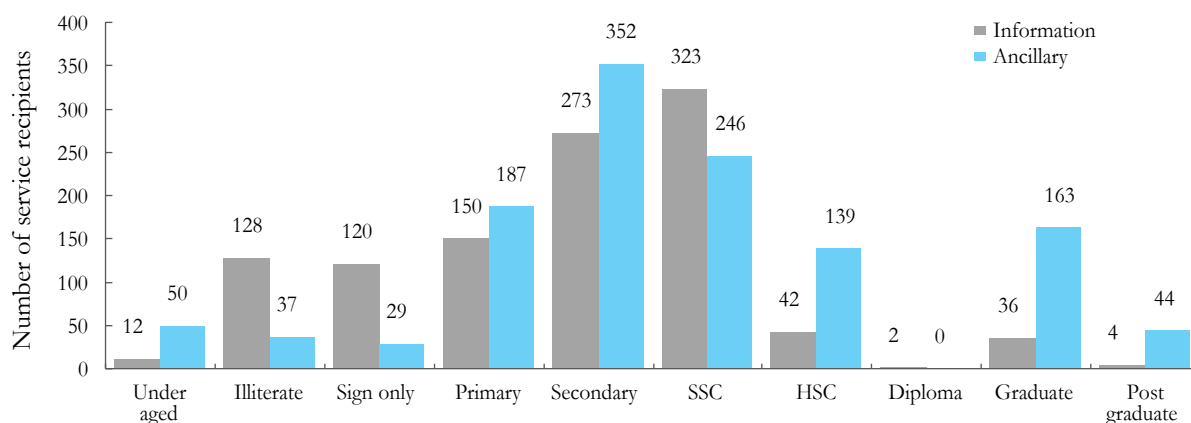


Figure 20: Information and ancillary service recipients by different education group from November, 05 to August, 06 at Babrijbar Pallitathya Kendra

5.6 Service recipients by profession

It was found that 18 categories of professionals received services from the *Pallitathya Kendra* in the research period. Out of which students dominated with 44.37%, of which 47% (487) received livelihood information and 53% (550) received ancillary services. *Pallitathya Kendra* made a ground for students to get their relevant information and necessary services which was absent in the past (Figure 21 & 22).

Housewives were the second highest service recipients with 15.23% of total. Housewives

generally are not able to come outside their residence as they are busy with their families or for conservative reasons. Considering this situation, mobile *infomediary* targeted mainly the housewives for delivering services to them at their doorstep, which helped to increase the participation of housewives. Of the recipient housewives, 76% (272) received livelihood information and 24% (84) received ancillary services. Among other professionals, medium scale businessman and farmer accounted for 9.76% and 9.54% respectively (Figure 21 & 22).

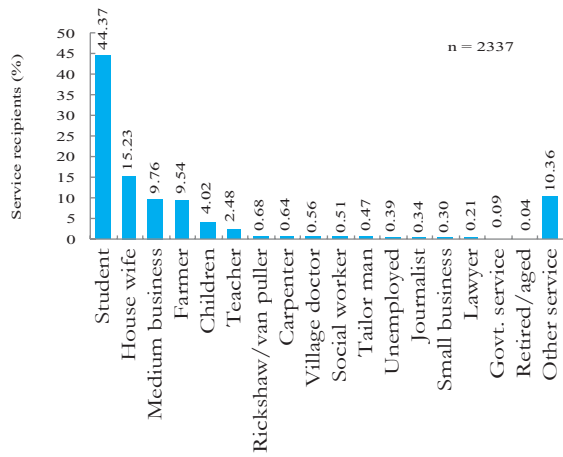


Figure 21: Service recipients by different professions from November, 05 to August, 06 at Babrijhar Pallitathya Kendra

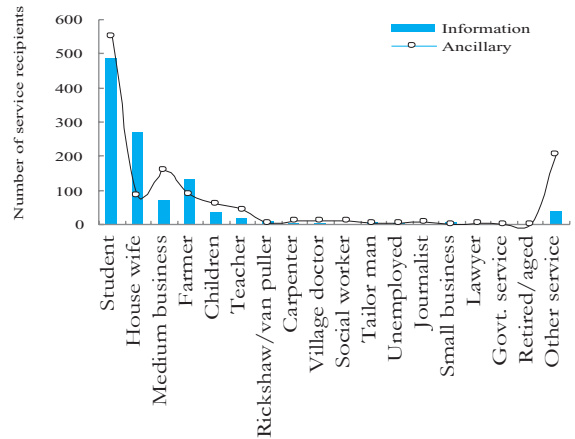


Figure 22: Information and ancillary service recipients by different professions from November, 05 to August, 06 at Babrijhar Pallitathya Kendra

5.7 Participation of rural people for getting livelihood information

As the need assessment study identified, the rural people have diversified need. In the research period, the main focus was to create the way for collecting livelihood required information using ICTs. Health related problem was found to be a major issue in the area where 45.41% (495) of the total advices [service recipients] received through different channels were related to health problems. Among other areas, 30% (323) of the recipients received information from the Pallitathya Kendra on education issues, 11% (117) on legal and human rights, 6% (66) on agriculture, 5% (50) on awareness, 1.5% (17) on non farm activities, 0.83% (9) on directory, 0.18% (2) on appropriate technology related issue and 1% (11) on other issues (Figure 23).

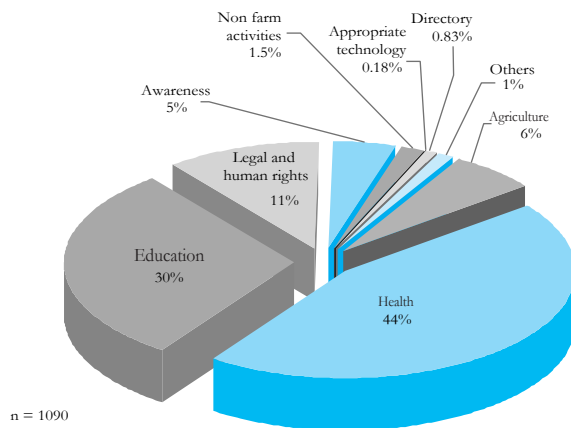


Figure 23: Information recipients by different category from Babrijhar Pallitathya Kendra during November, 05 to August, 06

Most of the people came to the Pallitathya Kendra to receive advices/information related to health problems because in the area there were limited health facilities and people did not know where they could get better health services and treatment with minimum cost. Education was another major issue in the area, where Pallitathya Kendra created scope to receive updated education related information for the students. For law related problems, Pallitathya Kendra created opportunities for physical consultation with experts on law related issues that increased the participation of legal information recipients. In addition, people were linked with local legal service providers to receive legal aid.

Although Babrijhar, Nilphamari is an area of great potential for agricultural product, agriculture information recipients were not up to the expectation. No strong explanation was found for less response on agriculture issue; however, it was assumed that the daily operation time or working hour (9:00 am to 5:00 pm) of Pallitathya Kendra was not suitable for the people involved with agriculture. Limited information recipients were found for non-farm activities because the people were not found to be interested to engage themselves with these initiatives as they were incapable to invest money for starting such activities. Information recipients on rest of the issues were also not up to the expected level. Probably infomediaries were not able to promote the services efficiently.

5.7.1 Agriculture information recipients

Recipients of agriculture information in different categories: A total of 66 recipients collected agriculture information from the *Pallitathya Kendra*, out of which 36% received information on field crop followed by 29%, 14%, 12%, 5% and 5% on fruits, vegetable, spice, poultry and livestock, and soil management respectively (Table 5).

For agriculture related problems, the highest of 42.67% recipients received disease and prevention related information and the lowest 1.33% on fertilizer and purification related information. In addition, 21.33% service recipients came to the *Pallitathya Kendra* for insect control, 14.67% for cultivation, 6.67% for fertilization, 4.00% for variety of other reasons (Figure 24). People generally suffered from disease and insect control in their cultivated land, some of them did not have proper information on fertilization, and

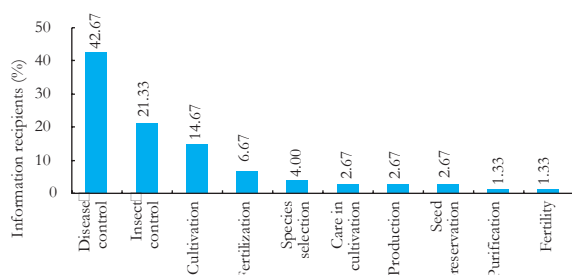


Figure 24: Specific agricultural information received by people from *Babrijar Pallitathya Kendra*

most of the people did not have idea about the selection of the right crop for cultivation in their land.

Agriculture information recipients by sex: The ratio of male and female was at 85:15 of the total recipients of agriculture related information. Of the male recipients, 43% received field crop related information followed by 25%, 14%, 9%, 5% and 4% for fruits, spice, vegetables, soil management and poultry and livestock related information respectively. Among the female recipients, 50% received information related to fruits, 40% on vegetables and 10% of poultry and livestock (Table 5). The variance of information recipients between male and female was insignificant ($F=4.68$, $df=11$) at 5% level but it was significant at 10% level.

Interest of females on particular types of agriculture activities were related to their engagement in the types of activities. The table 4 indicates that the females in the village generally engaged in homestead gardening and in rearing poultry and livestock that were possible alongside maintaining their families.

Recipients of agriculture information by professional group: Among the recipients of agricultural information, farmers were at the top with 45.45% as expected. Among other groups of professionals, students held 13.64%, housewives 12.12% teachers 9.09% businessmen 6.06% and rickshaw/van pullers and carpenters 1.52% separately. (Figure 25).

Table 5: Agriculture information recipients by crop categories and by sex from *Babrijar, Nilphamari Pallitathya Kendra* during November, 2005 to august, 2006

Category	Male		Female		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Field crop	24	43	0	0	24	36
Fruits	14	25	5	50	19	29
Vegetables	5	9	4	40	9	14
Spice	8	14	0	0	8	12
Poultry & livestock	2	4	1	10	3	5
Soil management	3	5	0	0	3	5
Total	56	100	10	100	66	100
Male: Female						85:15

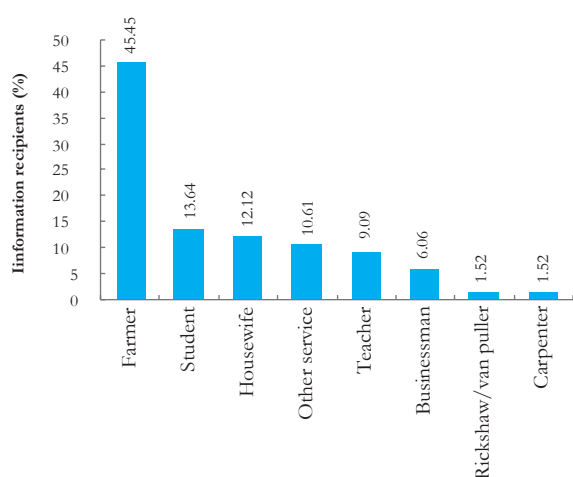


Figure 25: Agriculture information recipients by different professional groups from *Babrijar Pallitathya Kendra*

Students who received agriculture information were basically on behalf of their families. It implies that students also can be carrier of information particularly for those who can not come to the *Pallitathya Kendra*.

5.7.2 Health information recipients

Recipients of health information in different categories: A total of 32 categories of health problems were identified in the study. A total of 495 recipients received health information from the *Pallitathya Kendra*, out of which the highest of 16.35% received information related to digestive problems and the lowest of 0.13% for blood disorder. Moreover, 13% received information on skin diseases, 11.39% for gynecological problems, 10.46% for muscular skeletal problems, 8.32% for respiratory problem, and 8.30% for vitamin and mineral deficiency related problems (Table 6).

Of the major categories of information, health awareness was the main issue in the area. Out of total, 25.89% information was on health awareness, 24.47% on bacterial disease, 19.15% on allergic, 7.80% on idiopathic, 7.80% on inflammatory, 4.96% on autoimmune, 4.61% on protozoan, 2.84% on fungal, and 2.13% on viral (Figure 26). The health awareness came up to the

Table 6: Health information recipients by categories and by sex from *Babrijar, Nilphamari Pallitathya Kendra* during November, 2005 to August, 2006

Category	Male	Female	Total
Digestive problems	14.72	17.26	16.35
Skin diseases	14.34	12.27	13.00
Gynecology	0.75	17.26	11.39
Muscular skeletal	10.94	10.19	10.46
Respiratory problems	10.57	7.07	8.32
Vitamin & mineral deficiency	9.06	7.90	8.30
Nerves system	3.77	5.20	4.69
ENT	7.17	3.33	4.69
Infection diseases	6.04	3.95	4.69
Eye	2.26	4.16	3.49
Cardiovascular	3.40	2.29	2.68
Teeth	4.15	1.04	2.14
Psychological	3.40	1.25	2.01
Urinary system	2.26	1.46	1.74
Surgery	1.13	1.46	1.34
First aid & awareness	1.13	1.04	1.07
Child diseases	1.51	0.62	0.94
Obstetrical problems	0.75	0.62	0.67
Hormone diseases	1.13	0.42	0.67
Bone diseases	0.75	0.42	0.54
Reproductive system	0.75	0.42	0.54
Cancer/ Tumor	0.00	0.21	0.13
Blood disorder	0.00	0.21	0.13
Total	100.00	100.00	100.00
Male : Female			36:64

top as health information was not available in the area, and people suffered from variety of diseases due to the lack of health awareness.

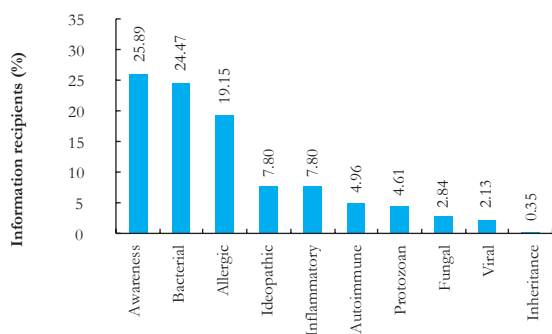


Figure 26: Specific health information received by people from Babrijbar Pallitathya Kendra

Health information recipients by sex: The ratio of male and female was 36:64 among the recipients of health related information. Among the females, 17.26% received information on digestive and the same percentage on gynecological problems. Among others, 12.27% received information on skin diseases, 10.19% on muscular skeletal problems, 7.90% on vitamin and mineral deficiency, 7.07% on respiratory problems, 5.20% on nerves system related problems etc. The information received by the males were mainly related to the problems of digestive system (14.72%), skin diseases (14.34%), muscular skeletal (10.94%), respiratory problems (10.57%), vitamin and mineral deficiency (9.06%), infectious diseases (6.04%) etc. (Table 6). Insignificant variation was found ($F=2.561$, $df=45$) at 5% level between male and female health information recipients by different categories.

Recipients of health information by professional groups: A total of 13 professional groups received health information of which housewives were on the top with 48.93% in the research period. Housewives generally tend to neglect their health problems due to financial incapacities and hassles to visit doctors or hospitals for treatment. However, Pallitathya Kendra created a way of providing health information at their doorsteps. During the period, students were the second highest (18.36%) followed by farmers (10.46%), medium

businessmen (7.24%) and children (6.84%). Another professional group like service men, small businessmen, tailor men, rickshaw pullers, unemployed, village doctors, teachers and aged people were a total of 8.18% of health information recipients (Figure 27).

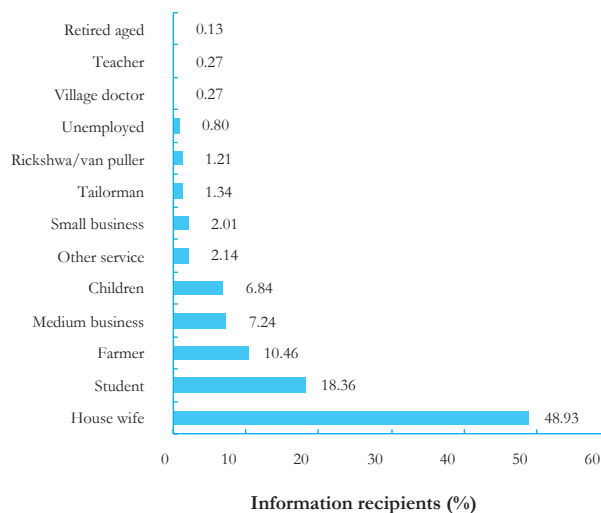


Figure 27: Health information recipients by different professional groups from Babrijbar Pallitathya Kendra

5.7.3 Education information recipients

Recipients of education information in different categories: A total of 323 recipients received education information from the Pallitathya Kendra, out of which the highest of 71.30% received examination results and the lowest of 0.30% received information on skills training and coaching centers separately. It was found from the record that 17.52% came for education counselling 4.23% for scholarship information, 2.72% for admission information, and 1.81% for collecting information on educational institute and the books they should follow for studying (Table 7).

It was found that the highest percentage (32) of education information recipients came to obtain information about the eligibility of higher study. Others, 24% came to know the terms and conditions for study, 16% learnt the scope of loan & another 16% got information about availability of funds for studying and timeline for application. Of the total, 4% of the each came to know about the available subject in the institutions/university, registration process and initiatives against rules violation (Figure 28).

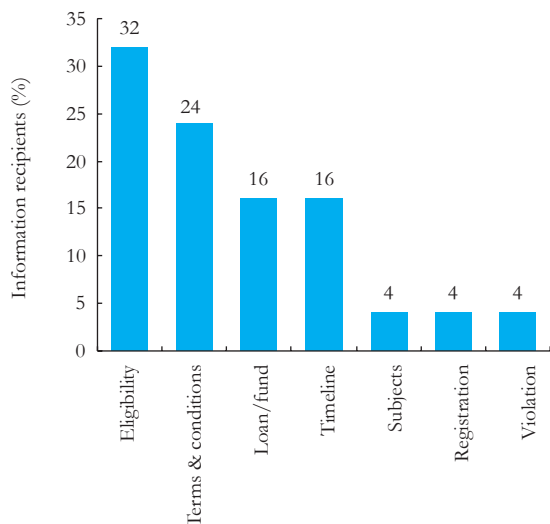


Figure 28: Specific education information recipients from Babrijhar Pallitathya Kendra

Education information recipients by sex: The ratio of male and female was 67:33 for the recipients of education information from Pallitathya Kendra. Both male (70.14%) and female (73.64%) were dominant in collecting examination results (Table 7). It is to be noted that the education board of Bangladesh made available the SSC and HSC examination results online. Therefore, students could easily collect their results with the help of the website from any place where internet connection was available. Pallitathya Kendra created opportunity for the local students to collect results quickly. The variation between male and female for collection of different categories of education information was insignificant ($F=0.430$, $df=15$) at 5% level.

Recipients of education information by professional group: Student was the highest (93.96%) recipients of education information from Pallitathya Kendra. Among other major groups, farmers, medium businessman, village doctors and teachers accounted for 2.42%, 1.21%, 0.30% and 0.60% respectively. Except student, rest of the professional groups collected education information for their children. But village doctors and teachers could collect information for them to get training and/or higher education related information (Figure 29).

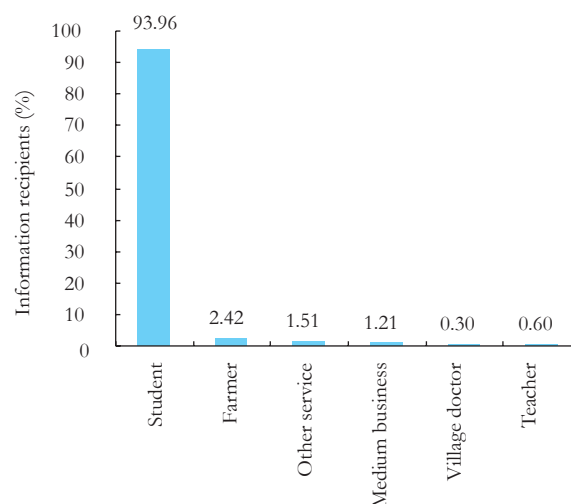


Figure 29: Education information recipients by different professional groups from Babrijhar Pallitathya Kendra

Table 7: Education information recipients by categories and by sex from Babrijhar, Nilphamari Pallitathya Kendra during November, 2005 to August, 2006

Education	Male	Female	Total
Examination results	70.14	73.64	71.30
Education counselling	16.74	19.09	17.52
Scholarship	5.88	0.91	4.23
Admission information	3.17	1.82	2.72
Educational institutes	2.71	0.00	1.81
Books name	0.45	4.55	1.81
Coaching center	0.45	0.00	0.30
Skills training	0.45	0.00	0.30
Total	100.00	100.00	100.00
Male: Female			67:33

5.7.4 Legal and human rights information recipients

Recipients of legal and human rights information in different category: A total of 117 information recipients received legal and human rights related information of which 45.30% came for land issues followed by 41.88% for women rights issues, 5.13% for succession issues, 4.27% for civil matter, 1.71% for labour law, 0.85% for local government and 0.85% for criminal related issues respectively (Table 8).

Most of the legal information recipients (54.87%) posed questions on violation of rights and laws where dispassion of land was second with 21.24% (Figure 30).

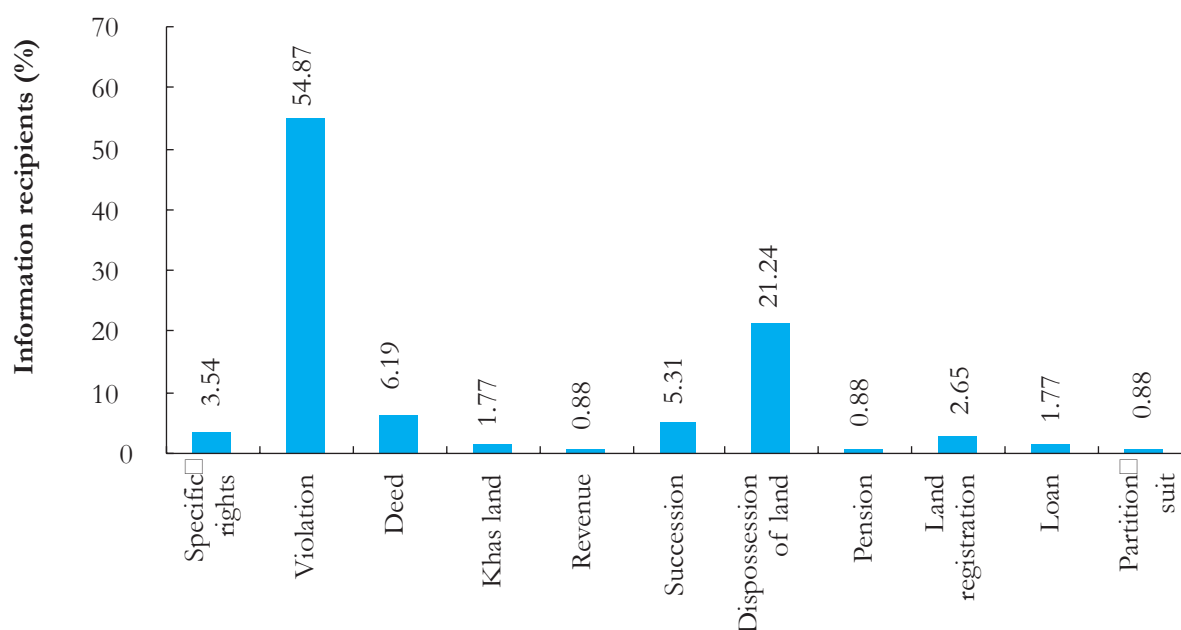


Figure 30: Legal and human rights information recipients by different categories from *Babrijbar Pallitathya Kendra*

Table 8: Legal and human rights information recipients by categories and by sex from *Babrijbar, Nilphamari Pallitathya Kendra* during November, 2005 to August, 2006

Category	Male	Female	Percent
Land issue	56.16	27.27	45.30
Women rights	24.66	70.45	41.88
Succession	6.85	2.27	5.13
Civil matter	6.85	0.00	4.27
Labour law	2.74	0.00	1.71
Local government	1.37	0.00	0.85
Criminal matter	1.37	0.00	0.85
Total	100.00	100.00	100.00
Male:Female			62:38

Legal and human rights information recipients by sex: Male and female ratio of the recipients of legal and human rights information was 62:38. Most of the males (56.16%) received information on land issues while about two-third (70.45%) females received information on women rights related issues (Table 8). The difference of legal information recipients by male and female was not significant ($F=0.338$, $df=13$) at 5% level.

Recipients of legal and human rights information by professional group: House wife was the highest (35.04%) information seeker on legal issues, farmer's stands second with 25.64%, medium business man with 15.38% and so on (Figure 31).

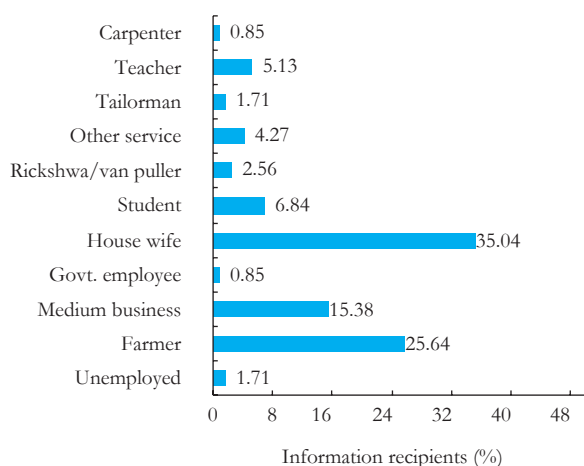


Figure 31: Legal and human rights information recipients by different professional groups from Babrijbar Pallitathya Kendra

5.7.5 Non farm economic activities

Recipients of non farm activities information in different categories: Only 17 information recipients were found who received information on non farm issues. Among the non farm information recipients, 70.59% received information on block design on cloth, candle making etc. (part of Other Business in Table 9).

Non farm activities information recipients by sex: The male -female ratio of the recipients for the non farm activities information was 53:47. Females were mainly interested to collect information on other business related issues whereas males received information on medium industry and other business related issues (Table 9).

Recipients of non farm activities information by professional group: More than half (52.94%) of information recipients on non farm economic

activities were the student group and farmers and businessman stands second with 17.65% and other professionals and carpenter stands third with 5.88%.

5.7.6 Awareness information recipients

A total number of 50 recipient received information on awareness issues where 78% received information on social awareness and 22% on AIDS awareness. Students were the highest with 88% awareness information recipients among the professional groups. Male-female composition of the recipients were 70% and 30% respectively.

5.7.7 Directory information recipients

Only 9 questions were posed for directory information where questions on agriculture was 33%, and health, transportation, communication, legal & human rights, non farm activities and skills training were 11% each. In addition, a total of 196 questions were referred to the service providers; where 183 (93.37%) was on health issues. Other directory information categories referred to the service providers were agriculture, fisheries, forestry, transportation, communication, legal & human rights, non farm activities and skills training (Table 10).

5.7.8 Other information recipients

A total number of 12 people came to the Pallitathya Kendra for receiving information on issues like availability of jobs, general knowledge, entertainment and for newspaper reading using the Internet.

Table 9: Information recipients of non farm activities by categories and by sex from Babrijbar, Nilphamari Pallitathya Kendra during November, 2005 to August, 2006

Category	Male	Female	Percent
Small cottage industry	11.11	0	5.88
Medium industry	44.44	0	23.53
Other business	44.44	100	70.59
Total	100.00	100.00	100.00
Male : Female			53:47

Table 10: Category of directory information referred to the service providers from Babrijbar, Nilphamari Pallitathya Kendra during November, 2005 to August, 2006

Directory category	Frequency	Percent
Health	183	93.37
Agriculture	3	1.53
Legal and human rights	2	1.02
Non farm activities	2	1.02
Skills training	2	1.02
Fisheries	1	0.51
Forestry	1	0.51
Transportation	1	0.51
Communication	1	0.51
Total	196	100.00

5.8 Livelihood information delivery channels

Helpline was found to be the most popular channel to deliver livelihood information with 39% (411), while 26% (284) information recipients received information through direct consultation with expert at issue based campaign. Moreover 17% (190) of recipients used offline CD based *Jeeon-IKB*, 13% (147) browsed internet and 5% (58) watched video documentary for receiving livelihood information from the *Pallitathya Kendra* in the research period (Figure 32).

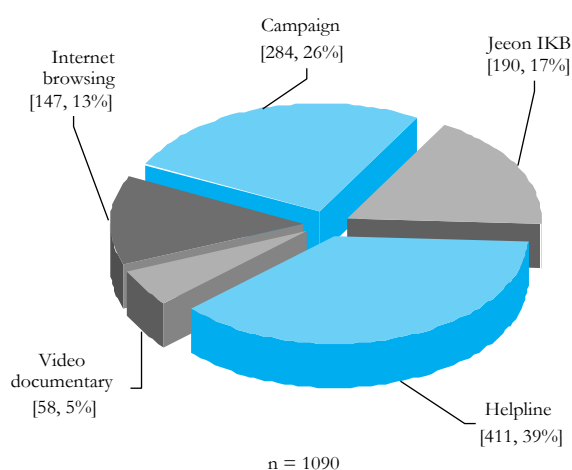


Figure 32: Channels used for livelihood information delivery from Babrijbar Pallitathya Kendra

The factor that worked for popularizing Helpline was that mobile Infomediary moved door to door with the mobile phone and helped the people to consult with the expert on their livelihood problem. Weaknesses of the *infomediary* in searching CD based content were also a reason of using Helpline. Infomediaries had a tendency to

forward questions to the Helpdesk without searching content database that was rectified through refreshers training of *infomediary*. Refreshers training helped the *infomediary* to be more efficient in searching content database. In addition, people also had an inclination to talk to specialists directly to receive advice for their livelihood problems, which was another reason for increased usage of helpline by the information recipients.

Likewise, issue based campaign became popular to the people because there was an opportunity for physical consultation with the expert free of cost. This was another reason for choosing camping option by the information recipients. Another dimension was created to pay for the services received in camping. *Pallitathya Kendra* also fixed a registration fee to participate in the issue based campaign for consultation with the expert panel. People willingly paid the registration fees and participated in the campaign.

5.8.1 Channels used to deliver agriculture information

Table 11 showed that only two channels were used to provide agriculture information where *Jeeon-IKB* was used by 81.82% and Helpline was used by 18.18% of the recipients. It was observed that the offline CD based *Jeeon-IKB* could handle most of the agricultural information requirement, however, helpline was required for the questions absent in *Jeeon-IKB* and or questions/problems not understandable by the Infomediaries. Among the male participants, 78.57% collected

agriculture information using the *Jeeon-IKB* while 21.43% used the helpline. On the other hand, females used only *Jeeon-IKB* for receiving

agriculture information. However, in depth study is required to validate this explanation.

Table 11: Channels used by male and female to receive agriculture information

Channel	Male		Female		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Jeeon-IKB	44	78.57	10	100.00	54	81.82
Helpline	12	21.43	0	0.00	12	18.18
Total	56	100.00	10	100.00	66	100.00

5.8.2 Channels used to deliver health information

Helpline was the main channel used for receiving health information. Of the total, 51.92% received information using helpline, 29.49% used it for direct consultation with doctors in camp and 18.59% used it for *Jeeon-IKB* content. In terms of sex, both the male and female at 54.40% and

50.33% respectively dominated helpline for obtaining health information (Table 12). Helpline was frequently used for consulting health problems not only because the mobile phone was taken to the doors, it was also due to the nature of the complaints as the infomediaries could not provide the remedy, they passed it on to the experts at the help desk.

Table 12: Channels used by male and female to receive health information

Channel	Male		Female		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Jeeon-IKB	48	24.87	44	14.57	92	18.59
Helpline	105	54.40	152	50.33	257	51.92
Campaign	40	20.73	106	35.10	146	29.49
Total	193	100.00	302	100.00	495	100.00

5.8.3 Channels used to deliver education information

Internet browsing was used by 43.34% to deliver education information, was the leading channel. Among other channels, helpline was used to deliver 34.06% questions, *Jeeon-IKB* was used only to deliver 4.33% questions and 18.27% questions were answered in the camping arranged with the expert panel (Table 13).

It was found that offline channel was not appropriate to deliver education information. It is because the education related information is changing regularly. Thus, internet was used in most of the cases for collecting education related information. The recipients had to rely on Helpline when internet connectivity was not available in Pallitathya Kendra due to network failure (Table 13).

Table 13: Channels used by male and female to receive education information

Channel	Male		Female		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Jeeon-IKB	14	6.42	0	0.00	14	4.33
Helpline	71	32.57	39	37.14	110	34.06
Internet browsing	95	43.58	45	42.86	140	43.34
Campaign	38	17.43	21	20.00	59	18.27
Total	218	100.0	105	100.0	323	100.00

5.8.4 Channels used to deliver legal and human rights information

For resolving the legal and human rights related problems, majority (64.10%) of the legal information recipients participated in legal camp and consulted with lawyers. 19.66% of legal

information provided through Helpline and 16.24% information was provided using the *Jeeon-IKB*. Males were the larger proportion (62.39%) of legal information seeker than 37.61% of female. Males always dominated female in collecting legal information from the *Pallitathya Kendra*.

Table 14: Channels used by male and female to receive legal and human rights information

Channel	Male		Female		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Jeeon-IKB	14	19.18	5	11.36	19	16.24
Helpline	13	17.81	10	22.73	23	19.66
Campaign	46	63.01	29	65.91	75	64.10
Total	73	100.00	44	100.00	117	100.00

5.8.5 Channels used to deliver information on non farm activities

Video documentary was the most popular (58.83%) among the information recipients in

receiving information on non-farm activities. 77.78% of the males used offline content and 22.22% on video documentary, while 100% females used video documentary content for this purpose (Table 15).

Table 15: Channels used by male and female to receive information on non-farm activities

Channel	Male		Female		Total	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Jeeon-IKB	7	77.78	0	0.00	7	41.18
Video documentary	2	22.22	8	100.00	10	58.82
Total	9	100.0	8	100.0	17	100.00

5.9 Participation of people for getting necessary ancillary services

A total of 1247 service recipients received ancillary services from the *Pallitathya Kendra* during the research period. Of the ancillary services, body weight and height measurement (752, 60.30%), composing (224, 17.96%), photography (86, 6.90%), blood pressure measurement (66, 5.29%), commercial phone (62, 4.97%) and nebulizar rental (54, 4.33%) were found to be the most popular. Of the ancillary service recipients, males were 76% and females were 24% (Table 16).

Students were found to be the highest users (44.11%) of ancillary services. Other professional groups, businessmen, farmers, housewives and children ranked 2nd, 3rd, 4th, 5th and 6th with 16.36%, 12.67%, 7.22%, 6.74% and 4.81% respectively. Government service holders were the lowest (0.08%) participants (Figure 33). In terms of education status of the service recipients, group with secondary level education ranked first with 28.23%. Under aged children (below 5 years) comprised of 4.01% also received ancillary services particularly nebulizar service from the *Pallitathya Kendra* (Figure 34).

Table 16: Ancillary service recipients from Babrijbar, Nilphamari Pallitathya Kendra during November, 2005 to August, 2006

Ancillary service items	Frequency		Percent		Total	
	Male	Female	Male	Female	Frequency	Percent
Weight measurement	556	196	74	26	752	60.30
Composing	218	6	97	3	224	17.96
Photography	44	42	51	49	86	6.90
Blood pressure measurement	45	21	68	32	66	5.29
Commercial phone	49	13	79	21	62	4.97
Nebulizar rental	37	17	69	31	54	4.33
Soil test	2	0	100	0	2	0.16
Govt. forms	1	0	100	0	1	0.08
Total	952	295	76	24	1247	100.00

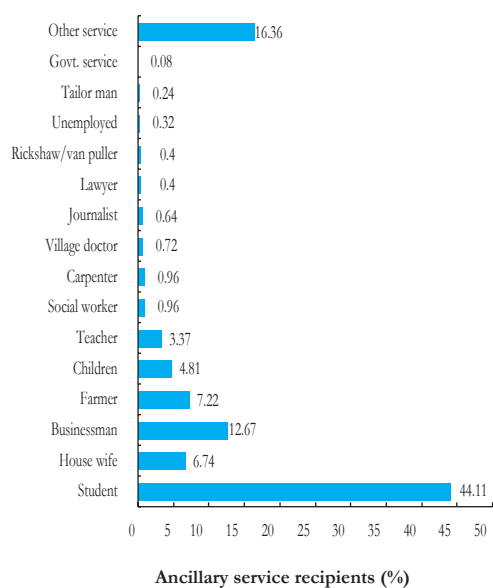


Figure 33: Ancillary service recipients by professional group from Babrijbar Pallitathya Kendra during November, 05 to August, 06

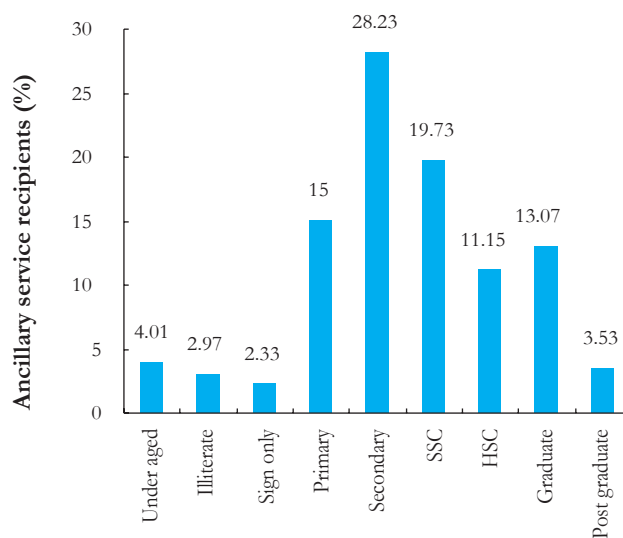


Figure 34: Ancillary service recipients by education level from Babrijbar Pallitathya Kendra during November, 05 to August, 06

6. LESSONS AND POLICY RECOMMENDATIONS

A number of important lessons were learnt from the process of project implementation, these are:

Infomediary [a human interface between digital livelihood content and poor information seekers] is a vital component of the whole concept of Pallitathya Model. The quality of *infomediary* matters. The quality of information dissemination was better, where appropriate *infomediary* was available. It was found that in selection of the *infomediary*, general IQ, familiarity in using ICTs and social commitment should be emphasised.

The idea of critical mass of livelihood content worked very well and *Pallitathya Kendra* became a one stop information centre for the villagers. The content in all areas of livelihood have been developed and disseminated. As a result, demand for content in one area was created through demand in content for other areas. This integrated approach should be continued in future.

Following the critical mass approach, the project was complemented and supplemented by other two projects supported by Manusher Jonno Foundation (MJF) and International Development Research Centre (IDRC), Canada. Under this project, livelihood content in the areas of agriculture and health was developed and one centre in *Nilphamari* was established. Under MJF supported project, the livelihood content in the area of local governance and human rights was developed and content dissemination was supported in two areas. Under the IDRC support, content in rest of areas have been developed and two centres in *Netrokona* and *Noakhali* have been established. The centre in *Bagerhat* was established with D.Net's own resources. This combination of resources proves that own design of project with flexible donor support can be a critical success factor.

An expert team was formed to provide critical advice and support to the core team on project implementation. The support helped a lot in preparation of quality content. However, the experts time was inadequate due to busy schedule of the experts. In future, the selection of experts should be done based on level of time commitment of the experts.

Access to information on demand is an issue of behavioural change of the villagers. The behavioural change takes place slowly, which was

a factor for relatively low turn over of users. However, D.Net's project could make significant impact compared to similar projects in India and Sri Lanka. The existing centres thus need continuation and new centres should be designed for at least 3 more years.

Promotion of access to livelihood information is a new issue. Research experience shows that a visual demonstration is more effective than lecture based mobilisation camp, like meetings, FGD etc. When the question of behavioural change comes out as a major factor, design of promotion can not be made with a residual approach.

It was found that issue based (agriculture, health, legal & human rights, education) camp is a very effective tool to promote on-line activities.

Help line has emerged as a new resort, which is ICT-based, it also has a coverage almost across the country due to high penetration of mobile phones.

No exclusion policy proved to be effective in creation of confidence among the villagers. This policy implies that all citizens can receive services irrespective of illiteracy, physical handicaps and socially less mobile male-female. It was possible due to three pronged approach: (i) deployment of *infomediary* [a human interface between users and content base], (ii) mobile service through mobilisation work and (iii) through mobile ladies, who visit rural households for those people, who were not in a state to visit the centres for various reasons.

Similarly, no refusal policy is also important for winning hearts and making the services effective. This policy implies that if questions on livelihood problems come to the information workers of the centres, it would be answered definitely. It was possible for an innovation: combination of centre-based information services and help line services. If content base was not adequate, a user could call the help desk, and get response from experts of the livelihood subject matters.

In a few cases, it was found that information receivers did not receive proper services from the institutions they were referred to. It implies that information service alone may not be adequate without improvement of quality of services delivered by service providing institutions.

7. REFERENCES

Raihan, A., Hasan, M., Chowdhury, M. and Uddin, F., 2005. Pallitathya Help Line : A Precursor to People's Call Center, p 06.

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Annex A

JEEON: Information and Knowledge Base

The *JEEON-IKB* (Information and Knowledge Base) is a content database which has been developed in Bangla and is aimed at improving livelihood through ICTs. The CD version *JEEON-IKB* has been made for use in locations which do not have internet connectivity. The *JEEON-IKB* responds to everyday queries such as what, where, who, how in the areas of agriculture, education, healthcare, non-farm economic activities, appropriate technology, human rights, awareness and disaster management in simple non-technical language. *The JEEON-IKB* is particularly suitable for rural users ñ even those unable to read and write, with the assistance of ñnfomediariesí can get access to crucial information that can reduce livelihood costs or improve income opportunities. The *JEEON-IKB* is more effective when used with Help Line, since whatever information is not available in the CD can be obtained by calling the specialists at the Help Desk. Under this research project livelihood content were developed on agriculture and healthcare. The following content is available in the agriculture and healthcare content base-

Agriculture

- Crop variety, cultivation process, insect control, fertiliser management, diseases control, weed management and production cost of the following category is available in Jeeon IKB:

■ Field Crop: Rice, Wheat, Jute, Sugarcane, Maize, Lentil, Mug bean, Mustard, Groundnut and Potato.

■ Vegetables: Brinjal, Tomato, Bean, Teasle gourd, Carrot, Cauliflower, Raddish, Bottle gourd, Brokoli, Sweet gourd, Snake gourd, Bitter gourd, Spinach, Cow pea, Indian spinach, Red amaranths, Cucumber, Ribbed gourd, Ladyfinger, Taro, Turnip,

■ Fruits: Banana, Mango, Grape, Guava, Jackfruit, Jujube, Litchi, Papaya, Pineapple, Pomegranate, Sapota, Wood apple

■ Flower: Rose, Tuberose, Marigold, Dalhia, Gladulus

■ Spices: Onion, Garlic, Termaric, Chilli, Bilati dhania

- Soil management: Humidity measurement test by hand, Soil texture test by hand, Soil sample collection, Crop diversification by soil type, Crop diversification according to Suitable soil type, land type and for different crop, plant nutrient
- Integrated culture: Poultry and fish culture, duck and fish culture, cattle and fish culture
- Inter cropping: Gram and mustard, weet potato and maize, sweet gourd and maize, ea and maize
- Crop rotation and cropping pattern: Crop rotation, cropping pattern
- Success story in agriculture sector
- Poultry and cattle: Shelter management, Water and food management, Vaccination, Brooder, tips, Diseases management, Vaccination for the Business broiler chicken
- Fisheries: Fish species description, larval rearing, culture and management, disease control of Rui, Catla, Common Carp, Mrigel, Sharputi/Rajputi, Native Magur, Silver Carp, African Magur, Grass Carp, Pangas, Big Head Carp, Shing, Gift Telapia, Nilotica, Golda, Bagda Chingri, Mud Crab.
- Fisheries Law: Fish preservation law 1950, Pond development law 1939, Marine fish law 1983, The fish and fish products (Inspection and quality control) ordinance, 1983 and Fish & Fish production (Inspection & Quality control) rules and regulations 1997, The declaration of `The Industry of Fish Hatchery & Fish Culture 1991

Health

- Eye: Foreign body into eyes, Conjunctivitis, Cataract, Night blindness, Daeryocystitis, Glaucoma, Trachoma, Pterigium, Squint
- Teeth: Dental Carries, Pyorrhea, Gum bleeding, Care of infant teeth

- Lungs: Common diseases of lungs, Pneumonia, Chronic Bronchitis, Asthma, Tuberculosis, Bronchitis, Pleural Effusion
- Belly Diseases: Name of some belly diseases, Peptic Ulcer, Diarrhea, Dysentery, Food poisoning, Jaundice, Cholecystitis, Constipation, Ascitis, Rectal prolepses, Fistula, Anal canal
- Bone diseases: Name of some bones & muscles diseases, Fracture, Arthritis, Low back pain, Knee pain, Shoulder pain, Muscles pain
- Nerve System: Name of some nerve diseases, Paralysis or stroke, Migraine, Syncope, Meningitis
- Nose, ear & throat: Structure of nose, Function of nose, Structure of ear, Function of ear, Name of some nose diseases, Entering external element into nose, Nasal bleeding, Nasal polyp, Nose rhinitis, Anosmia, Sinusitis, Name of some ear diseases, Entering external element into ear, Otitis media, Abusers in the ear, Deafness, Name of some general throat diseases, Tonsillitis
- Heart diseases: Name of some general heart diseases, High blood pressure, Heart attack, Rheumatic fever, Care of heart,
- Urine organ: Name of some urine organ diseases, Urethritis, Nephritic diseases, Renal stone, Renal failure
- Sexual diseases: Sexual diseases, Syphilis, Gonorrhoea, AIDS,
- Skin diseases: Scabies, Eczema, Allergy, Ring worm, Leprosy, Vitiligo, Abscess, Mole, Acne, Bed sore, Dandruff, Alopecia, Psoriasis, Arsenic,
- General gynecological diseases: Puberty development of sexual characteristics, Some general gynecological diseases, Dysmenorrhoea, Irregular menstruation, Menopause, Menorrhagia, Trachomoniasis, Leucorrhoea, Vaginitis, Pelvic inflammatory diseases, Cervicitis, Uterine prolapse, Infertility, Anemia
- Obstetrical problem: Different obstetrical problems, Abortion, Pre-eclampsia, Eclampsia, Fistula, Perineal tear, Antenatal care, Post natal care
- Child diseases: New born, Name of some general child diseases, vaccines, Care of the infant, Ideal food for infant, Mentally retarded, Fever of child, Pneumonia of child, Heart diseases of child, Malnutrition diseases, Tetanus, Polio, Diphtheria, Measles, Whooping cough
- Hormone diseases: Hormone caused diseases, Hypothyroidism, Hyperthyroidism, Diabetes, Other problems diabetic patient,
- Infection diseases: Name of some infection diseases, Helminthiasis, Malaria, Kala-azar, Typhoid, Chicken pox, Filariasis, Dengue
- Mental diseases: Name of some mental diseases, Schizophrenia, Tetany, Hysteria, Depression, Addiction,
- Vitamin & mineral: Fat soluble vitamins, Vitamin A, Vitamin D, Vitamin E, Vitamin K, Water soluble vitamins, Vitamin B1, Vitamin B2, Vitamin B5, Vitamin B6, Vitamin B7, Vitamin B9, Vitamin B12, Vitamin C, Main minerals, Calcium, Iodine, Iron, Zinc,
- Cancer/ Tumor: Cancer, Lung cancer, Breast cancer, Uterine cancer, Stomach cancer, Leukemia, Prostate cancer, Ways to prevent cancer
- Surgery: Diseases and treatment, Appendicitis, Gangrene, Berger's diseases, Piles, Hernia, Hydrocele, Caesarian section,
- Family planning method: Advantages of Family planning method, Family planning method, Natural birth control, Condom, Birth control pills, Intrauterine contraceptive device, Norplant, Hormone injection, Vasectomy, Ligation,
- Primary treatment & health awareness: Preliminary treatment of the following diseases, Fever with rhinitis, Drowning, Electric shock, Burning, Poisoning, Rattles, Snake bite, Preliminary treatment in road accident, Proper food adoption to maintain health, Health problem and solution in old age, Patient care, Smoking equates poisoning, Advantage of eating fruit

Annex B

Service Price

Initial service price: The price of each service of Pallitathya Kendra at the beginning is as follows:

A. Information services

Service name	Service pattern	Unit	Unit price (Tk.)
CD based content	CD based content (oral)	Per question	2
	CD based content (printed)	Per page	First page 5.00 & next every page 4.00
Helpline	Mobile to mobile (Instant)	Minute	5.00
	Mobile to Mobile (within 3 days)	Minute	4.00
	Mobile to letter (within 7 days)	Minute	4.00
	Letter to letter (within 20 days)	Per letter	4.00
Video documentary		One time	2.00

B. Ancillary services

Service name	Service pattern	Unit	Unit price (BDT)
Soil test		Per sample	25.00
Height and weight measurement		Per person	1.00
Photography	3R size	One copy	10.00
	PP size	One copy	5.00
	Camera rent	Hour	First 2 hours 100.00 & next every hour 100.00
Composing	Typing with printing	Per page	8.00
	Only typing	Per page	5.00
	Only printing	Per page	4.00
	Scanning	One page	8.00
Nebulizer rental	Rent (only machine)	Per person	10.00
	Machine with chemicals (for adult)	Per ml	30.00
	Machine with chemicals (for children)	Per ml	20.00
Blood pressure measurement		Per person	7.00
Commercial phone (mobile)		Per minute	5.00
Email	Attachment	One time	12.00
	Without attachment	One time	10.00
University admission form service			University form price with service charge 30.00-50.00
DV forms			50.00

New service price

Based on the experience, demand and comment of the rural people; service price was revised which made effective from June 2006. In some cases information service from Jeeon IKB for limited time and video for children were free for promotional purpose.

A. Information services

Service name	Service pattern	Unit	Unit price (BDT)
Jeeon IKB content	Oral information (content search by villager or with the help of Infomediary)	First 10 minutes	Free
		Next per 30 minutes	10.00 for general people, 5.00 for students
	Printed information, search from content	Per page	BDT 5.00
	Design printing	Per page	5.00
Helpline based information	Mobile to mobile (Instant)	Per minute	4.00 up to first 2 minutes and 3.00 from next minute
	Mobile to letter/email (within 7 days)	Per minute	4.00 for question and 5.00/page for answer
	Letter/email to letter/email (within 20 days)	Per page	5.00
Video documentary	General people	Per person	2.00
	Child	-	Free

B. Ancillary services

Service name	Service pattern	Unit	Unit price (BDT)
Soil test		Per sample	25.00
Height and weight measurement		Per person	1.00
Photography	3R size	One copy	10.00
	PP size (minimum 4 copies)	One copy	5.00
Composing	Typing with printing	Per page	8.00
	Only composing	Per page	5.00
	Only printing	Per page	5.00
Scanning	Photo scanning	Per page	8.00
Nebuliser	Rent (only equipment)	Per person	10.00
	For adult (equipment + medicine)	Per ml	30.00
	For child (equipment + medicine)	Per ml	20.00
Blood pressure	Pressure measurement	One time	7.00
Government forms	Printing	Per page	8.00
	Form fill up assisting by Infomediary	Per form	15.00
Email	Assist by Infomediary	Without attachment	Per email 10.00 (5.00 for students) + 4.00/page for composing
		Attachment	Per email 15.00 (10.00 for students) + 4.00/page for composing
	Without assistance by Infomediary	Without attachment	Per email 10.00 (5.00 for students)
		Attachment	Per email 15.00 (10.00 for students)
Internet browsing		Below/= 10 minutes	8.00 (5.00 for students)
		Per 30 minutes	15.00 (10.00 for students)
Commercial phone (mobile)		Per minute	5.00
University admission form service			University form price with service charge 50.00
DV forms			50.00

Annex C

***Pallitathya Kendra* Operation Manual**

An operation manual was developed for *Pallitathya Kendra* in Bangla with text and graphics which helped the Infomediary to work systematically after receiving infomediary training. The following content has been included in the *Pallitathya Kendra* operational manual.

Content of *Pallitathya Kendra* Operation Manual

1. About D.Net
2. About *Pallitathya*
3. Why *Pallitathya Kendra*?
4. Why *Infomediary* needed?
5. Purpose of *Infomediary* training
6. Services of *Pallitathya Kendra*
7. How does the *Pallitathya Kendra* Work?
8. How to search information from *Jeeon-IKB*?
 - 8.1 *Jeeon* Agriculture
 - 8.2 *Jeeon* Health
 - 8.3 *Jeeon* Education
 - 8.4 *Jeeon* Legal and Human Rights
 - 8.5 *Jeeon* Non Farm Economic Activities
 - 8.6 *Jeeon* Appropriate Technology
 - 8.7 *Jeeon* Awareness
 - 8.8 *Jeeon* Disaster Management
 - 8.9 *Jeeon* Rural Employment
 - 8.10 *Jeeon* Thikana
9. Service Delivery and Documentation
 - 8.1 Offline CD Content (*Jeeon* IKB)
 - 8.2 Mobile phone based Help Line
 - 8.3 Audio-visual information
 - 8.4 Soil Test
 - 8.5 Water pH Test
 - 8.6 Government forms
 - 8.7 Email/Internet Browsing
 - 8.8 Nebuliser Use
 - 8.9 Blood Pressure Measurement
10. Curriculum Vita Format (Bangla and English)
11. Event and Camp Arrangement
12. Activities of *Infomediary*
 - 12.1 Activities of Centre Manager
 - 12.2 Activities of Male *Infomediary*
 - 12.3 Activities of Female *Infomediary*
 - 12.4 Activities of Mobile Lady
13. Daily Necessary Activities
14. Accounts Maintenance
15. Miscellaneous (Forms)
 - Service Card, Service Card Register, Content, Email, Internet Browsing Register, Money receipt, Audio-Video Show Register, Soil Test Results, Water pH Test Results, Soil and Water pH Test Register, Requisition Register, Mobile Phone Register, Service Price List, Necessary Website Address

Authors' Profile



Md. Forhad Uddin

Md. Forhad Uddin is the Senior Research Associate of D.Net (Development Research Network). Mr. Uddin completed his B.Sc. in Fisheries in 2001 and MS in Fisheries and Marine Resource Technology in 2005 from Khulna University, Bangladesh. He started his professional career at D.Net in 2004. He is leading the project titled 'Community for Learning Information Communication and Knowledge' (CLICK). He worked with a number of action research project on ICT for development. During the research work at D.Net he has gone through a number of skills development programmes which include Outcome Mapping Methodology, which is a new tool for impact assessment of an intervention. He has developed his capacity on research management, project management, appropriate site and partner selection methodology for telecentre operation, *infomediary* selection methodology, designing training session, evaluation of development research project and statistical analysis. Mr. Uddin has a diversified research interest which includes access to information and knowledge for development, rural development and planning, conservation and management of natural resources and environmental impact.



Mahmud Hasan

Mr. Mahmud Hasan is currently the Programme Director of Development Research Network (D.Net). His main strength is to research on understanding the information needs of different stakeholders of the country, content development with especial focus on local language content promotion and marketing for the developed content, and programme management. Mr. Mahmud Hasan has been the country lead for Young Social Entrepreneurship Initiative (YSEI) hosted by Global Knowledge Partnership (GKP), Malaysia. Besides, Mr. Hasan is the managing editor of "Pallitathya Bulletin", monthly bulletin on livelihood issues for rural people of Bangladesh and member of the editorial board of "The Telecentre Times" (Bangla Version). Mr. Hasan is also the Content Coordinator for Development Gateway's ICT4D, E-government, Knowledge Economy and Open Education Resources.

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6/8, Humayun Road, Block B, Mohammadpur, Dhaka 1207, Bangladesh.

E-mail: info@dnet.org.bd Web Address: www.dnet.org.bd

Tel: +88 02 8156772, 9131424, 8124976 Fax: +88 02 8142021



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