

End of Project Report

Project Title: Rat Management for Rural Communities

Lead Project Organisation: Association for Integrated Development-Comilla (AID-COMILLA)

List of Partners: Natural Resources Institute (UK), Bangladesh Agricultural Research Institute (BARI), Department of Agriculture Extension (DAE), SHUSHILAN, MUKTI Nari, LDRO, ARBAN, PrompT, BRMA, MAWTS

1. Knowledge being put to use

Identify and describe all the knowledge products, processes that have been put to wider use in this project. This can refer to methodologies, techniques, tools and resources etc. Please refer to section 2.6 and 3.1 of your full proposal to answer this section. Please also provide data on the number relevant to, or designed primarily for use by, women.

RNRRS generated knowledge used:

Despite the major economic impacts of rodents, they remain poorly managed in many situations through a failure to appreciate the range and scale of damage, to understand the population ecology of specific rodent species and appropriate management strategies, and ultimately to assess the costs and benefits of rodent pests and of their sustainable management. RNRRS knowledge (R8424, R8184) was generated in Bangladesh to address the problems with pest rodents experienced by people living in rural agricultural communities. This research showed that 5-10% of stored grain was lost to rodents over each 3-month storage period (each household losing $\approx 200\text{kg/yr}$). Contamination with urine and faeces was also severe (200 > 1,500 droppings per kg). In common with most of Asia, Bangladesh farmers routinely plant 2 rows of rice for the rats for every 8 rows sown (pre-harvest losses ranging from 5-17%). Farmer damage assessments highlighted some of the more overlooked impacts of rodents, namely physical damage to houses, personal possessions, roads and fields. This damage requires extensive repair time to houses and fields, and significant financial expenditure when clothes, blankets, fishing nets, baskets, utensils, etc. are damaged. EBRM strategies were shown to reduce the impact of rodents by 60-80% for different measurable indicators. This was established through comparing intervention villages with non-intervention villages using case-control study designs. Similarly, farmer assessments showed EBRM strategies were roughly the same cost (financial and time) as former practice, but with a much higher benefit (rat population reduced by >75%). Furthermore, RNRRS actions trialled a training and dissemination system for delivering the knowledge required by rural communities to more effectively manage their rodent pest problems. Training materials in Bengali (video and manuals) were produced to assist knowledge extension.

The RIU initiative aimed to build on these previous RNRRS investments by establishing links between NGOs, commercial enterprise and the Bangladesh

government Department of Agricultural Extension to deliver training, technology inputs and demonstration to a large number of farmers based in the Southeast, Southwest and Northern regions of Bangladesh. Creating this network of stakeholders was deemed the most appropriate way of identifying and overcoming bottlenecks in the supply of knowledge and tools to improve rodent management within rural agricultural communities. The problems around rodent pest management delivery are largely related to lack of knowledge at all levels of society about the scale of the problem and the potential solutions. Awareness raising and education were considered key issues that needed to be addressed in order to build end-user demand and competence for better rodent management. Methods for creating end user demand for rodent management were a main action of the RIU project. Bottlenecks related to the supply of rodent management were related to the provision of appropriate knowledge and technology/strategies to end users. Therefore, methods for supplying knowledge and tools were a main activity of the RIU project. The premise of the project is that increasing the supply of rodent management knowledge and tools will lead to increased demands and a virtuous cycle of sustainable supply-demand infrastructure.

Significant evidence through RNRRS and other donor research programmes operating in parts of Africa and Asia have developed a strong consensus around the paradigm of Ecologically-Based Rodent Management (EBRM) as the most appropriate solution for managing rodent pest problems, particularly in developing countries where the impact of rodents on people's livelihoods is severe. EBRM has been shown to be cost effective, even in the context of poor subsistence level agricultural communities, and to be environmentally sustainable. Social anthropology is an important methodological component of EBRM as adoption must be at the community level in most circumstances, to ensure high levels of "buy-in" to the process and minimise "free loaders". Social sustainability is, therefore, another essential component of successful EBRM programmes.

The knowledge products and processes of this RIU project align with the project's five outputs, described in Section 2. Two of these outputs deal with education, training and knowledge delivery, one output with knowledge dissemination pathways, one output with technology supply/delivery and the final output with policy recommendations. This process involves training communities by providing them with basic knowledge about rodents to create awareness about the problem. For example, few are aware of the health problems caused by rats. As part of this training programme, key management activities are demonstrated within the community. This involves how to make indigenous household stored rice containers rat proof, how to minimise rodent nesting in haystacks and reduce rodent nest sites in houses, village environments and rice fields, how to carry out rodent trapping (location, placement, baiting), and how to organise rodent management at the community level. This training also targets and involves local opinion makers such as teachers, important farmers and local government officials as a means of increasing awareness, adoption and support within communities.

Non RNRRS generated knowledge used:

Ecologically-based rodent management is a paradigm that is not specifically attributed to the RNRRS programme and has developed through parallel funding received from a number of donors, particularly the EC research framework, EC development fund, World Bank, UNDP, ACIAR and AusAID. Much of this rodent management research has informed the thinking behind the RIU project in Bangladesh. History and links related to rodent management research, particularly in Asia can be found at <http://sites.google.com/site/rodentmanagement/home>

2. Project Outputs

In this section we would like you to describe the status of achievement of your stated outputs and also the changes (if any) that have taken place to your project outputs. Kindly explain the reasons for the changes (if any) that have occurred. Please refer back to sections 2.6 and 3.1 of your full proposals.

Project Output Title	Status of achievement	Deviations if any	Reasons for the deviation
1: Improved institutional knowledge and capacity to deliver EBRM to rural farming community end users	This output is 100% complete. Institutions involved in delivery of EBRM received training at the outset of the project through formal lectures and practical. Staff at these institutions are subsequently putting this knowledge to use within the community training activities (output 2). Through this, we can see that knowledge uptake and retention has been very high, and the training received has been positively assessed by all those that have received it.	None	
2. Improved knowledge and capacity of end users to implement sustainable and cost-beneficial EBRM	Community training is nearly complete and on target (15,000 participants). Project partners have been impressed with the enthusiasm and depth of understanding shown by participants. Follow up monitoring has shown that participants do understand the knowledge given, can remember key facts, and are able to put the knowledge into practice. Monitoring of the impacts of the training has been ongoing throughout the project and changes in behaviour and practice were captured by the project monitoring and data management strategy.	A reduction in the number of end users was agreed with RIU management.	At the time of the project contracting, the value of UK Sterling was unusually high. This exchange rate was used during the formulation and agreement of the project's budget. Soon after signing the contract, there was a large, rapid fall in the exchange rate, after which the value of Sterling remained low. As fixed contractual costs in Bangladesh could not be changed,

			the solution was to reduce the number of farmers trained.
3. Improved availability of rodent management tools that are cost effective for rural farming communities	Commercial manufacturing of a new design rat kill trap was established in Bangladesh. Preliminary evaluations have tested the trap, and it proves to be nearly as good as those manufactured in the United States. Weak areas have been addressed in further manufacturing batches, but there is still some room to improve the durability of the traps. The great majority of traps last more than one year. The current cost of the local production is 80 taka per trap which is much less than the purchase and importation of similar traps from the US. Discussions with communities in the different regions suggest there is some regional variation on the price people are willing to pay. Suggested prices by those that have used them range from 30 to more than 120 taka each. End user demand for the traps is very high, and it has not been possible to fully meet this demand. Creating a steady stream of trap supply for selling through commercial partners and NGOs has been difficult. This is largely due to institutional changes at the partner MAWTS that has manufactured the traps. These changes have made it difficult for traps to be stockpiled without payment in advance. It is likely that a different institution will have to be found to manufacture the traps to get around this bottleneck.	None	
4. Improved knowledge dissemination pathways for EBRM	We have begun to establish a wide recognition of our project across many stakeholder levels. Many donors, development institutions and communities are now more aware of EBRM and the difference it can make to people’s livelihoods. We have achieved this through the creation of our website, publishing popular articles in newspapers and institutional magazines of the DAE, holding lectures and meetings with academics, donors, international agencies and holding press conferences and ensuring journalists are always invited to key events. Awareness raising has also happened by ensuring the attendance of high profile VIPs to meetings, which further attracts journalists and media to publicity events. We have especially targeted communities as	None	

	the main recipient for dissemination using a combination of leaflets, posters, banners, billboards, training manuals, video, songs and drama. These forms of dissemination are designed to make the issues of EBRM accessible to local communities, teachers, councillors and respected community members. The project’s communication strategy will continue to escalate beyond the life of the project through continued action by NGO partners.		
5. Improved policies and recommendations on rodent pest management	We have developed a strong relationship with the DAE. We believe the DG will provide us with an opportunity to improve policies within the DAE after the project has completed. Project team members have met with the FAO country coordinator, WFP and UN staff as well as many donor representatives. Through this, we believe awareness about EBRM and the problems rats cause is higher among decision makers in Bangladesh than it ever has been, particularly due to the rat floods occurring in the Chittagong Hill Tracts.	None	

3. Activities undertaken for putting knowledge into use

<p>Briefly describe the nature of specific activities you have adopted in your project to achieve the outputs stated above, please refer to the Project Log frame to answer this section. Did you have to use any new activities [other than what you have committed in the log frame] or modify these activities and if so explain the reasons for the same.</p>
<p>Output 1: Improved institutional knowledge and capacity to deliver EBRM to rural farming community end users.</p> <p>Activities for Output 1:</p> <p>1.1 Training materials developed and produced</p> <ul style="list-style-type: none"> • Project Brochure (English), 4 colour, 10,000 copy • Rodent CD (reprint) English, 1,000 copy • Rodent CD (reprint) Bangla , 1,000 copy • Festoon, 4 colour (Bangla), 3x 2 feet, 500 pc • Farmers Dairy (Bangla), 15,000 copy • Leaflet on Modified Rice Storage System (Bangla), 4 colours, 8.5 x 11.5 inch, both side laminating, 20,000 copies • Leaflet on Nature of Damage (Bangla) , 4 colour, 8.5 x 11.5 inch, both sides laminating 20,000 copies

- Leaflet on summary of project (Bangla), 4 colour, 8.5 x 11.5 inch, both sides laminating 20,000 copies
- Leaflet on general description of Rat (Bangla), 4 colour, 8.5 x 11.5 inch, both sides laminating 20,000 copies
- Leaflet on general description of Rat species (Bangla), 4 colour, 8.5 x 11.5 inch, both sides laminating 20,000 copies
- Leaflet on health issue due to Rat (Bangla), 4 colour, 8.5 x 11.5 inch, both sides laminating 20,000 copies
- Poster on Rodent (Bangla), 4 colour, 22 x 14 inch, 15,000 copy
- Trainer Manual, (Bangla) 56 pages, 4 colours, 600 copies
- Trainer Manual, (Bangla) 28 pages, 4 colours, 600 copies

1.2 Training course delivered to senior institutional staff

Training has been provided to all senior staff members (Regional Director, Deputy Director, Subject Matter Specialist, Upazila Agriculture Officer, Agriculture Officer etc.) of Department of Agriculture Extension (DAE) in the targeted District and Upazila level by NRI, BARI and AID-COMILLA. This is one day training. The DAE Officials who received the training they act as resource person during the farmers training at field level.

1.3 Training course delivered to implementing staff

Training has been provided to all staff members of the project at the beginning on project where experts from NRI, BARI and AID-COMILLA facilitated the training. Issue based training such as trapping, modified rice storage, storage loss assessment, haystack, facilitation technique, maintaining farmers training, FGD etc. also provided. All the staff members of the project are capable to explain use of qualitative tools to measure the delivery and impact of EBRM over time.

1.4 M&E of training uptake

All project staff received training on PRA technique for conducting FGD at farmer's level. The training conducted by PromPT. Assessment was take place during and after training courses using PRA

Output 2: Improved knowledge and capacity of end users to implement sustainable and cost-beneficial EBRM

Activities for Output 2:

2.1 Defining community cohesion level

Although baseline data exist from previous RNRSS work, it has necessary to carry out PRAs in each project area at the very outset (collecting socio-economic and knowledge, attitude practice information) as the basis of measuring potential changes in people's livelihoods over time, including how people's attitudes and behaviour change as well as the effects of these changes on rodent management activities and overall livelihood improvements. These surveys establish the level of community recognition of rodent pests, current rodent management activities and the communities' willingness to participate in the RIU action. In this regard our baseline M&E has participatory, encouraging project staff and end users to jointly take responsibility to analyse, prioritise, evaluate and discuss the impact of the project actions.

2.2 Trainee selection

Each training group has limited to 25 people, where each group consists of people drawn from the same community. The project team work together with the community to identify the most appropriate and interested people wishing to receive training. Participation has stratified by gender, religion and wealth but also ensuring that teachers, Union-level political leaders and respected/influential community members are included. The objective is to create a representative group comprising the main social groups found in the community, but also recognising that particular sectors of the community has more proactively involved, e.g. women in the delivery of EBRM and teachers/leaders in the awareness creating/knowledge dissemination.

2.3 Delivery of Ecologically Based Rodent Management training to end users

During the project period we were able to train 15,000 farmers from 154 community (village) in different locations of Bangladesh. Out of 15,000 participants only 19 were male, the remaining 14,981 are women. Technical support has been provided by Natural Resources Institute (NRI), Department of Agriculture Extension (DAE) and Bangladesh Agricultural Research Institute (BARI). Training delivery at the farmer's level in different locations of Bangladesh has focused specifically on design and implementation of effective rodent management systems at the local level. Training materials and curricula were designed and delivered to the trainees in Bangla dialects.

Training delivery mechanism

Considering the knowledge-base of the participants, an interactive training approach emphasizing participatory learning was applied. The training delivery methodology included (but was NOT limited to) the following:

- Interactive Information Sharing
- Integration and Reflection
- Complex Interactive Exercise
- Group Exercise
- Multi Media Presentation
- Species Collection and Demonstration
- Use of Rat Kill Traps
- Demonstration on Modified Storage System
- Demonstration on Modified Hay Stack
- Video show on 'Rat Management'

All those contributed to make the training interactive, effective and increasing understanding of the training recipients on Ecological Rodent Management techniques and technologies.

Training Topics

The training curricula included the following topics:

- Rodent Species
- Rodent Behaviours and Biology
- Nature of Damages (how rodents damage/ symptoms)
- Rodent Disease
- Rodent Control / Management Techniques
- Rat Floods Associated with and Flood/Heavy Rainfall and Rodent Migration

The training methodology and training format aims at transferring the content taught in a way that participants will be able to practically use in their own settings. Therefore, the methodology of the training is based on Adult Learning Principles, which allow the transfer of information not only in a cognitive manner, but also in an experiential way.

2.4 Community-level knowledge dissemination

Trained community members disseminate their acquired knowledge to other community members. This has facilitated by NGO staff who revisited communities regularly. Initial follow-up was happen within a few days, followed by regular monitoring and evaluation visits at 2-4 week intervals whereby coalition staff visit the village to answer questions and check on progress of any management actions taken forward in the village. These follow-up visits are an important part of the training programme to ensure that knowledge given has been understood, giving an opportunity to ask questions after the knowledge has been thought over and put into practice. Regular follow-up every few weeks will take place over a relatively long period of time (6-12 months) in order to collect appropriate monitoring and evaluation data. This has followed by less frequent monitoring visits (every 3-4 months) to assess sustainability and impact.

2.5 Environmental management demonstration

In conjunction with follow-up visits carried out under activity 1.4, NGO staff was engage with communities through group meetings which involve the locally trained staff to explain hygiene and sanitation issues and rodent transmitted disease issues to increase overall awareness. The concept of environmental management has introduced, and partners hasgin a process of demonstration on different activities that can be employed. This is likely to involve actions developed in RNRRS work on improved food storage methods to prevent rodent access and changing the way livestock fodder haystacks are made to reduce rodent harbourage near human habitation. Demonstration will necessarily be flexible and based on perceived needs in conjunction with increased awareness raising within the community.

2.6 Community decision making and EBRM implementation

Through the training and discussion activities undertaken by the NGOs and trained community members, the village has supported in a decision making process on how to tackle rat problems. The need to act as a unit has understood, and a process of intensive trapping has agreed. Consortium partners will have explained the various financial and organisational costs as well as the different EBRM trapping models that could be adopted, e.g.

25% rotational, 50% individual fixed but dispersed, or even 100% of all households. Generally communities has advised to adopt a 25% rotation scheme as it has financially cheaper, albeit with higher organisational costs. Ultimately, this has an informed community decision. Communities will need to understand that they will eventually be asked to find a way to fund their community EBRM programme. This may rely on all households contributing, emphasising that wealthier members can pay more. Previous RNRRS action suggests there has a high uptake of trap purchase that has sufficient to ensure the rodent population can be effectively reduced.

2.7 M&E of training uptake

Quantitative and qualitative assessment has carried out during the delivery of the training. Further qualitative assessment occur during the follow-up visits planned as described in activity 2.4. Documentation of M&E data, e.g. quantitative quizzes, tests and feedback forms and qualitative assessments by NGO implementing partners, has collated on a quarterly basis and handed up to the Data Manager at PromPT/AID-COMILLA. The qualitative assessment criteria includes surveys of knowledge awareness among community members that have not been trained (paying heed to different social groups) and ultimately in the decision making processes at the community level. Result level qualitative monitoring has done using interactive PRA groups in each community, with information collected by NGO implementing staff. Outcomes and impact level qualitative monitoring has done with PRA group sessions. Qualitative indicators will involve measuring changes in knowledge against the baseline PRA survey. Development of qualitative indicators used in the programme will occur in the first three months of the project in discussion with a subset of target communities (5-10%).

2.8 M&E of EBRM implementation and impact

There have been no negative external impacts affecting the project within Bangladesh. As indicated below under Assumptions, the changes in financial rules after contracting and a major decline in the strength of Sterling exchange rates were not originally anticipated have led to some external impact on delivery of on-the-ground activities. So far, these impacts have been managed effectively, but the project team is concerned the current financial payment systems is unsustainable and may even be illegal under Bangladesh government rules governing NGO activities. The EBRM approach has been widely recognized by different donors, particularly the UNDP, EU and AusAID which have subsequently funded actions in the Chittagong Hill Tracts (CHT). The large rat outbreaks occurring in the CHT are related to a 50-year cycle of bamboo flowering that leads to very large rodent population expansion. This event can cause large-scale famine and human population migration. It can also foment civil unrest, and for this reason, the UNDP has been taking the rat flood outbreak in the CHT very seriously. This has been a positive external impact on our RIU project, helping to raise the profile and awareness of rodent pest problems throughout the country, in general, and would not have been possible without the previous capacity building that has occurred within AID-COMILLA and partner organizations to be able to deal with externalized problems such as the bamboo flowering event affecting the livelihoods of everyone in the CHT. Staff at Dhaka University and the DAE are now more aware of the EBRM approach and its effectiveness. The Vice Chancellor of Dhaka University suggested it was important to raise awareness about rats and subsequently hosted an international seminar for lecturers and students on rat management. The DAE is now using EBRM technology for their own rat management programme, with the RIU team providing technical support to the DAE.

Output 3: Improved availability of rodent management tools that are cost effective for rural farming communities

Activities for Output 3:

3.1 Infrastructure investment, production design, materials sourcing

Trap design has done by MAWTS in their Dhaka central workshop located at Mirpur, Dhaka . All the raw materials were purchased from the local market. First MAWTS supplied 300 traps for field testing. Up on one month field test at village level we find some defective and informed MAWTS. Then the modified their design and produced 20,000 kill trap as per specification.

3.2 Staff recruitment

MAWTS employed one production engineer and one marketing officer for the job and they performed efficiently. BRMA employed one marketing officer for the purpose.

3.3 Market assessment

A baseline assessment of the market in rodent management tools has carried out by MAWTS and BRMA.

3.4 Distribution

BRMA was responsible for the marketing of the new design kill trap. During the project period they marketed 10,444 trap across the country through their 22 retailer using their existing distribution networks and retailers selling rodenticides and through hardware shops. This has coordinated by the BRMA who monitor availability and marketing of the traps at different points along the distribution chain.

3.5 Advertising, creating demand

MAWTS and BRMA invested their own marketing strategies and advertising. More over from the project 500 fastoon and 20,000 hand bills was supplied to BRMA to use through their marketing channels.

3.6 Outcome M&E

Process and progress monitoring of trap manufacturing and distribution has done by AID-COMILLA .

Output 4: Improved knowledge dissemination pathways for EBRM

Activities for Output 4 :

4.1 International dissemination

The rodent web site was set up in September after the official launch ceremony in August and linked with the main RIU and grapevine websites. Since the rodent website was established, 60-160 unique visitors per month have visited the website, hailing from 43 different countries around the world. Most website hits are from Bangladesh, UK, USA, and India. Searches on Google remain, by far, the main way people access the site by people entering key word searches such as rats, rodents, EBRM, rat control, rat management, etc. However a significant number of visits occur through links

made to our site on other websites, including the RIU site, IRRI, PBS and NRI sites.

The following link also discriminated our activities in international communities:

BBC World Service (2010) Rat Attack Science in Action. November 19th, 2010. <http://www.bbc.co.uk/programmes/p00bwg89>

BBC Earth News (2010) Attack of the Rats. November 19th, 2010. http://news.bbc.co.uk/earth/hi/earth_news/newsid_9198000/9198744.stm

CBCRadio (2010) Falling Flowers Rising Rats. Quirks and Quarks. December 11th, 2010. <http://www.cbc.ca/quirks/episode/2010/12/11/december-11-2010/>

Belmain, S.R. (2010) Battling rodents in Bangladesh. *Pest*. 11: 23-25. <http://www.pestmagazine.co.uk/DocFrame/DocView.asp?id=324&sec=-1>

Normile D. 2010. Holding back a torrent of rats. *Science* 327, 806-807. <http://www.sciencemag.org/cgi/content/summary/327/5967/806>

Belmain, S.R. (2009) Rat Race. *Developments*. 45: 33-35.

<http://webarchive.nationalarchives.gov.uk/20100423085026/http://www.developments.org.uk/downloads/Developments%2045.pdf>

Singleton, G.R. Belmain, S.R. and Brown, P.R. (eds.) (2010) *Rodent Outbreaks: Ecology and Impacts*. International Rice Research Institute Press, Los Banos, Philippines. 289 pages. <http://snipurl.com/27vrix> - contains two chapters from Bangladesh

Singleton, G.R. Belmain, S.R., Brown, P.R., Aplin, K. and Htwe, N.M. (2010) Impacts of rodent outbreaks on food security in Asia. *Wildlife Research*. 37:355-359. <http://dx.doi.org/10.1071/WR10084>

Io9 Blog <http://io9.com/5694107/massive-plagues-of-rats-swarm-across-india-every-fifty-years>

For general information and awareness raising about rodent outbreaks, a documentary film was produced by Oxford Scientific Films Ltd. This 45 minute documentary film has been broadcast on the Discovery Channel, Animal Planet in mid-January 2011 in the United States, and thereafter has been broadcast in parts of continental Europe (Belgium, Netherlands, Germany, Poland, Sweden, Finland, Russia, Ukraine) South Africa and Latin America. As of yet, no dates have been confirmed for its release in South Asia, the UK or other parts of Europe. This documentary can be downloaded via <http://www.nri.org/projects/bandicoot/docs/swarmchasers%20rats.wmv>

Seven Bangladeshi nationals attended an international conference at the International Rice Research Institute entitled: Impacts of rodent outbreaks on food security in Asia. IRRI, Los Baños, Philippines from 26-28 October 2009. Three oral presentations were made on rodent research carried out in Bangladesh, including research carried out by the FAO, the World Bank and the RIU. Dr. Steven Belmain of NRI, University of Greenwich was the co-

organiser and a principal speaker at the conference.

Three Bangladeshi nationals attended the 4th International Conference on Rodent Biology and Management, University of Free State, Bloemfontein, South Africa from 12-19 April , 2010. Preliminary results from The Rat Management for Rural Communities project were presented in an oral presentation.

4.2 National dissemination

Television stations that telecast the project launch event

- Bangladesh Television (Government Owned)
- Channel I
- Boishaki Television
- ATN Bangla
- Ekusha Television

Print Media which published news about the launch ceremony and the project in response to a press conference held the day before the launch ceremony.

- Daily Ittafaq (Bangla), published August 1st , 2008
- The New Age (English), published August 2nd , 2008
- Daily Prothom Alo (Bangla), published August 3rd, 2008
- Daily Ruposhi Bangla (Bangla), published May 15th , 2008
- The Comillar Kagog (Bangla), published May 15th, 2008
- Daily Janakhonta (Bangla), published August 3rd , 2008
- The Independent (English), published August 2nd, 2008
- Weekly Comilla (Bangla), published August 10th , 2008
- Daily Shakti (Bangla), published August 2nd , 2008

Print media that published a rodent article about the project

- The New Nation (English), published August 4th, 2008
- The Independent (English), published August 13th , 2008
- The Financial Express (English), published August 1st , 2008
- The News Today (English), published July 31st, 2008

Print media that published an article on Rat Flood at CHTs and international seminar

- The Daily Star (English), published February 18, 2009
- The New Age (English), published February 18, 2009
- The Financial Express (English), published February 17, 2009
- The Independent (English), published February 20, 2009
- The Bangladesh Today (English) published February 17, 2009
- The New Nation (English) published February 16, 2009
- The Daily Ittfaq (Bangla) published February 19 & 21, 2009
- The Daily Janokhanto (Bangla) published February 16, 2009
- The Daily Amar Desh (Bangla) published February 16, 2009
- The Daily Jai Jai Din (Bangla) published February 18, 2009
- The Daily Noya Deganto (Bangla) published February 18, 2009
- The Daily Prothom Alo (Bangla) published February 18, 2009
- The Daily Ruposhi Bangla (Bangla) published February 16, 17, 18 , 2009
- About 50 web-based news articles based on [AFP news agency release](#)

Television stations that telecast the international seminar

- Channel I
- Bangladesh Television
- ATN Bangla

Project activities telecasted by Bangladesh Television (a government owned television owned). Two-member team from Bangladesh Television (A Government owned Television) visited our Rat Management for Rural Communities Project on June 02, 2010 and the prepare a 20 minutes documentary on the Project, On June 09, June 10 and June 21, 2010 at 08:30 PM the telecast the documentary. Millions of viewers viewed the documentary with high interest

4.3 Local dissemination

Local discrimination done following tools:

- Drama on rodent issue
- Participation in District , Upazila level Agriculture Fair every year sponsored by DAE
- Poster distribution

- Fixation of Bill Board
- Distribution and fixation of Festoon in different important place of the working area as well as outside working area.

4.4 M&E of dissemination uptake

Copies of all material outputs produced by the project and via other media efforts has kept centrally by the Data Manager. Where possible, electronic copies of all written, video and audio materials has uploaded to the EBRM website. Materials produced with project funds has quality controlled by the training manager, M&E manager and project leader. Where possible other media outputs has similarly quality controlled before publication. Feedback mechanisms has built in to many of the materials, giving contact details of partners and where to find further information, and enquiries from the public has monitored and documented. The EBRM website will use widely available software (e.g. www.statcounter.com) to monitor knowledge dissemination through the website.

Output 5: Improved policies and recommendations on rodent pest management

Activities for Output 5 :

5.1 Union/Upazila mobilisation

The project has specifically targeting policy makers at the local Union and Upazilla levels, ensuring that local leaders receive appropriate knowledge and awareness about rodents and EBRM. In this way policies at this level can be set through the initiative of local leaders. We will also encourage target communities to lobby their local leaders with regards to priority setting and tapping into the use of local development assistance funds that are managed at the Union and Upazilla levels. Communities has given the confidence to do this through the training and support systems of the project. This could lead to reprioritisation and long-term use of local funds for rodent management actions which can be particularly important in the context of rodents which may be living in “no man’s land” such as in the foundations of roads, dikes, railroads or bush land.

5.2 National Regulatory Authorities

Although many anticoagulant poisons are registered for use in Bangladesh, the large bulk of rodenticide produced and sold is the acute poison Zinc Phosphide. As described elsewhere in this proposal (e.g. section 3.6), acute poisons should generally be discouraged as they are not that effective and have considerable mortality risks for children and livestock (fast acting with no antidote). Current regulatory frameworks in Bangladesh do little to change the emphasis of rodenticides imported from India, following basic supply and demand economics. However, improved and more informed regulation could help rebalance poison use towards the more effective and safer anticoagulants, increase the affordability of anticoagulants, and improve packaging information on all rodenticides that can help encourage a public shift in the types of poison used. For example, people simply don’t understand the different modes of action of acute and chronic poisons, and the packaging information could explain the expected results in a more practical way, i.e. bodies will not be found when using anticoagulants. The project will, therefore, target members of the national Pesticide Registration Authority and Pesticide Technical Advisory Committee to influence and inform regulations related to rodenticides. Regular meetings of the Pesticide Technical Advisory Committee, which is comprised of scientists from BRRRI, BARI, DAE and experts from Ministries of Agriculture, Environment and Health, has used as an opportunity to create awareness about the EBRM initiative and how government can play a role in

encouraging more pro-active regulation.

5.3 Department of Agriculture Extension

The DAE plays a significant role in setting national priorities and policies related to rodent control and staff training. Currently, rodent management recommendations revolve around an annual rodent bounty campaign during one month of the year where people are encouraged to collect rat tails, winning prizes for the most tails collected. Although the bounty campaign will raise awareness, it does little to promote sustainable management through encouraging tail collection that can only be reliably done with acute poisons. Indeed to collecting the most rat tails will actively discourage sustainable long term management of rodents so that the rat population remains high at the time of the bounty campaign. Awareness of these issues and alternative national strategies such as EBRM has created among staff at the DAE, particularly in the Plant Protection Wing, with a view to abolishing the bounty and replacing it with a policy that advocates EBRM and community rat management. The DAE is also involved in setting the curriculum for extension staff training delivered through agricultural colleges, and EBRM project staff will work together with DAE staff to revise the curriculum, giving more emphasis to rodents than is currently the case.

5.4 NGOs

We expect one of the main exit strategies employed for encouraging further dissemination of EBRM after the project completes to be the use of NGO-operated revolving fund schemes and credit programmes whereby NGOs purchase traps in bulk, bringing these to communities within a knowledge transfer programme. Once the community sees the value, its purchase of the traps allows the NGO to buy more traps and repeat with a new community. This sort of scheme is widely used by NGOs in Bangladesh for many different activities, and we believe this is a feasible plan for continuing after the RIU programme ends. Using the results of the EBRM initiative, we expect to create awareness across the NGO sector, giving details of the economic sustainability of operating such schemes and the benefits which accrue to people's livelihoods. This has done by targeting NGO conferences and journals in Bangladesh, providing information on the costs and benefits of EBRM.

Activities other than Planned: Community Trapping

- Communities may choose 25% rotation every week,
- 50% rotation every two weeks
- individual trapping as long as general EBRM principles are upheld
- Entire community involved (or nearly so)
- Daily trapping
- Rotation must cycle monthly in order to link with rodent breeding rates
- Environmental management

Media Coverage:

In Bangladesh:

Print Media: All the Bangladeshi English and Bangla news paper published article on the issue as well as project which created significant impact.

Electronic Media: Bangladesh Television (Government) produced a documentary on the project and telecast in June 2010 for 3 days

International Media: See section 4.1 above for mention of media outputs produced by Canadian, British and American journalists

Dramas, Songs

Coalition partner SHUSHILAN has developed two pot songs and 1 drama about the rodent project and has been performing the songs and drama in the field. All other partners will use this during future training sessions and we will record these songs to video for uploading to the project website in the near future.

4. Partnerships

i). Have all partners listed in your project proposal contributed as expected in the project? Did you have to drop some of the partners and bring in new partners to achieve the objectives of your project? Kindly describe your experiences in this regard.

i). Yes all the partners contributed as expected except PromPT. Trip Report by MIL Advisor: Bangladesh, 9th-24 January 2009 stated that . PrompT (Said Rukanuddin and Amir Hossain) has trained partner NGOs in village mapping, but apart from this it was not clear what specific backstopping in participatory or qualitative methods PrompT will contribute to the project. After that we drop PromPT from our partnership.

As per project documents the role of PromPT was: PromPT is the leading NGO in Bangladesh specialising in training and capacity building of other NGOs as well as many government institutions in the field of monitoring and evaluation, assessment methodologies and participatory M&E strategies. The project Data Manager will be supplied through PromPT which will have overall responsibility for monitoring and evaluation of the project action. PromPT is a professional organisation dedicated to promoting and instituting participatory approaches in development projects through playing a catalytic role.

After the dropping of PromPT , AID-COMILLA itself performed the responsibility of PromPT.

5. Policy change

i). Have you engaged with policy makers in this project and what has this experience been like?

ii). Who are the critical policy makers /policy influencing groups that are essential for up-scaling your interventions? What mechanisms were used

to engage with policy makers?

iii). Please detail policy changes to which your project has contributed, for example have any other organisations adopted or promoted lessons derived from your project?

- 1) We have developed a strong relationship with the DAE, and particularly with the new Director General who was formerly in charge of Plant Protection. The current DG is very familiar with our project, the problems and solutions we are advocating for rodent pest management and the need to increase resources and awareness to deal with rodent management. We believe the DG will provide us with a good opportunity to improve policies within the DAE over the next year and we have been planning to meet together with the Minister of Agriculture to discuss rodent management issues and implementing sustainable changes within the DAE. Although it has not yet been possible to schedule the meeting, this Ministry-level will be pursued even after the RIU project has completed. Project team members have met with the FAO country coordinator, WFP and UN staff as well as many donor representatives. Through this, we believe awareness about EBRM and the problems rats cause is higher among decision makers in Bangladesh than it ever has been, particularly due to the rat floods occurring in the Chittagong Hill Tracts. At the beginning of the project we organize a Inauguration workshop on August 2, 2008 at Dhaka where policy makers from Ministry of Agriculture, DAE, BARI, BARC participated.
- 2) The Parliament Members of our project area as well as DAE Officials are the policy makers /policy influencing groups for up-scaling our interventions. At District level the DAE officials are joining the project activities and during District Agriculture Fair we established our stall and most of the time the parliament member inaugurate the district agriculture fair and gather knowledge from our stall which will be used in future for any policy.
- 3) There have been no negative external impacts affecting the project within Bangladesh. The EBRM approach has been widely recognized by different donors, particularly the UNDP, EU and AusAID which have subsequently funded actions in the Chittagong Hill Tracts (CHT). The large rat outbreaks occurring in the CHT are related to a 50-year cycle of bamboo flowering that leads to very large rodent population expansion. This event can cause large-scale famine and human population migration. It can also foment civil unrest, and for this reason, the UNDP has been taking the rat flood outbreak in the CHT very seriously. This has been a positive external impact on our RIU project, helping to raise the profile and awareness of rodent pest problems throughout the country. AID-COMILLA was contracted by UNDP to develop training module and to train 2,500 local leaders, school teachers, religious leader, students, NGO staff, UNDP staff, DAE staff etc. on EMRM by which rat management can be done if there is any rodent out breaks.
- 4) The World Bank/Krishi Gobeshana Foundation of Bangladesh Agricultural Research Council awarded us to conduct a research project titled Ecological Determinants of Bamboo Flowering and Rodent Population Outbreaks in the Chittagong Hill Tracts. This is also recognition of our interventions.
- 5) UNDP hired Rodent team led by Dr. Steven Belmain of NRI in Bangladesh for a Scientific Assessment On Bamboo Flowering, Rodent Outbreaks and Food Security: Rodent ecology, pest management, and socio-economic impact in the Chittagong Hill Tracts, Bangladesh in November 2008.

6. Organisational & Institutional Change

i). Has your project resulted in development of new working practices, regulations, functional changes in organisations, emergence of new partnerships etc. within your own project teams and also outside? What has been the effect of these changes?

ii). Have there been any unintended changes / consequences?

AID-COMILLA's initiative, partnership with other organization aims at building good working relationship as well as capacity building with local NGOs, Civil Society Organizations and educational institutions to achieve the greater goal of establishing a poverty-free, environmentally sound and a gender-just society. Neither poverty eradication nor the fight against the forces of under-development is possible by a single organization or authority alone. There are many local NGOs, CBOs, etc. experienced enough and working in the field of development with a strong commitment, but cannot accomplish their objectives due to required support. AID-COMILLA helps these local NGOs, CBOs and educational institutions build their capacity by providing them with technical expertise and financial assistance.

AID-COMILLA's vision of a successful partnership is a relationship where each side is prepared to give up some self objectives in order to achieve communal/joint objectives; where there is a division of roles and responsibilities, a sharing of risks and a pursuit of joint objectives. Whereas donors work directly with organisations which already have the capacity for project delivery, working in partnership involves the transfer of skills which will build the capacity of one of the partners to eventually implement project activities.

The project partnerships also:

- build the capacity of a wide range of organizations (NGOs to village need-based groups) to effectively deliver extension of the methods after withdrawal of support from AID-COMILLA
- build the capacity of NGOs/CBOs to use participatory approaches in EBRM
- build and strengthen NGOs/CBOs capacity to identify and address social and gender issues in field activities
- work with NGOs/CBOs to establish a gender balanced staff from management to field level
- build the capacity of NGOs/CBOs to accurately monitor and evaluate their work
- facilitate networking and skills/information sharing between NGOs/CBOs, the GOB and other stakeholders
- strengthen NGOs/CBOs ability to work with local structures of GOB and apply for funding from donors to implement projects in their own right
- identify partners with whom AID-COMILLA can work in the future
- identify partnership strategies and principles of best practice which can be used by AID-COMILLA and other development agencies in the future
- work with academic institutions and research bodies to investigate topics that farmers identify as being important

7. Lessons learnt

- i). What lessons have you learnt about how to put research into use and enable innovation in agriculture?**
- ii). Have you shared these lessons with others and if so with whom and how?**
- iii). Also, describe what has not worked and explain the reasons why not.**
- iv). What kinds of challenges did you face while upscaling/promoting new knowledge under this project and were you able to address these and if so how?**
- v). What kinds of challenges [technical, organisational, marketing, policy etc.] continue to remain and how you think these could be resolved?**

We have recently discovered that some communities are ceasing to trap once NGO support pulls out. The reasons are complex and range from general attitudes that the rodent problem has now been solved, at least temporarily, or difficulties in continued organisation of the communities once the NGO no longer actively visits a community. Follow-up meetings are ongoing with all communities to establish how pervasive such failures are and the underlying causes and potential solutions. It is likely that the training programme will need to give more emphasis on community organisation and leadership structures as opposed to simply discussing rodent management. Flexibility of implementation is feasible, but possibly not fully appreciated by communities and implementing staff.

Emerging impacts

The biggest change observed has come through a greater community awareness about rats, the damage they cause and how they can be successfully controlled. This awareness has been directly provided by the training and is being monitored by the farmer dairies which are issued to all trainees. Through this awareness comes a greater appreciation of the scale of the problem, changing people’s incentives to do something about the rats. Community members now realise that they must act together and are realising the implications of what that means for organising themselves to overcome one of the main obstacles related to sustainably managing their rat problems. However, as mentioned under Lessons Learnt, there is an emerging issue related to a lack of sustainable community organisation structures which are affecting some community’s abilities to maintain long term actions, with many communities reliant on outside help to provide leadership. Project staff are trying to address this impact.

8. Project Beneficiaries / Scale achieved

Please state the estimated number of people affected by your project. Please note that it is very important that the data entered here is supported by the data you have collected. In the table below an example is given, please use columns below this to enter your own information.

Project Output	Number &	Number & Type	Male	FemaleBenefi	Total	Evidence Index*
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	Type of Indirect Beneficiaries	of Direct Beneficiaries	Beneficiaries (indirect and direct)	Beneficiaries (indirect and direct)		
Output number 1 : Improved institutional knowledge and capacity to deliver EBRM to rural farming community end users	2,000	75	1,000	1,075	2,075	Please see annex #1 Agreement copy with DAE and BARI
Output number 2 : Improved knowledge and capacity of end users to implement sustainable and cost-beneficial EBRM	500,000	15,000	200,000	315,000	515,000	Please see annex #2 Attendance sheet for direct beneficiaries (We have 600 attendant sheets. For example we enclosed only 07 sheets.
Output number 3 : Improved availability of rodent management tools that are cost effective for rural farming communities	100,000	20,000	40,000	80,000	120,000	Please see annex #3 Agreement copy with MAWTS and BRMA
Output number 4: Improved knowledge dissemination pathways for EBRM	800,000	40,000,000	25,000,000	15,800,000	40,800,000	Please see annex #4 website link of publication, tv, newspaper, journal, article etc.
Output number 5 : Improved policies and recommendations on rodent pest management	13,500	850	800	50	850	Please see annex #5 Attendance sheet of Department of Agriculture Extension those who participated in workshops / rodent training etc. as direct beneficiaries from the Policy level of Government of Bangladesh(We

						have about 80 pages attendant sheets. For example we enclosed only 06 sheets.
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*Please provide evidence for the figures included here as a separate attachment, use this column in the table to indicate where this evidence can be found.

9. Poverty reduction & Income generation

<p>i). Describe your achievements here, and please refer to the details in your logframe, for example ‘2000 farmers from Nawaparashui in Nepal have increased their income by 20%’.</p> <p>ii). How much has the base line data collected in the beginning of the project helped shape your project activities? Has that data been analysed and do you have a copy of the baseline report?</p> <p>iii). Have you conducted an impact assessment study? What are the main findings? Kindly attach a copy of the impact assessment report</p> <p>Make sure that all information provided here correlates with the evidence you have collected. Please include the evidence as separate attachments to this report and label the attachments appropriately.</p>
<p>i). 15,000 farmers across five regions of Bangladesh have received training on EBRM, with the training provided by the staff of five different NGOs working in partnership with the DAE. Moulds and templates for locally producing high quality, sensitive and easy-to-use rat traps are now available in Bangladesh. Rat trap manufacture in Bangladesh was possible at one third of the price of buying and importing a similar trap design from the USA and the great majority of farmers and householders felt the trap was excellent value for money and affordable with many willing to pay significantly more than the production cost. These traps were successfully distributed and sold by NGOs involved in the project as well as by the Bangladesh Rodenticide Manufacturers Association of small businesses. The BRMA network extends across the country and was able to quickly sell traps provided by the manufacturer. Rat trap production bottlenecks remain and are related to institutional changes that have occurred at MAWTS – an agricultural training and manufacturing institution which has found it difficult to pre-finance trap manufacturing and stockpiling. This bottleneck can probably be easily resolved by working with a different manufacturing company. Awareness of rodent problems and the use of EBRM methods to tackle them is much higher at the policy level in the government of Bangladesh, particularly within the DAE. This increased awareness has yet to translate into concrete policy changes, but we believe that continued interaction with policy makers will eventually result in positive changes in how knowledge and technology for rodent management are delivered through extension services.</p> <p>ii). Baseline data have been analysed in conjunction with the impact assessment data. However, this is not yet in report format. Impact data were collected over the last two months and have only recently been through the first stage of analysis. The data are unlikely to be prepared in the form of a report, and instead, will be used to develop a manuscript for submission to a peer-reviewed journal. This is likely to take several months of effort beyond the timeframe of the RIU project.</p> <p>iii). We have conducted an impact assessment study. This has yet to be developed into a full report and the effort involved is more likely to take shape</p>

as a manuscript for submission to a peer-reviewed journal. A zipped file of the raw data analysis can be provided on request, but this is yet in a form that is easily digested and will take several months of further analysis to prepare into a manuscript. The main findings from this report are:

1) Education, gender, age and occupation significantly influence outcomes and attitudes towards EBRM. For example, even before involvement in the RIU project, women are more likely to use trapping for rodent control, whereas men are more likely to use poisons. Higher education levels were clearly associated with lower rates of poison use, more awareness about disease problems, etc. 2) Attitudes have progressively changed over each year of the project. For example, those understanding that rodents transmit disease has risen from about 40% at the beginning to more than 95% at the end. And those believing that rodents can be successfully controlled and that their control actions are effective have risen from about 30% to 100% by the end of the project. 3) EBRM has reduced people's problems with rodents and can have expected and unexpected consequences. For example, at the outset approximately 70% of people stated they would cover leftover food at night, but by the end, less than 50% of people stated they covered their food at night. This is unexpected and presumably because there was less of a problem with rodent contamination. More positively, rodenticide use crashed to nearly 0% from approximately 75% at the outset.

10.Social Exclusion & Gender

i). Please explain how the project has targeted women and other socially excluded groups, and provide evidence of the projects impact on gender and social exclusion.

ii). Have you used the data your project has collected on gender and social inclusion in deciding or shaping the project interventions?

Social exclusion summary related to the Project:

- Physically disabled : Involved in EBRM, dependent on extent of disability, they help the women for trap setting in houses those who have hands.
- Mentally disabled: Was difficult to engage in EBRM but they were benefited in their livelihoods through saving money by using the EBRM
- Socially disabled – disinterested: Was difficult to engage in EBRM but they were benefited in their livelihoods through saving money by using the EBRM
- Albinos : Was engage in village area activities, but not in field activities.
- Very old : They participated gaining respect and support at the community level.
- Homeless: Was difficult to engage in EBRM but they were benefited in their livelihoods through saving money by using the EBRM
- Beggars : Was difficult to engage in EBRM but they were benefited in their livelihoods through saving money by using the EBRM

Gender: Out of 15,000 participating beneficiaries only 19 are men, the remaining 14,981 are women. From our previous RNRRS research it was shown that women play a significant role in project implementation in terms of trapping in houses and data collection on rats killed. Men are generally concerned with rodent management in a field context, where problems are perceived to be lower. Women are sometimes dependent on men for rodent pest management as it was men who went to the market to purchase poisons; so women are partly constrained in their ability to manage rodent pests around the household as they potentially had no access to rodent management tools. Women felt strongly empowered by the EBRM intervention, particularly the use of intensive trapping, as this allowed them to do something about their rodent pest problems without repeatedly seeking money to buy poison which their husbands would have to buy. Women also gained considerably more than men in the amount of work saved through EBRM. This is because many household chores that are traditionally female activities became easier, e.g. repairing damaged walls and floors, cleaning the house and repairing clothes and blankets, and were significantly reduced by the EBRM intervention.

11.Unexpected Outcomes

Have there been any events or activities that have happened during project implementation that were never planned, but resulted in new, better or worse outcomes related to your project?

Starting in 2007-2008 there were rodent outbreaks in the Chittagong Hill Tracts which have caused severe damage (>80%) to crops and households. UNDP and AusAid assigned Dr. Steven Belmain for a scientific assessment of the Rodent Outbreaks. Dr. Steve, AID-COMILLA, BARI, Dhaka University, BSMAU jointly carried out the study which was published by the UN and it was highly recognized by the government of Bangladesh.

UNDP contracted AID-COMILLA to disseminate the EBRM technology throughout the hill districts including training 2500 stakeholders (indigenous community leaders, school teacher, health worker, UNDP staff, NGO staff, DAE staff, elected representative, local administration etc.). The AID-COMILLA rodent team efficiently carried out the job and it was highly recognized that EBRM technology is the most able to manage the rodent problem during such outbreaks.

FAO engaged our Training Manager Dr. Sontosh Kumar Sarker for a further scientific study on rodent impact during outbreaks in the CHT.

12.Any Other Comments

Please include any other comments that you would like to include and which you feel don't fit in elsewhere.

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