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Preliminary data analysis summary report

Baharaich District, Uttar Pradesh, India

Prepared by: UoD Team

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Introduction

MICRODIS is an Integrated Project funded under the EU Sixth Framework Programme – Thematic Priority 6.3 Global Change and Ecosystems (Contract number GOCE-CT-2007-036877).

Disaster losses are increasing with great consequence to the survival, dignity and livelihoods of individuals and communities, particularly of the poor in developed and less developed countries. Disaster risk arises when hazards interact with physical, social, economic and environmental vulnerabilities. In the past two decades, more than 200 million people have been affected, on average, every year by these extreme events.

Environmentally unsound practices, global environmental changes, population growth, urbanisation, social injustice, poverty, conflicts, and short-term economic visions are producing these vulnerable societies. This takes on particular urgency in the face of long-term risks brought about by climate change, and goes beyond environmental degradation or the mismanagement of natural resources.

There is now international acknowledgment that efforts to reduce disaster risks must be systematically integrated into policies, plans and programmes for sustainable development and poverty reduction. The MICRODIS project locates itself within this above framework.

The two regions which form the focus of the MICRODIS project are:

1. European Union, associated countries and new accession states: Belgium, France, Finland, Germany, the Netherlands, Norway, the United Kingdom.
2. South and Southeast Asia regions: India, Indonesia, the Philippines and Vietnam.

These regions have been selected based on their high frequency of extreme events and the impact on affected communities.

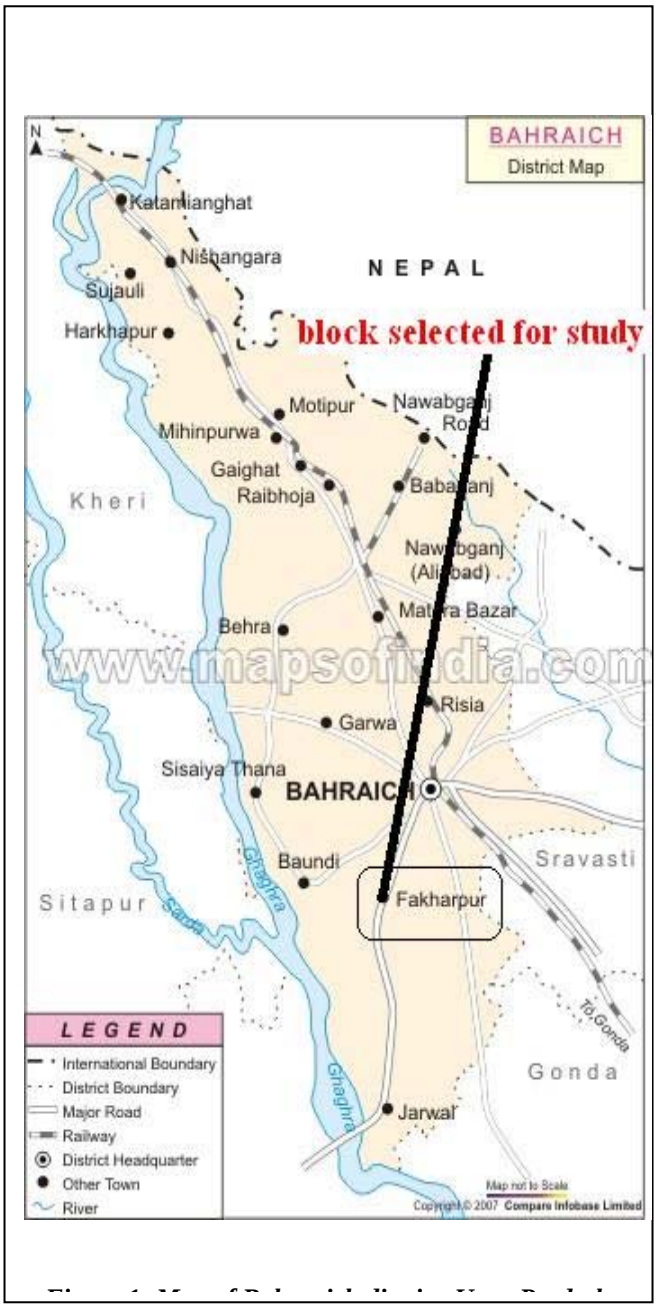
There are twelve broad and twenty-three sub-groups of distinct extreme events, ranging from chronic slow onset phenomena to acute rapid onset ones. The health and socio-economic impact implications differ vastly between these twenty three types and addressing all of these would compromise the quality and applicability of the project results, risking over-generalisation.

In both Asia and the European Union, three types of extreme events, namely **foods**, **earthquakes**, and **windstorms**, account for nearly seventy-five percent of the occurrence of all extreme events. The MICRODIS project will concentrate on these three phenomena.

UoD MICRODIS Survey Report

This report deals with the process of survey implementation in the Baharaich district of Uttar Pradesh, India from October 1st to 15th, 2008.

Introduction to the site: Baharaich Bahraich is a city and a municipal board in Bahraich district in the state of Uttar Pradesh, India. The towns of Barabanki, Gonda, Balrampur, Lakheempur and Sitapur share local boundaries with Bahraich. A factor which makes this town important is the international border shared with the neighboring country, Nepal.



Bahraich got its name from the Arabic word *bahr* which means a large body of water. Situated on the bank of river *Ghaghra*, it was named *Bahraich*. Although a small town, Bahraich happens to be a very old town of India. It was inhabited around the 10th century.

Some people also believe that Bahraich got its name from 'Brahma'. It is believed that there was an ancient Brahma Temple here (not present now), thus giving the city the name - Brahmaich, thus, Bahraich.

It is also believed that Bahraich got its name from the Ashram of Mahirshi Bhar. Bahraich was the land of Rishis, Munis(Hindu saints), Bhikhkhus (Bhudhhist Monks). A town near Bahraich is named as **RISIYA** which was named

Rishi Bhumi in ancient times.

The main occupation of the residents of Bahraich is agriculture. In the British period, Bahraich was a famous market for grains and pulses. Even today, it is famous for agricultural products like pulses, wheat, rice, corn, sugar, and mustard. Also, there are dense forests in Nanpara and Bhinga region which account for herbs and timber.

Geography: District Bahraich is situated in North eastern part of Devipatan Division. It is situated between the 28.24 & 27.4 latitude & 81.65 to 81.3 eastern longitude. According to ceusus of 1991 the area of distt. is 4696.8 sq km. which is 31.99% of the Devipatan Division. District Bahraich has a international border with Nepal on the Northern part. Distt. Barabanki & Sitapur are in South , Khiri in West and Gonda & Srawasti are in eastern side of the district Bahraich. Northern part of the district is Tarai region which is covered by the dense natural forest. Chakia , Sujauli , Nishangara , Mihinpurwa , Bichia & Baghauli are the main forest areas of the district. Sarju & Ghaghra are the major rivers of the district.

District Bahraich is connected with Railway & Road routes to the other parts of the Nation.

(a) Climate: Climate of the district is hot & humid. The maximum & minimum tempreture ranges between 44 C & 5 C. The average rainfall is 1125 mm.

(b) Soil: Soil of District Bahraich is fertile. Domat , Matiyar , Balui , & Light domat are the types of soils in the district. Due to fertile nature of the land greenery is spread throughout the District.

(c) Land Water: Major part of land water is received from rivers & lakes. Sarju , Rapti , Ghaghra , Kaudiyala are the ever flowing rivers. Besides there are various lakes & ponds in the District.

(d) Ground Water: Ground Water is not a problem in the District. The level of ground Water is sufficiently high. Water is normally found at 60 to 70 feet. Therefore for all industrial & agricultural purpose water is always available with the help of tube wells & pump sets.

(e) Mineral Wealth: Mineral Wealth of the District is almost negligible but the nature has abundantly provided with forest wealth which plays an important role in the economic development of the District.

(f) Forest Wealth: According to the records of board of revenue in year 1994 - 95 95040 Hec. of land of the District is covered by dense forest. Trees of teak , Shisham , & Khair etc are found here. Therefore

“kattha" factories are situated in Mihinpurwa block of the District. Ideal wood for furniture & buildings work is found here. Mango, Guava etc are the fruit trees found here in abundance.

Occupation: Agriculture is the main occupation of the residents of District Bahraich. Wheat, Rice, Sugar cane, Pulse, Mustard are the major crops.

Sericulture is also being developed at District Bahraich. The climate & soil of this district are extremely suitable for sericulture.

Bahraich is not a very developed district in terms of Industries. Industries based on Agricultural & Forest products exist here. There are three sugar mills, in Nanpara, Jarwal and Chilwarya. Besides sugar mills there are some rice & Pulses mills. Pulses mills of Bahraich are quite famous for the latest techniques adopted by Industrialist.

Besides these based on forest and Agriculture products, Awadh wood products & Awadh fertilizers are also established here.

Disaster Profile: Baharaich is located on the Saryu River, a tributary of river Ghaghra and almost every year it experiences flood. According to Uttar Pradesh statistical report Baharaich was the maximum flood affected area in the year 2007. An important geographical element in the area is the *Belha Behrauli Bandh* (checkdam) built in 1954 of length of around 91 km which divides the flood and non flood villages. The villages selected for the present study are situated close to Ghagra River which floods the villages and villages on one side of the *Bandh* are vulnerable to flood impacts.

Survey Objectives

MICRODIS is a project with the overall goal to strengthen preparedness, mitigation and prevention strategies in order to reduce the health, social and economic impacts of extreme events on communities.

Broad Objectives

- ⇨ To strengthen the scientific and empirical foundation on the relationship between extreme events and their health, social and economic impacts
- ⇨ To develop and integrate concepts, method, tools and databases towards a common global approach

- ⇨ To improve human resources and coping capacity in Asia and Europe though training and knowledge sharing

For example, the MICRODIS project will, among others, specifically aim at:

- ⇨ developing an integrated impact methodology
- ⇨ establishing an evidence-base of primary field research through surveys
- ⇨ increasing the coverage accuracy and resolution of global disaster data

The main research questions for survey site are:

1. To study the vulnerability of different social units
2. To study different factors of vulnerability
3. To study the impact of government relief actions.
4. To study social change like institution of marriage.

Methodology

Social impact questionnaire was developed through rigorous discussion on topics like social capital, received and perceived support, social cohesion, and etc. with partners from UoN, HealthNet TPO and Xaviers University, Philippines.

- ➢ **Pilot studies:**

Before conducting actual field work, UoD team has conducted three exploratory studies to the field site. It was done to pre-test the questionnaires as it helped in adapting the questionnaire into the local context. Pilot study also helped by making us aware the difficulties and challenges that we were going to face and to get some idea of the real field situation. The first study was conducted in Badaun district of Uttar Pradesh (5-7 June, 2008). But after visiting Badaun, the UoD team has decided to change its earlier site in view of the fact that the site did not have severe floods in year 2007. Thus, another site chosen is Baharaich which reported maximum floods in 2007 (20-26 June, 2008). UoD has pre-tested the questionnaire in both the sites and adapted it accordingly.

Second exploratory study was conducted in the month of June for seven days in the baharaich district of Uttar Pradesh. Baharaich is most affected flood affected district and at block level the most flood affected block are-Kaisar ganj, Fakhrpur, Mahsi,

Shiv pur and Mihin purwa. The visit to field site revealed that 173 villages were flood affected during 2007. Out of these 173 villages, a total of 18 villages were visited. It was also noticed that there have been attempts on the part of government and non government organisations to provide relief but it was felt that much more needs to be done as there are areas of concern displacement of villagers, in appropriation of relief, lack of potable water, problems faced by females during flood, etc.

Field trip also revealed that district administration has its own way of dealing with floods by making people aware flood related risks and also preparing the to face floods by giving them some technical know how on how to make their own life jackets. This attempt is appreciated but there are certain other areas that need attention as far as speedy and accurate implementation of such activities are concerned. During this study questionnaire was also pre-tested to adapt it into local context.

Third pilot study in Baharaich district was done with following objectives in mind:

1. To make the selection of the Gram Panchayats (GP's) and villages within the GP's which would be regarded as the sampling frame for experimental and control groups.
2. To test the MICRODIS questionnaire – the questionnaire that was taken along for testing was the version arrived at after the translation and back translation of the English version of the questionnaire.
3. To introduce the study to the district officials and seek their support during the main study.

- **Selection of experimental and control villages-Sampling frame:**

The district of *Bahraich* is divided into 4 sub-districts namely Nanpara, Bahraich, Kaiserganj and Mahsi called as *tehsils,* each sub-district is further divided into 2-3 blocks making a total of 12 blocks, each block into GP's and each GP has many villages within it.

The block which was chosen for study is the Fakherpur block which comes under the Mahsi tehsil. This block lies at the confluence of three rivers namely- Ghaghra, Bhada

and Sharda and hence it is the most flood affected block in the district. It was decided that four such GP's would be selected which are also the most flood affected in this block. After having some discussions with the district officials and with some NGO's and also after looking into the flood management plan of the district for the year 2007 it was decided that the GP's of Naubasta, Baundi, Atodar and Silauta should be

taken as the experimental frame as they were most hit by the 2007 floods. The location of these villages also make them vulnerable for floods as they lie between the river and the dam.

Each GP is further divided into many small villages or hamlets locally called as the *Purvas*.

Naubasta comprises of 603 households. The definition of household is taken as an entity that shares the common hearth at present. These households are distributed into 8 Purvas namely- Tedi, Badhinpurva, Bandha, Tulapur, Godianpurva, Sisaiya, Gumthara and Churuwalia.

Baundi comprises of 699 households distributed into 5 Purvas namely- Tepra Baundi, Halkaranpurva, Virihiyapurva, Pahiya and Baundi. Likewise **Atodar** comprises of 549 households distributed into 8 Purvas namely- Banuapara, Melapurva, Tudoli, Ghusaru, Dharira Diha, Prahladpurva, Chunilalpurva and Rani Bagh.

The GP of **Silauta** comprises of 213 households but they are not divided into Purvas anymore. Silauta GP was badly affected by floods in 2007 and before that as well due to which most of the people are displaced and the village as such in terms of territory does not exists now but people have made temporary arrangements in other GPs and on the dams.

After adding all the households in four GPs the total number of households are- 2064, this comprise the sampling frame for the experimental group i.e. the flood affected villages.

The sampling frame for the control group consists of the GPs that lie beyond the dam or on the other side of the dam. It was made sure that these GPs are not at all affected by the floods which mean that neither the houses get damaged due to floods nor the agricultural land is eroded by the flood water. Four such GPs were selected namely- Dharmapur, Kodahi, Biswan and Jaitapur.

Dharmapur comprises of 276 households which are distributed into 4 Purvas namely- Dharmapur, Ahiranpurwa, Telwa and Pahiya. **Kodahi** comprises of 702 households that are distributed into Khatoliya, Basawanpurva, Ishwarnathpurva, Nangapurva, Kodahi, Viragikuti, Prayag dutt pandit purva, Naya purva, Pande purva, Benidaas kuti, Loniyan purva, Kanera and Ganeshidaas purva. **Biswan** comprises of 169 households distributed into 4 purvas namely- Manera, Nuhripurva, Vishambharpur and Doodhibagh. **Jaitapur** comprises of 1122 households distributed into Jaitapur, Diha, Parautipurva, Behta churamani, Loniyanpurva and Nohari purva.

After adding all the households in four GPs the total number of households are- 2269, this comprises the sampling frame for the control group i.e villages that are not affected by the floods.

Sample- the technique of random sampling was used to draw the sample out of the total population of the people in eight villages-four affected and four non-affected villages. A list of all the houses in these eight villages was obtained according to the name of the head of the household and was sent to CRED for randomly selecting the households for the survey. A random list generated by CRED was used as the sample.

Everyday before going to the field, enumerators were given the names of the household head where they had to go for conducting the survey. If by chance the person or the entire family has migrated to some other place then the name of the next person on the random list was taken, therefore some extra names were added to the CRED list by using the Tippet's random sample table. This ensured that we complete the target of 660 households in all to avoid any kind of error that may arise later regarding the filling up of the questionnaire.

- **Introducing MICRODIS to the district officials:**

The UoD team met with the District Magistrate of Bahraich and introduced the aims and objectives of the project to him. A letter of introduction to the team members was also handed over to him. He extended his full support for the main study in October and also directed the Tehsildaar of Mahsi Tehsil and block development officer of Fakharpur to provide full support in the project endeavour.

The outlines of the project were also introduced in the media which was published in the Lucknow edition on a Hindi daily- "Hindustan".

The questionnaire elicited good response but one important problem encountered during the administration of questionnaire is the dialect. The dialect of the elderly people and ladies is difficult to understand. Therefore, many words in questionnaire need to be adapted in local dialect so that people can relate to them.

The Microdis questionnaire initially took more than two hours to get the response as we were changing the language so that people can understand the questions easily. We also tried to capture many local words so

that later on we can replace the Hindi words with them. Later on, when we used the local words we were able to fill one questionnaire less than one and half hour.

- **Main areas of adaptation from the Generic MICRODIS tool**

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In the common module few more information was added like caste of the respondent, how much land eroded and year of land erosion. Some questions pertaining to household member were incorporated in tabular form like main occupation affected, recovered after flood, any injury, type of injury, etc.

Data Description

The data mainly deals with the social impact of floods. The data is mainly divided into following manner: 1. Core module and 2. Social module

Core Module

Identification and interview result: this part yielded information on the sampled household and area and whether interview was completed or not, number of visits made by interviewer to complete the interview.

Consent form consisted of respondent's willingness to participate in the interview and an assurance to keep the information given by him/her confidential.

Household information gives baseline information of the household like religion, caste, house type before and after flood, source of income, toilet facility, source of drinking water, availability of health facility, etc.

Occurrence of natural disaster questions mainly dealt with the households experience of disaster and the number of disaster experienced by the household, type of disaster, severity and when did it happened.

Economic damage questions pertained to damage to residential house, damage to household goods and amenities and damage to agriculture, land and crop and cost of damage.

Household member information mainly deals with the each household member like education, occupation before or after disaster, whether displaced due to disaster, injury, disappeared or died, member of any organization, health condition before and after disaster.

The last part of common module includes questions on if **warning received** for the disaster, whether message was clear or not. Whether respondent received different types of support and whether they are satisfied with the support or not. Did they took any loan to cope with the disaster situation and what was the source of loan?

Social Module

Individual coping deals with the questions on how individual dealt with the consequences of disaster. Individuals response on severity and traumatic experience of disaster and its effect on respondents life and whether individual dealt with the situation.

Received Social Support questions looks into the individuals relationship with other people like family, friends, relatives, etc and support, care, financial assistance and provided by these people.

Sense of Community measures how much respondent can get along with other people. It also measures the degree of trust and solidarity with the community members.

Functioning and Quality of Life questions dealing with general health of the individual during past 4 weeks, affect of physical health and emotional problem on the daily activities of the individual.

Coping Behaviour and Social Protection consists questions on respondent's household coping through self protection strategies to deal with disaster situation. How household coped with disaster, who decided to spend the resources, etc.

Other Major Life Events -includes questions on stressful or disturbing events of life like abduction, death of loved ones, life threatening situation, war or conflict situation, etc.

Communal Coping deals about the effect of disaster on respondent's life and how people do different things to deal with the disaster.

Perceived Social Support questions dealing with individuals supposed sense of security and dependence on his or her social network

Social Capital have questions on groups, networks or organizations to which individual belong, trust on them and sense of solidarity with them. These groups could be organized or non formal groups.

Psychiatric Symptoms questions deal with the reactions of individuals related to disturbing events or after the disaster, problems and sufferings related to disaster.

Social Change questions deals with whether disaster is effecting the institution of marriage or not.

Data Analysis

- Non-permanent type of houses is dominant in both the areas but percentage is high among experimental group (77.4%) in comparison to control group (50%) indicating people invest low capital in housing and such houses are more houses are vulnerable to floods. In experimental group two third (79.8%) people said their house both fully or to some extent damaged in floods. 56.8% people had to leave home due to flood and started living on check dams. Floods not only damage the households but it also leads to the disruption of school for many days. In rainy seasons, with floods, communication to school becomes very difficult as there are no proper roads and water levels in some areas are as high as 3 feet which makes it difficult for younger children to access schools. Statistics indicates that the percentage of school going children before flood was 28.7 but after flood it dropped to 24.9%. Transportation and communication is a very important means to get connected with the outer world. But during flood season in Baharaich, roads and paths emerge into water and communication with mainstream world almost stops for the villagers. In the absence of transportation facilities like boat people are not able to get procure the food, medicines on time.

Table 1.1: Showing household type distribution in CRED flood field site Baharich in Uttar Pradesh District, India

HH Type	Exposed		Control	
	n	%	n	%
Non-permanent	246	77.4	152	50.0
Permanent	11	3.5	47	15.5
Semi-permanent	49	15.4	105	34.5
Other	9	2.8	0	0
Missing	1	.3	0	0
Not applicable	2	.6	0	0
Total	318	100.0	304	100.0

Table 1.2: Showing student drop out rate in exposed area distribution in CRED flood field site Baharich in Uttar Pradesh District, India

Drop Out	Exposed	
	n	%
yes	247	15.4
no	1015	63.3
not applicable	341	21.3
Total	1603	100.0

- Main source of income is wage labour (46.9%) followed by agriculture (43.1%) in experimental group. On the other hand in control group the main source of income is agriculture (49.3%) followed by wage labour (32.9%). It indicates that floods erode the land in experimental area and also effects the cultivation. In flood affected area, 42.6% people's land got damaged due to floods. As floods are perennial in this area and land erosion caused by these floods has changed the socio-economic profile of the people. In flood affected area, people are also more dependent on local money lenders to meet their daily expenses especially during and after floods. 61.3% respondents reported that they took loan and 41.5%

respondents took loan from local money lenders and only very small number of people received loan from any government bank.

Table 1.3: Showing distribution source of income in CRED flood field site Baharich in Uttar Pradesh District, India

Source of income	Exposed		Control	
	n	%	n	%
Agriculture	137	43.1	150	49.3
Animal husbandry	0	0	3	1.0
Fixed Salary	5	1.6	3	1.0
Small business	7	2.2	26	8.6
Wages	149	46.9	100	32.9
Others	18	5.7	21	6.9
not applicable	2	.6	1	.3
Total	318	100.0	304	100.0

Table 1.4: Showing distribution of land damage due to flood in CRED flood field site Baharich in Uttar Pradesh District, India

Land damage	Frequency	Percent
fully damaged	145	45.6
not at all	73	23.0
to a large extent	46	14.5
to a very low extent	7	2.2
to some extent	8	2.5
do not know	2	.6
not applicable	37	11.6
Total	318	100.0

- Regarding the water and sanitation condition situation in both flood affected and non flood affected do not differ much. In both the areas (flood affected and non-flood affected), more than two third people do not keep their water containers closed (89.6% vs. 84.2%). In exposed area 91.5% and in control group 97% people do not use any method to treat the water. In both the areas i.e. exposed and control people either defecate in fields or any open area (98.1% vs. 90.8%). These habits of not treating water and defecation in open areas leads to many diseases.

Table 1.5: Showing distribution of use of open/closed water container type in CRED flood field site Baharich in Uttar Pradesh District, India

Water container closed/open	Exposed		Control	
	n	%	n	%
Closed	33	10.4	48	15.8
Open	285	89.6	256	84.2
Total	318	100.0	304	100.0

Table 1.6: Showing method of treating water distribution in CRED flood field site Baharich in Uttar Pradesh District, India

Method of Treating water	Exposed		Control	
	n	%	n	%
None	291	91.5	295	97.0
Yes, boiling	2	.6	2	.7
Yes, chlorinating	23	7.2	4	1.3
Yes, filtering	2	.6	3	1.0
Total	318	100.0	304	100.0

Table 1.7: Showing type of toilet facility distribution in CRED flood field site Baharich in Uttar Pradesh District, India

Type of toilet facility	Exposed		Control	
	n	%	n	%
bucket	2	.6	0	0
flush toilet	4	1.3	23	7.6
hole with upper part hardened	0	0	1	.3
improved pit	0	0	4	1.3
None (bush/field)	312	98.1	276	90.8
Total	318	100.0	304	100.0

- 57.7 % of the people reported that they fell ill due to floods. Out of them 33% had fever, 18% suffered from influenza and 3% from diarrhea and 2% from malaria. If we try and look into the state of sanitation the area then we can imagine about the status health. 98% of the people use bucket for storing water and out of them 89% do not close it, so the drinking water remains open. When we asked that do people use any kind of water purification techniques, 92% replied that they do not use any kind of water purification technique like filter or chlorine tablets. 98% of the people use open space for defecation, which is detrimental for their health.

Table 1.8: Showing illness distribution in exposed area due to flood in CRED flood field site Baharich in Uttar Pradesh District, India

Illness	Exposed	
	n	%
yes	925	57.7
no	648	40.4
not applicable	30	1.9
Total	1603	100.0

Table 1.9: Showing illness type distribution in exposed area due to flood in CRED flood field site Baharich in Uttar Pradesh District, India

Illness Type	Exposed	
	n	%
diarrhea	60	3.7
malaria	34	2.1
Japanese enchyphlitis	7	.4
fever	529	33.0
cold-cough	294	18.3
other	28	1.7
not applicable	651	40.6
Total	1603	100.0

Discussion

The displacement of the villages and the cutting of the agricultural lands are changing the socio-economic profile of the area. One of the main features of the change is the male out migration, as with the loss of agricultural lands, there is decreased possibility of getting agricultural work in their own villages. Most of the male out migration is a seasonal one, where the hope is to make some earnings from the work in these cities, enough to cover the household expenses.

Even the warning communication is not very good in the area. Therefore, there is an urgent need of good warning communication system during floods. The other major problems are disruption of schools, disruption of transportation due to flood water which severely affects the health status of the people. During floods women face main problem of defecation.

UoD team would like to compare its data with the social impact survey conducted by the University of Northumbria. Besides, UoD Team is also open to produce papers in collaboration with other partners on topics like health, economic and social impact.