

Concurrent Facilitated Sessions: Using Science and Technology Differently

DISCUSSION NOTES: Working Group 3

Washington Room

9:00 am – 12:00 pm

Team Leaders: Deborah Thomas and S.H.M. Fakhruddin

Facilitator: Ashmita Gosai

Recorder: Niki Dash

Participants: Eileen Shea, Nicole Colasacco, Nina Minka

I. Comments by Leaders:

A. S.H.M Fakhruddin:

Powerpoint titled:

“Vulnerability and Risk Reduction through a Community Based System for Disaster Management” – Community Flood Information System

A1.Overview:

- How can science and technology be integrated for Gender Equality and Disaster Risk Reduction
- Flood forecasting and warning dissemination system: More informed people are the more they can react, and prepare
- Women are the most vulnerable because they have all the responsibility of their household

A2. Hazard:

- Focus on flooding
- 1988 over 2,000 killed due to flooding, 1998 reduced by about 45%
- Cyclones also a major problem

Disaster Risk Management:

- Focused on 4 phases of disaster reduction cycle
- Pre-disaster, preparedness, response and immediate relief, post disaster phase
- What Information do people need?
 - Early Warning
 - Save lives and property
 - Flood forecast provided real time 14 and 48 hours
 - Rainfall forecasts
 - Also seasonal forecasting

- Hazard Mapping
 -
- Big gap between actual risk and recognized risk
- Reduce the gap

Vital Information: local information

A3. Powerpoint focuses on risk:

- Risk: something beyond hazard
- Focus on community: definition of community emphasized in powerpoint presentation
- Example of using Risk Equations :
 - Example: Halima poor woman in Bangladesh, her risk score is 25
 - Ershad: Better off man with good housing: 1

Powerpoint focuses on flood management constraints and issues

A4. CFIS Project Concept:

1. Data, Products, Users
2. hydrological data with satellite SAR goes into daily flood maps and derived products and then communications to then go out to warnings

Study Area for pilot project: about 250 square miles

Needs Assessment

Findings: Women more vulnerable than men

1. Perceptions:
 - a. People's perceptions of what a disaster is
 - b. Only 6% say it is an act of God
2. Existing Flood Warning systems
 - a. 69% from Radio; 61% Television
 - b. Find out about rainfall but not about other risks
3. Community Preference for flood warning
 - a. Local Government poor communicators
 - b. Community people more likely to communicate

Survival Techniques:

Men have greater ability to shift their jobs or their house to another safer place

Preliminary Findings:

Need local level forecasts

Need to know about timing of flood and how severe

Farmers, fish farmers need different information

Women need early information for preparation because of rearing children, ensuring food availability

Needs:

Easy to read maps

Interpreted satellite images

Simple notices

Descriptive bulletins

How to disseminate information:

1. Fax
2. using intra and inter linkages between stakeholders
3. Community gatherings
4. Daily info through radio, tv and national newspapers

Ultimately information is being prepared at a community level with focus on what the local level or community needs. Figuring out how to disseminate and make people understand is the challenge. But the focus appears to be a notion of knowledge is power. If you can get information to people in a format that makes sense, for their specific needs, then they have more time to prepare and do what they need to do in order to protect themselves. Using Remote Sensing and GIS types of things can be effective if you teach people how to read the information. Fisherman and farmers are able to read the maps that are sent every day with the forecasts. Flags go up in areas (like main market-community chooses location) that predict flooding.

Have to deal with vicious cycle of disaster and poverty. With disasters, people just seem to never get out of poverty. But there is a hope that, if people have forecasts and can prepare, then they can hopefully move away from poverty- particularly the lower middle class.

A5. DISCUSSION BY PARTICIPANTS for Presentation 1:

- Any receptiveness in national weather service? Answer: Yes, shown that forecast can be right.
- Question: long term forecasting problem is that there isn't enough certainty, but people want certainty. So one of the problems is that you have to get people to understand forecasting.
 - so if flood doesn't happen you have a major problem
- depends on how risk adverse people are. For some users, it isn't the accuracy, but they are trusting in the forecast. Scientists often say they aren't accurate enough. But people say: we do make uncertain decisions all the time. Tell me what you think will happen and how confident you are in. Balancing act. What's key in maintaining the stake holder in the process, and that takes people, money and time. And often funders don't realize how much

time you have to invest. How do we get donor agencies to understand community engagement is part of forecasting.

- In India, trying to get stakeholders and scientists to work on same page and understanding you don't have to be 100%. Where do you go beyond the science and beyond the forecast.
 - Once you get your hands dirty and engage stakeholders you often change the way you think. Learning that it has to be driven by what people need.
- We sometimes think the community isn't receptive because they aren't coming to meetings. Reality might be that they need the information but can't take time off from their work in order to get it.
 - Perhaps we need to think about the fact that scientists are getting compensated to do certain things, perhaps we need to figure out a reward or compensation system for those who need/want information but can't take the time to get it.
 - Sometimes scientists push things on people. Building trust between stakeholders and scientists is key.
 - We fund science.. but what about social science. We go to clients and not to communities. Depends where we are in the united states as to how much community is involved.
 - If you think about average person, they are talking to neighbors.
 - How do you convince FEMA of world and weather services of the world that it is an asset to them doing their jobs if they get the community perspective
 - How do we get this sustained engagement? How do we get that engagement funded?
 - Often takes twisting arms to get funding agencies to pay for some of this. What happens when funding is over?
 - Volunteer observers – FIJI – get sick of doing readings because they aren't paid. They want to be paid. Will this Bangladesh project be budgeted. The hope is that building the capacity at national level and down to local level that it can be done by the local forecast person.

How engaged with met service (related to Bangladesh example)? Met service was fully engaged in the process. What is key perhaps is to get engagement by operation folks. Weather service for example should be a partner in the research project right in the beginning. But we don't do that enough.

Engagement has to be key. NGOs have to play a role but Met Service has to be part of some of these programs.

Are women involved?

In project area: 50% of gauge readers are men, but they don't take the readings correctly. Originally it was more men, but it was problematic. Every concern is discussed with women because they realize the dangers more than the men. Women are being empowered to do their jobs better to protect their homes.

CALL FOR: Donor agencies to pay for social science type of research or interaction in community.

Disagreement: Development donor agencies to focus on interaction with the community.

The Gap is clear : the stuff in the middle that brings together science and community isn't there. Very difficult to get funding when you say: We are going out in the community.

Development track and Science track... two separate... how do you bridge that?

Has there been a shift in the Science Community? Ten years ago you weren't even asked to conferences, but at least now you're invited to the table. Yes. But it isn't sustained. The glimmers are there. Need to institutionalize bringing this together.

Reward structure in academic setting are not there if you invest in this type of applied work.

Reccomendation: How do we explore changing the reward structure in academia to value the types of applied research that is necessary.

Has to be institutionalized in every aspect: science, academia, government . The need is not seen.

Policy maker doesn't realize that women have a voice. Gender Equality is not as important as Gender Equity. Gender balancing doesn't help. Equity not equality. Need to teach why women are needed, and not forced.

The more we can say "women are better at this or that" the more we can demonstrate that they are an asset. And then hopefully it can be institutionalized.

MUST recruit women into science and technology.

General Discussion about other lessons learned across regions and sectors:

Facilitated Discussion to identify policy and practice needs

Discussion of implementation strategies; gaps, constraints, resources, and opportunities:

Preparation for report-out and drafting for the Call for Action:

B. Deb Thomas
Using Science and Technology

B1. Overview

- Setting the Stage
- Broad use of geo technologies
- Public participation GIS
- Will use case study examples of US based
- Challenges and Opportunities
- GIS Hazard Applications: visualization, modeling, vulnerability assessment
 - GIS can raise awareness

B2. Health Applications

- Disease surveillance
- Outreach and education
- How does this integrate with emergency management
- Maps good was to illustrate needs and accomplishments
- Problem is that there are some things that can't be shared

B3. Critiques of GIS Technologies

- "GIS has emerged as an elitist, antidemocratic technology" -Rina Ghose
- Challenges of Effective GIS Use
 - Objectivity
 - Differential access to data and technology
 - Qualitative v quantitative approaches
 - Argue that GIS is qualitative but doesn't have good tools to do that
 - Top-down tendency of application
 - Do you have access
 - Cultural bias to technology
 - Cultural bias of technology
 - GIS right now does not do fuzzy
 - Problem could be that it has evolved in science and not in social science
 - What tools do we need?
 - Doesn't necessary work well in developing nations.

B3. Public Participatory GIS and EM

Enhances two way communication

Integrate people's knowledge, perceptions and priorities

Priority setting by those most affected

Disaster planning not just top-down, but also bottom up

B4. Potential PPGIS EM Applications

- Community access to data
- Community access to Identified priorities
- Community access to Interpretation
- Community access to Derived data
 - Hazards, vulnerability, resources

- Giving the community a voice, but who is the community

Discussion: from different perspectives, you have different problems with sharing data. Some communities fear that they can be exploited, but other communities can use that information to fight development or exploitation.

GIS brings with it fear. You do work that is public domain, but communities do not want to make data public. Example: community develops it as a tool

ACTION: if funded, whose rules? Who owns the data or information.

ACTION: When science community develops tool, and then goes out to impose it there is a problem. But if we built an information system if we started with the community and what needs they need we would do better. We need to balance societal context with new science and technology.

None of this matters without the eyeball to eyeball contact.

Only a tool – must be able to focus on societal context – risk, vulnerability, and how do we use this? We have to reform the way we think about this. We've gotten this far, but now we have to go to the next step.

Engagement of communities is an asset that must be used.

Comment: New Zealand uses community members or tribe members to go to community before a program is forced on a community. You can use this sometimes to figure out what problems there are. Works well to bring together science and technology. Trusted information brokers are necessarily.

Lots of investment in doing this type of work isn't funded or recognized – nights weekends, our own money.

Context matters! Linking science to society.

B5. Balancing Act:

- Who has the data
- Homeland security issues
 - Emergency plans are no longer public access

B6. Hazard and Vulnerability Assessment

- 4 Primary Elements
- Getting much better at the hazard risk modeling
- Not so good at integrating social data
- Census is very limiting because a lot changes in 10 years
- How do we integrate all of this in a geo-spatial context.
- How do we get in perceptions and points of view and how do we get that integrated.

Discussion:

Action item: Need to bring the ethical issues up to another level. We need to consider who benefits, but at the same time what is the effect on others. Ethical issues haven't caught up with science and technology, particularly geo-spatial. People are afraid that "big brother" will know the certain things that may be detrimental to their community.

What are the limitations? What can we solve and what can't we solve and how do we use it appropriately?

We need to know the context in which science works and doesn't work. How accurate is something in a scientific sense.

Some science and technology might be good in technical sense, but not good in a practical sense. We learn these things through participatory research.

Have to break through the old school. If hotels don't want to help, then look at other avenues such as rental cars.

Being prepared matters – a motto that should be focused.

How do we get people who are resistant to this information (scientific/warning information) to think of it as an asset? How do we shift the paradigm? How do we talk about resilience instead of talk about risk?

Need to be open minded and approachable when working on community based programs.

ACTION ITEMS:

1. Community participation should be the heart of it, not a “oh by the way” afterthought. You can have the best science but if it isn’t translated then what does it matter. You also have to focus on who are the stakeholders. Convincing funders to do social science in conjunction with more science. Need more participatory action research.
2. Donor agencies, particularly national research funding agencies, need to fund work to understand the community and community use of the science or products that they are funding. While we recognize that there has been a shift in the scientific community, there is a gap between the two parallel spheres of science and community. Significant work is being done in the science sphere and in the development sphere, but the stuff in the middle that brings together science and community isn’t there. Very difficult to get funding when you say: We are going out in the community.
3. Reward structures must be changed to allow for more value on applied research in academia. But at the same time we recognize and believe that the value of applied research, particularly social science, has to be institutionalized in every aspect: science, academia, and government.
4. We must continue to focus on recruiting women into science and technology.
5. **MUST** build trust between science and community. It is essential for success.
6. Context matters! We need to link science to society. By doing so, you end up with different tools and tools that that can be used differently .
7. Need to bring the ethical issues up to another level. We need to consider who benefits, but at the same time what is the effect on others. Ethical issues haven’t caught up with science and technology, particularly geo-spatial. People are afraid that “big brother” will know the certain things that may be detrimental to their community. How does that change power structures? How can the this negatively or positively effect women and children.
8. We need to educate differently – science isn’t just facts and figures that all work out. We teach science as truth but it is a process of exploring. We need to broaden our scientific education in general. The process makes things scientific not the “truth.”

- a. We need to train scientists differently. Science education must bring together the technical aspects with the human aspect.
9. How do we get people who are resistant to this information (scientific/warning information) to think of it as an asset? How do we shift the paradigm? How do we talk about resilience instead of talk about risk?
 10. Experts do not have to be the “scientists.” Everyone at the table, either scientist or community member needs to be seen as an expert. Recognize that those that are most affected are the most knowledgeable.
 11. For disaster planning and risk reduction, we need a clearinghouse/forums to share lessons from different communities that focus on successes and failures. What works? What doesn't? And why aren't they successful?
 12. We need more data to be collected based on gender (and other vulnerabilities). Not enough data is collected that allows us to understand gender differences.