

Chapter 4

Anticipating Floods

People manage to anticipate floods by observing and interpreting local, environmental warning signals. They also manage to identify safe places for humans and cattle, time thresholds – for storing firewood and food in advance, removing important belongings and leaving the house – and critical actors in the community who can support them because of their special skills, knowledge, and/or position within the community.

Local environmental warning signals

“We know that if it rains heavily and continuously flooding could ensue. But sometimes it does not rain here and we still get floods. When we see black clouds on the mountains we also know that floods might come.” (Ram Ekbal, 52, Dalit, Pipariya VDC, Sarlahi District)

“Before the flood we noticed a sound like a bus travelling at high speed.” (Byagiya Devi, Singyahi VDC, Mahottari District)

“There is a specific sound of the river when the flood is coming. It is like a whistle because of the speed of the water coming down.” (Ram Ekbal, 52, Dalit, Pipariya VDC, Sarlahi District)

“Sometimes before the flood, we can see floating wood, snakes, and dead animals in the water.” (Ram Ekbal, 52, Dalit, Pipariya VDC, Sarlahi District)

“Fifty-two years ago, a big flood occurred here. Along with the flood, a rhinoceros came into the village and killed one person.” (Lakhan Raut, elder, Phoolparasi VDC, Sarlahi District)

“Before the flood comes, the water is muddy and there is a specific smell.” (Byagiya Devi, 70, Singyahi VDC, Mahottari District)

Local knowledge is a knowledge of the heart and senses (listening, seeing, smelling, tasting – e.g., taste of muddy water). People are strongly connected to their local environment and often notice local, environmental signs of impending floods.

They generally understand those warning signals and become more alert. In some cases, they can predict that a flood is coming by observing such signals. These observational skills provide the basis for local meteorological and hydrological knowledge and are often effective in helping save lives.

Safe places for humans and cattle

“A lot of people came to save their lives and belongings at my place, because it is slightly higher up here than elsewhere. There are two other places like this in the village where people go during floods. One includes a common ground (pathway) between fields and houses that are also slightly more elevated than the rest.” (Laxmi Thapa, Singyahi VDC, Mohattari District)

“During the rainy season we move all our important belongings to the house of a particular person. He is rich and he spends most of his time in Kathmandu. His house has a large courtyard and it is safe from floods. It can accommodate the 30 to 40 families who are the most vulnerable to floods. We take wood, rice, pulses, and our clothes over there. Nothing of importance is left in our houses so theft is not a problem.” (Gropi Shah, Pipariya VDC, Sarlahi District)

“We are not allowed to touch people from higher castes, so it is a big problem when we are in the shelter with others during floods.” (Dalit women, Pipariya VDC, Sarlahi District)

“Nobody leaves the village during the floods but people move to safe places like the school and the VDC office.” (Ram Prasad, VDC President, Phoolparasi VDC, Sarlahi District)

Local communities generally know where the safe places are from local observation and experience. Without any special training; they use their mind maps to identify safe places, routes, and locations in their surroundings. High and safe places known about and used by the villagers include elevated private houses or courtyards, elevated common grounds, and safe public buildings (e.g., VDC offices, schools – most schools are in safe places and are made of brick).

Time thresholds

Removing important belongings

“People are always ready to run away and to take money and gold to safe places when the rainy season begins.” (Pipariya VDC, Sarlahi District)

“Since the 1993 flood, people have been taking their belongings away two-three months before the rainy season.” (Pipariya VDC, Sarlahi District)

Leaving the house

“When it starts raining regularly and when it is raining a lot higher up in the mountains, people become alert but no one

leaves the house. We leave our houses when the water starts to overflow.” (Ramkailash Roy, village teacher, Shreepur VDC, Sarlahi District)

“At the beginning of the rainy season, children and women are left in safe places and men and elders stay at home to look after the house until the flood comes.” (Ram Ekbal, 52, Dalit, Pipariya VDC, Sarlahi District)

“If the flood comes at night we run away, if it comes in the day we wait to see if it is low or high.” (Ram Ekbal, 52, Dalit, Pipariya VDC, Sarlahi District)

Storing food and firewood

“We start storing food one month before the rainy season.” (Wife of Ram Prasad, VDC President, Phoolparasi, Sarlahi District)

“We start buying kerosene, mustard oil, and so on 2-3 months in advance. We have to borrow money and the interest rate is 3% per month.” (Women’s group discussion, Bin community, Laxmipur, Sukchaina)

Comments on time thresholds

When is it time to collect all important belongings and bring them to safe places? How far in advance should people start to collect food and firewood? When should people start

constructing elevated repositories to protect their belongings? When is it time to leave the house? These are some of the questions each household needs to answer. **Although most of these simple strategies might seem ‘common sense’ or ‘universal knowledge’, it is important to recognise that people have ‘bounded rationality’; that is, people’s rationality is limited to their own information and beliefs, e.g., ‘running away’ when the water starts rising might not always be common sense depending on religious and cultural beliefs and practices.** Ultimately, decision-making about time thresholds for flood preparedness varies among households not only depending upon their perception of floods but also depending on their own vulnerability (e.g., if the household has a pregnant woman, sick person, elders, children) and their ability to influence it (e.g., social networks in safe places, access to safe places). One hypothesis from the field study is that the wealthiest people store food much in advance of the poorest who have less spending power and who need more time to gather the same basic food requirements.

Critical actors and skills

Some community experts or stewards and/or some specific social groups have key skills that are not known to every community member and which can be useful for flood preparedness. This local, specialist knowledge is different from local, everyday knowledge. It includes knowing how to swim, knowledge related to carpentry and bamboo weaving

(e.g., construction of elevated platforms), communication skills (ability to speak in public and convey messages), and others. Social memory is a key aspect in building flood-resilient communities. It consists of a reservoir of diverse individuals, resource users, and other actors with different and overlapping roles within and between critical groups. 'Critical groups' are the

actors ensuring key functions in the community; for example, knowledge carriers and retainers like elders, interpreters and sense makers, stewards and leaders, change agents, networkers and facilitators, and followers and reinforcers (Folke et al. 2002).

Box 3: Did you ask? Anticipating floods

Early warning signals – How can local people manage to anticipate or identify environmental warning signals of floods? What do people observe, hear, and sense before a flood occurs? Do people have traditional or local weather forecast systems?

Time thresholds – How do communities and households prepare for the rainy season? Do they store additional food, firewood, and medicine? When and how do people know that it is time to leave their houses, to remove all important belongings, and to store food and firewood? Where do people go? What do they take with them?

Safe places for humans and cattle – Where do people run and who runs away - is it the women and children, is it the people without property, etc.? How do local people identify safe places for humans and cattle?

Critical actors and skills – Who does what within the community? Who knows what? Who has the relevant knowledge about floods? Who has specific skills that can directly or indirectly contribute to improved disaster preparedness? How can these skills be nurtured? How can these skills be passed on from one generation to another? To what extent does the lower caste or casteless people have knowledge about disaster preparedness that high castes do not have and vice versa; and to what extent is this knowledge shared (nor not)?