

Annexes

Annex 1: Interview guidelines for focus group discussions and household interviews*

General information about village and respondent(s):

Interview/FGD ID: _____

Date of interview: _____ day _____ month _____ year

Name of interviewer: _____

Country: _____

Name of district: _____

Name of village: _____

Climatic conditions: _____ mean annual rainfall

Altitude: _____ m above sea level

Coordinates: _____

No. of households: _____

Types of households: ☐ mostly poor ☐ some poor, some above average
☐ mostly above average

Access to electricity: ☐ mostly yes ☐ mostly no

Access to improved source of drinking water: ☐ mostly yes ☐ mostly no

Distance to paved road: _____ minutes walking time

For household interviews only

Name of respondent: _____

Age of respondent: _____

Sex of respondent: ☐ male ☐ female

Ethnicity of respondent: _____

Education: ☐ no formal education ☐ primary ☐ secondary ☐ higher

Head of respondent's household is: ☐ male ☐ female

Household status: ☐ very poor ☐ poor ☐ not poor ☐ above average

* Source: Macchi 2011

Guidelines for Interviews

Please note: The following interview guidelines can be used for interviews with individual resource persons, or to guide focus group discussions (FGDs) in combination with different PRA tools. Some sections (especially those on perception of changes and coping strategies) are probably better discussed in FGDs. The appropriate PRA tools to accompany the questions are indicated in each section. Women and men should be interviewed separately in individual interviews; in general focus groups should also be composed of all women or all men, but this can depend on the topic.

The timeframe for questions (10 to 20 years) depends on the age of the interviewees. Younger interviewees may only remember what happened 10 years ago or less, whereas older respondents may have a longer memory.

Activities profile

- Could you please describe your daily activities? What are your main activities from the morning when you get up until the evening when you go to bed?
- Which activities in the house and in farm production are performed by women? Which are performed by men? Which are performed by both women and men and to what extent?
 - Do these activities change over the course of the year? In what way?
 - How much time is needed to carry out each of these activities?
- When you think back, have there been any major changes between now and 10/20 years ago in terms of activities and workload?
 - Are there any different or new activities you are carrying out now (e.g., production of cash-yielding crops, off-farm activities)? Why? Who in the household takes responsibility for these activities?
 - Are there any activities you used to carry out that you are not carrying out any more? Why?
 - Does it take more or less time to complete your daily activities today? Why?
 - Do you find your activities easier or more difficult to perform now than it was for your mother/father? Why?
 - Are there activities that used to be performed by men and are now performed by women, or vice versa? What caused these changes?
- In which activities performed by the community are men involved? In which are women involved? In which activities are both men and women involved?

Resource, access and control profile

 **PRA tools:** These questions can be linked to a transect walk.

- What kind of natural resources do you depend on for your daily activities?
 - Which natural resources do men mainly use? For what purpose?
 - Which natural resources do women mainly use? For what purpose?
 - Which decisions concerning the management of natural resources are taken by men, which by women, which by men and women together, and which by the community?
- Are there any resources that you used to use, but can no longer access (e.g., water, firewood, plants, animals)? Which ones? Why?
- Has the seasonal availability and abundance of any resources you are dependent on changed? Which ones? In what way? How does this influence your activities and your wellbeing?
- Are there any new resources that have appeared and that you have started to use (e.g., plants, animals, materials for energy production, and so forth)? Which ones? For what purposes?
 - Why did you start using these new resources?

- To which types of land do women mainly have access? To which types of land do men mainly have access (homestead, irrigated land, rainfed agricultural land, pasture land, rangeland, or other)?
 - What are the main activities women/men are carrying out on this land?
 - Who decides what to grow/how to use the different types of land?
- Which decisions within the household related to the management of small livestock/big livestock are taken by women, which by men, and which by men and women together?
- Which decisions within the household related to the management of crops are taken by women, which by men, and which by men and women together?
- Are there any traditional institutional arrangements within the community for the management of, or decision making about, common resources (e.g., pasture land, water bodies, forest products, and so on)?
 - What is the role of women and men in these institutional arrangements?
- Mobility: What are the daily, seasonal, or yearly migration patterns you follow in pursuing your daily and seasonal activities?
 - Have these migration patterns changed? If so, why?
 - Have members of your household migrated to larger cities or even abroad? Who has migrated and where? Why? When? Do they send money home?
- Do you have access to off-farm income and loans? How do you use the income and loans?
 - Which decisions within the household related to the use of income and loans are taken by women, which by men, and which by women and men together?

Perception of changes

☞ PRA tools: The following questions can be combined with the seasonal calendar, the livelihood seasonal monitoring calendar, and the historical timeline. Do not mention the idea of 'climate change' as this might bias the answers.

- Please describe the **main weather events** that happen during the year (e.g., rainy season, dry season, snowfall, hailstorms, cloudbursts, and so forth).
 - When do these events usually occur? How long do they last?
 - Have you observed any changes in the past 10/20 years? What kind of changes (timing, duration, intensity, frequency)?
 - How do these changes influence your activities and workload?
 - What do you think are the reasons for these changes?
- Have you experienced any major **hazards** over the past 10/20 years (e.g., floods, droughts, landslides, avalanches)?
 - If yes, what kind? When did they occur?
 - How did they affect you and your family?
 - Have these hazards become more frequent or more intense over the past years?
- Have you noticed any changes in the size of **glaciers**? If yes in what way?

(☞ only ask this question if there are glaciers in proximity to the study site)
- Have you noticed any difference in **temperature** over the past 10/20 years?
 - If yes, in which way did the temperature change?
 - What do you think is the reason for this change?

- In your perception, has the **availability of water** from rain, snowfall, and water in water bodies (lakes, streams, springs and so on) changed over the past 10/20 years?
 - How has it changed (e.g., less or more rainfall, snowfall, glaciers are melting, lower water levels in rivers, lakes)?
 - What do you think are the reasons for these changes?
 - Does this have any influence on your daily activities/your workload?
- Do you know of any **traditional ways of predicting the weather** (e.g., when the monsoon starts, when the first snow will fall, and so forth)?
 - If yes, please describe these methods.
 - Are these methods to predict the weather still reliable today? If not, why not, and what are the implications for your lives?
- Have you noticed that some **species** (plants, animals) are **appearing earlier or later in the season** or in places where they did not appear before?
- Have any **species** (plants, animals) **disappeared** or become less/more abundant? If yes, which ones?
- Have you observed any **new diseases** affecting your livestock and crops over the past 10/20 years? Which ones? When did they occur for the first time? Do they occur every year? Why do you think they occur?
- Have you observed any **new pests** affecting your livestock and crops? Which ones? When did you notice them for the first time? Do they occur every year? Why do you think they are occurring?
- Have you observed any new **health problems** that have affected you and your family? Which ones? Are there any health problems which have diminished or disappeared? Which ones and why do you think they have diminished or disappeared?
- Are there any **positive changes** you can think of that make things easier (e.g., prolonged cropping season, warmer winters with lower energy consumption, warmer streams for washing, hygiene, modern technologies, remittances, health posts? and so forth)?

☞ The following questions should only be asked at the household level

- Do the changes you have mentioned impact on the availability of food for your household throughout the year?
 - If yes, in what way?

☐ less food ☐ more food ☐ no change ☐ uncertain
- Has your overall food production changed? If yes in what way and why?

☐ less harvest output ☐ more harvest output ☐ no change ☐ uncertain
- For how many months a year does your family have enough food?

☐ 0-3 months ☐ 3-6 months ☐ 6-9 months ☐ 9-12 months
- Has this changed over the last 10/20 years? If yes, how and why?
- How is the food diversity (multiple response possible)?

☐ Sufficient grains (rice, cereals, bread, pasta) and/or legumes ☐ Sufficient roots and/or tubers

☐ Sufficient meat and/or fish and /or dairy ☐ Sufficient vegetables and/or fruits and/or nuts
- Has there been any change in terms of food diversity?

☐ less diverse ☐ more diverse ☐ no change ☐ uncertain
- What are your main sources of income? (multiple response possible)

☐ mostly agriculture ☐ mostly industry ☐ mostly remittances ☐ mostly services

☐ combination of different sources

- Do the changes you have mentioned impact on your income opportunities (on-farm and off-farm)?
If yes in what way?
 - Are there any income opportunities you no longer have?
 - Are there any new income opportunities that have arisen over the past 10/20 years?
- Has your overall income changed, and, if yes, in which way?
☐ less ☐ more ☐ no change ☐ uncertain
- What are the reasons for these changes?
- Is your income sufficient to cover your basic needs (food, clothing, schooling, healthcare)?
 Income is ☐ more than sufficient ☐ less than sufficient ☐ sufficient

Capacity analysis: Coping and adaptation mechanisms

☞ The questions in this section need to relate to the answers given in the previous section on perception of changes. The interviewer should refer to the specific examples of changes mentioned by the respondents during the interview or FGD (e.g., less rainfall, more rainfall, floods, landslides, longer dry seasons, diseases, pests, food shortages, and so forth). The interviewer should only ask questions about the examples of changes that the respondents have actually experienced. For example, the interviewer should not ask questions about crop pests if the respondents have not experienced any changes in crop pests. Sample questions are listed below.

☞ PRA tools: These questions can be asked when the seasonal calendar and the livelihood seasonal monitoring calendar are being merged together (see Figure 3 in section on Data Collection).

- What do you do when there is **too little rain/water** or there is an unusually long dry period?
 - What do you do with your crops (e.g., do you change varieties, timing of sowing/planting or harvesting, irrigate the land)?
 - What do you do with your animals?
 - What do you do in your household/in the community? Who is dealing with this problem (you, your husband/wife, other family members, or the community as a whole)?
 - Are these strategies still useful today? Or what, in your view, needs to be done? Who could help you?
- What do you do when there is **too much rain/water**?
 - Ask same sub-questions as above
- What do you do when the **weather** is extremely **hot** over a long period of time?
 - Ask same sub-questions as above.
- What do you do when it is extremely **cold** over a long period of time?
 - Ask same sub-questions as above.
- What do you do when there is a **flood**?
 - How do you protect your crops, your animals, your children, and your houses and personal belongings?
 - Are these measures still sufficient today? Or what, in your view, needs to be done?
 - How long does it take you to get back to normal life after a flood?
 - Who is responsible for which measures? Do you help each other out within the community? Do you get support from outside? What kind of support would you need?
- What exactly do you do when there is a **landslide**?
 - Ask same sub-questions as with flood.
- What do you do when there is a **hailstorm**?
 - Ask same sub-questions as with flood.

- What do you do if there is a **lot of snow**?
 - Ask same sub-questions as with flood.
- Have you **introduced** any **new crops** or **given up** planting some crops?
 - If yes, which ones and why?
- What do you do when your **crops are affected by pests/diseases**?
 - Do you have any remedies for this? Are these remedies still useful?
 - Who is dealing with this problem (you, your husband/wife, or the community as a whole)? Can you get any support from the community, from outside (e.g., extension services)? What kind of support would you need?
- What do you do when your **livestock are sick**?
 - Ask same questions as with pests.
- What do you do when **members of your family get sick**?
 - Do you have any traditional remedies?
 - Can you go and see a doctor/ health worker?
 - Who is taking care of those who are sick? Do you get assistance (also in monetary terms) from other members of the community or from outsiders?
- What do you do if there is a prolonged period of **food shortage**?
 - Do you have to go to a moneylender?
 - Do you engage in off-farm activities?
 - Do you sell any personal goods?
 - Do some of your household members migrate? If yes, where to and for how long?
 - Do you get assistance from other members of the community or from outside?
 - What kind of support would you need?
- What do you do if there is a **shortage of fuel** for cooking or heating?

Social safety nets

☞ PRA tools: The following questions can be linked to the Venn diagram on institutions

- When you try to resolve these problems, are there any specific community groups or arrangements from which you receive help (e.g., when your crops are affected by pests, when there is a water shortage, when you need assistance because of food shortage, or you need money for a veterinarian or to see a doctor)?
 - Could you please describe these groups/arrangements?
 - Who participates in these groups/arrangements?
 - Do you also help others if they have any problems? How?
- When you and your family/community are trying to resolve these problems can you get help from outside (e.g., from local government representatives, IOs, NGOs)?
 - If yes, from whom exactly? What is their role? What kind of help do you receive and for what problems?
 - Who within the community can get help from these organisations/sources? For whom is it particularly difficult to gain access to these organisations/sources?
- Do you know what other communities/villages are doing to resolve the problems you mentioned? Do they take the same measures as you/your community? If different than yours, have you tried some of their practices in your community? Which ones? Why or why not?

Needs assessment

- Of the changes, problems, and challenges you have mentioned, which ones are the most important ones that you are facing in your daily lives at present?
- Do these difficulties differ from the ones you were facing 10/20 years ago, or from the ones that your parents were facing? In what way? What do you think the reasons are for these changes?
- Which strategies and mechanisms (including technologies, information, infrastructure, livelihood options, and institutional mechanisms), in addition to the ones you have already mentioned, do you think would help you most to alleviate the current difficulties you are facing?
- Who could help you to overcome these challenges?
- What do you think about the interventions that have already happened in your village (if any)? Which ones worked and which ones did not? Why?
- What would help you most to improve your life?

Institutional constraints and opportunities analysis

☞ The following questions should be asked to representatives of civic, public, and private organisations active in the study area.

- What are the most important climatic and socioeconomic changes observed in the region?
- In your view, how do climate change related hazards affect the livelihoods of the people living here?
- What impacts do climate and socioeconomic change have on daily activities and living conditions?
- What do the communities do in response to these changes?
- What concrete role does your organisation play in supporting the local people in their efforts to adapt to, or cope with, climate and socioeconomic change?
- What kind of concrete support do you offer (extension services, knowledge transfer, technological support, income opportunities, loans, and so on)?
- Who is directly benefitting from your organisation's services? Who participates in your initiatives? How do they benefit from your initiatives? Do women and men benefit equally?
- Do you think that there are any differences between the needs of women and men, and different social groups, with regard to climate change adaptation? If yes, what do you think these different needs are?
- What is your opinion about the importance of informal traditional institutions (safety nets) within mountain communities in the adaptation process to climate change?
 - What role do informal traditional institutions within communities play in the adaptation process to climate change?
 - Are there any linkages between your organisation and traditional informal institutional arrangements within the communities? Please explain these linkages.
- Does your institution have any linkages to other institutions active in the area (civic, public, private)?
 - Could you please explain the way you are collaborating with these other institutions?
- In your opinion, what is the biggest challenge facing local communities at present?
 - Have these challenges changed from the ones that they faced in the past?
 - What should be done first to overcome these challenges?
- How could particularly women and other vulnerable groups be supported in their struggle to cope with, or adapt to, climate and socioeconomic change?
- How can your organisation support these communities?
- In what way would your organisation need external support to help local communities to overcome these challenges?

Thank you!

Annex 2: Meteorological Data

Nepal

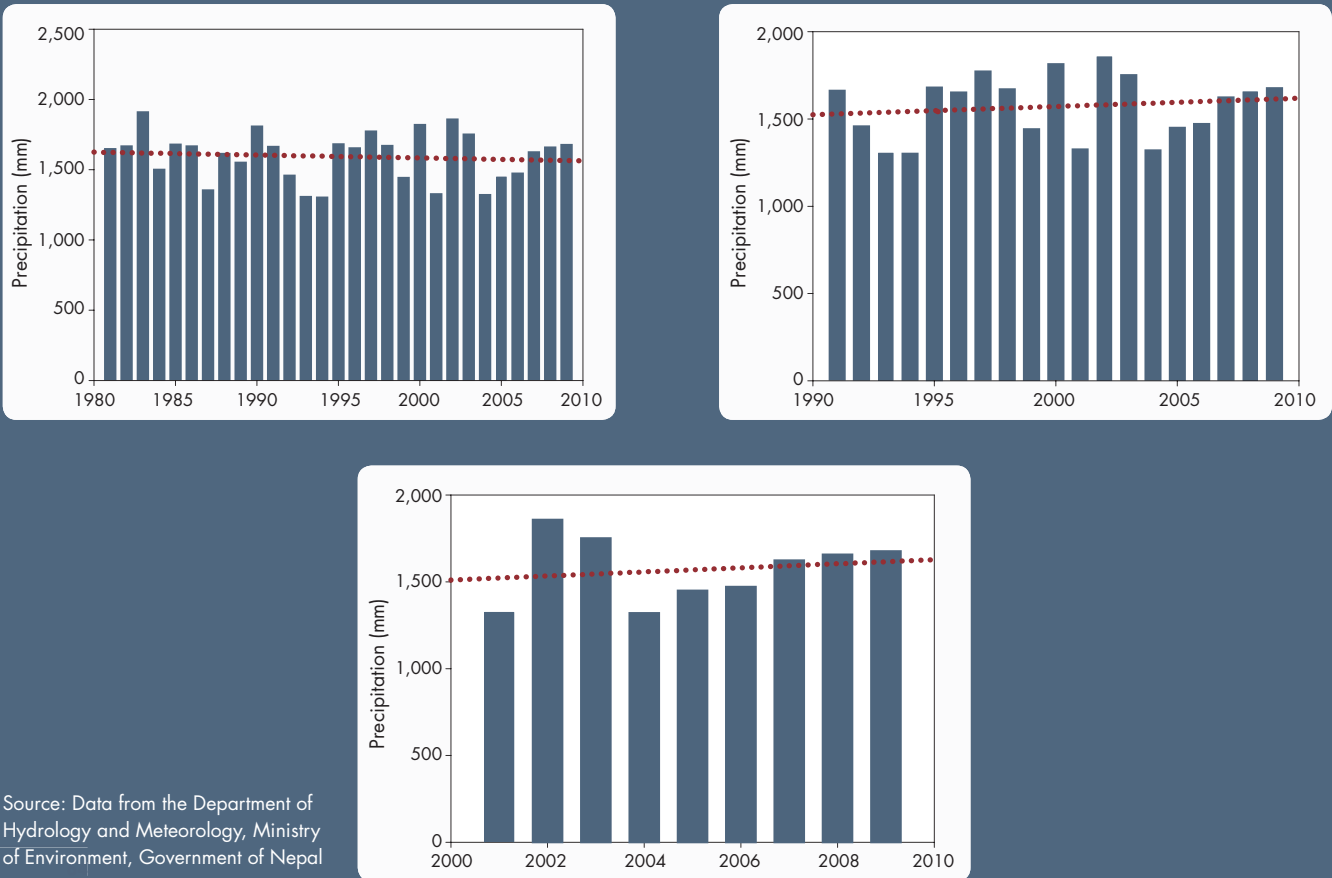
Data were obtained from three stations in Bajhang and Terhathum as shown in Table A1.

Overall the results at all three stations reflect the marked interannual variability and highly localised rainfall patterns rather than clearly showing any trends. Some gaps in the data also affected the interpretation of trends. However, some general observations can be made as follows.

Table A1: Hydro-meteorological stations in Bajhang and Terhathum

Station	District	Position			Data availability	Average annual precipitation (mm)
		Lat. °N	Long. °E	Elevation (m)		
Pipalkot	Bajhang	29.62	80.87	1,456	1956–2008 (53 years)	2,189
Chainpur	Bajhang	29.55	81.22	1,304	1956–2009 (54 years)	1,519
Terhathum	Terhathum	27.13	87.55	1,633	1971–2009 (39 years)	1,009

Figure A1: Total annual precipitation in Chainpur and regression analysis over 10, 20, and 30 years

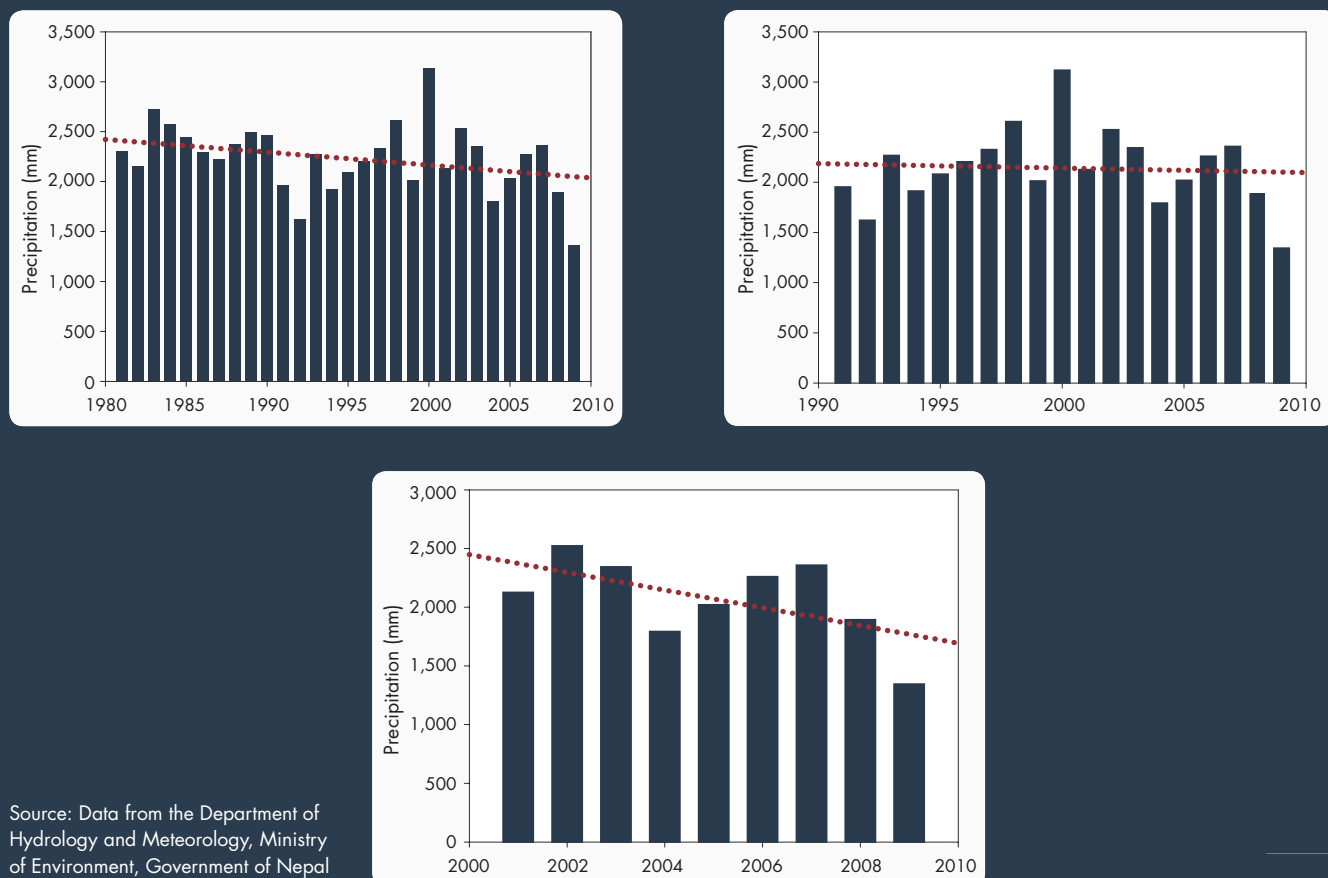


The data from the two stations in Bajhang (Pipalkot and Chainpur) showed considerable differences (Figures A2 to A4). In Chainpur, there appeared to be a slight increase in total annual precipitation over the period 1956–2009, but in Pipalkot there was little or no change. More differences were apparent over the shorter periods of 10, 20, and 30 years, the time frame discussed with respondents. There was no overall change in precipitation over 30 years in Chainpur, but a slight increase on average over 10 years and 20 years (Figure A1). The average increase reflects heavy rainfall in 1999/2000, 2001/02 and 2002/03, but also well below average rainfall in 2000/01 and 2003/04. In Pipalkot, the total annual precipitation decreased slightly over 10 years and 30 years, but was constant over 20 years (Figure A2). Again the average values were influenced by very high rainfall in 1999/2000 and well below average rainfall in 2003/04, and 2008/09.

Summer (monsoon) rain (June, July, August, September) showed a slightly increasing trend in Chainpur and slightly decreasing trend in Pipalkot over 30 years (Figures A3 and A4). Winter precipitation was highly variable at both stations, but with some indication of a decreasing trend, and with almost no winter rain in Pipalkot in 2007/08 and 2008/09, the latter year having the lowest annual rainfall in Pipalkot in 30 years, which may explain in part the strong perception that rainfall was decreasing. There was some indication that in Bajhang the number of rainy days was decreasing, whereas the number of extreme rainfall days (>50 mm rainfall in 24 hours) was increasing slightly, which matches with local perceptions.

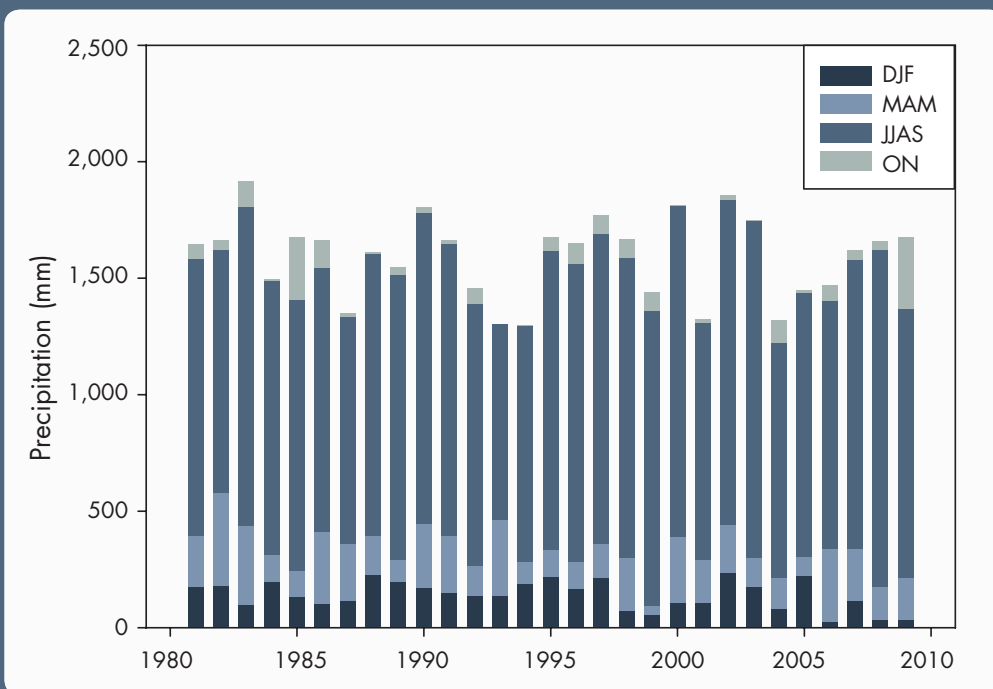
In Terhathum, there was a slight increase in annual rainfall between the years 1980 and 2009, but a decrease on average over 10 years and 20 years (Figure A5), in line with people's perceptions. However, data were missing for the (heavy rainfall) year 1999/2000. Precipitation in 2004/05, 2007/08 and 2008/09 was particularly low, although well above average in 2005/06 and 2006/07. Monsoon rains had shown an increasing trend over the whole period and over 30 years, but a slightly decreasing trend over the past 10 and 20 years (Figure A6); winter rain was highly variable with almost none falling in 2004/05, 2005/06, 2007/08, and 2008/09.

Figure A2: Total annual precipitation in Pipalkot and regression analysis over 10, 20, and 30 years



Source: Data from the Department of Hydrology and Meteorology, Ministry of Environment, Government of Nepal

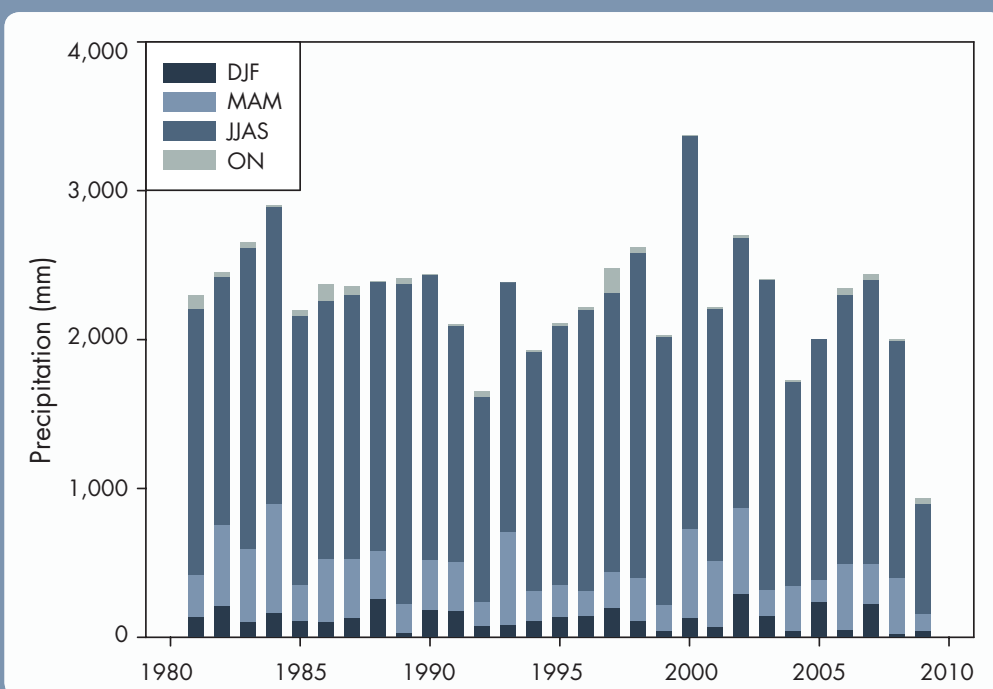
Figure A3: Seasonal differentiation of total annual rainfall in Chainpur over the last 30 years



DJF = January, February, March (winter or dry season); MAM = March, April, May (pre-monsoon); JJAS = June, July, August, September (summer or monsoon season); ON = October, November (post-monsoon)

Source: Data from the Department of Hydrology and Meteorology, Ministry of Environment, Government of Nepal

Figure A4: Seasonal differentiation of total annual rainfall in Pipalkot over the last 30 years



DJF = January, February, March (winter or dry season); MAM = March, April, May (pre-monsoon); JJAS = June, July, August, September (summer or monsoon season); ON = October, November (post-monsoon)

Source: Data from the Department of Hydrology and Meteorology, Ministry of Environment, Government of Nepal

Figure A5: Total annual precipitation in Terhathum and regression analysis over 10, 20, and 30 years

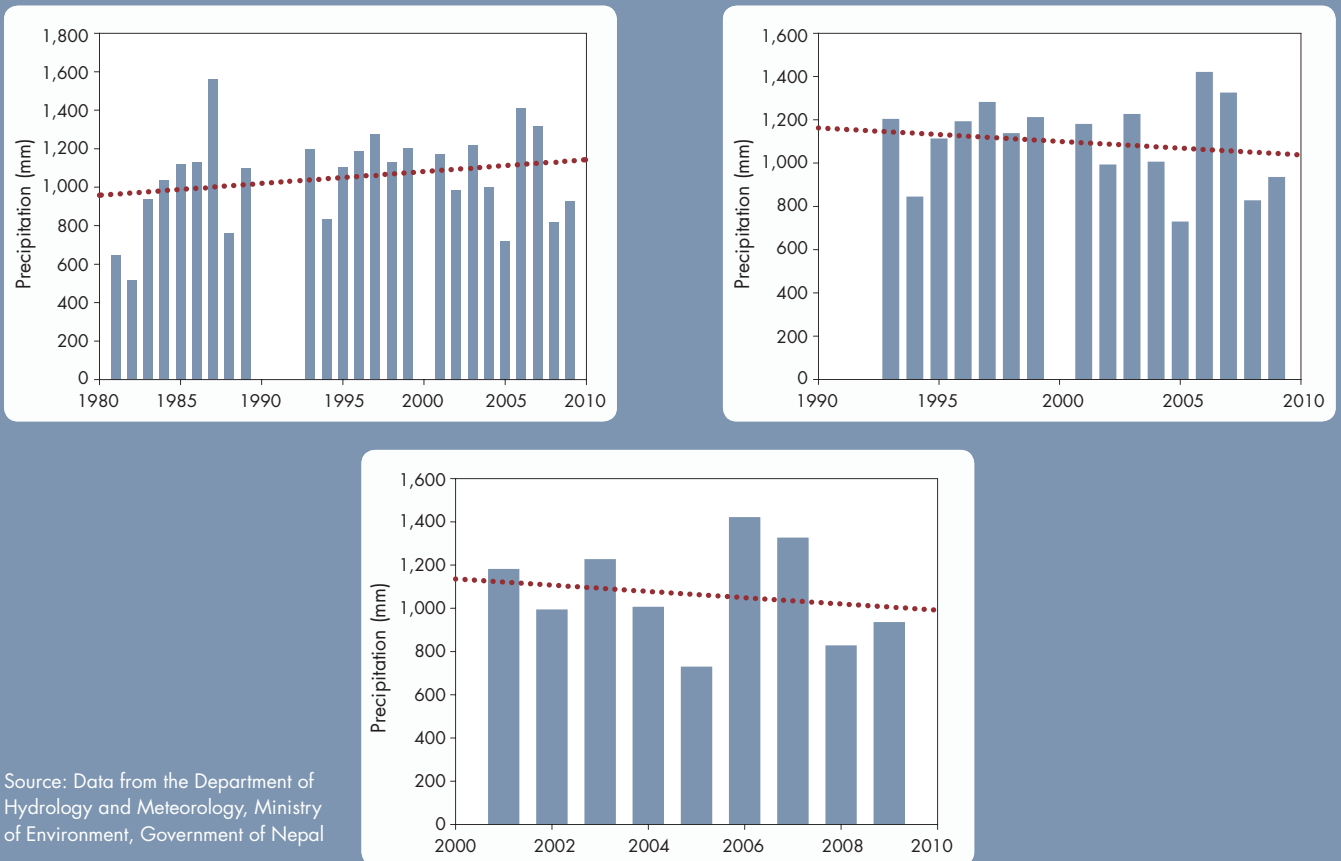
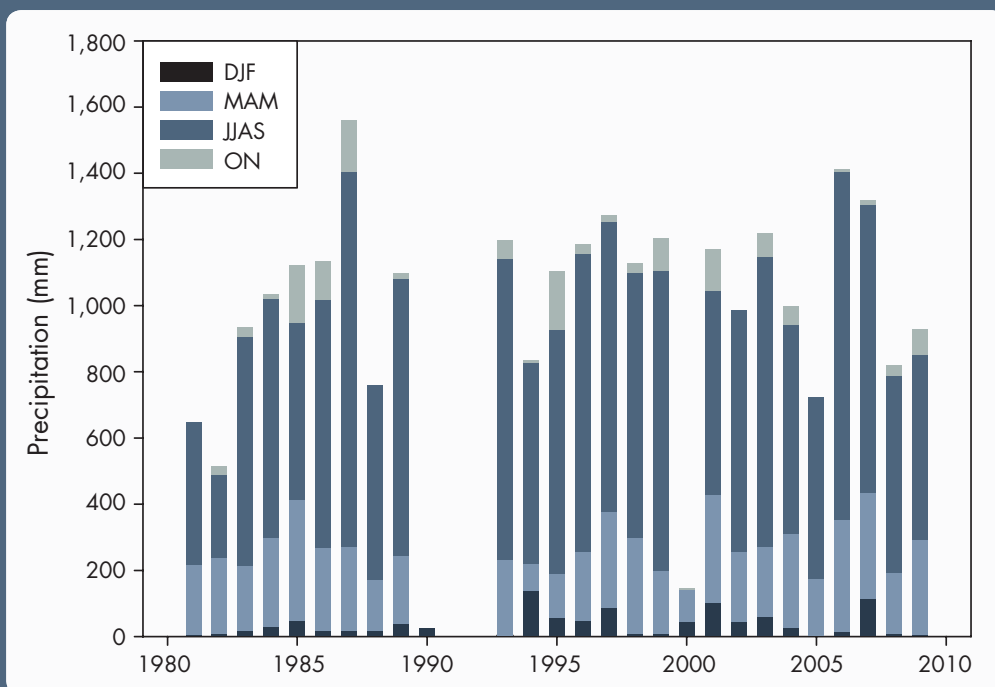


Figure A6: Seasonal differentiation of total annual rainfall in Terhathum over the last 30 years



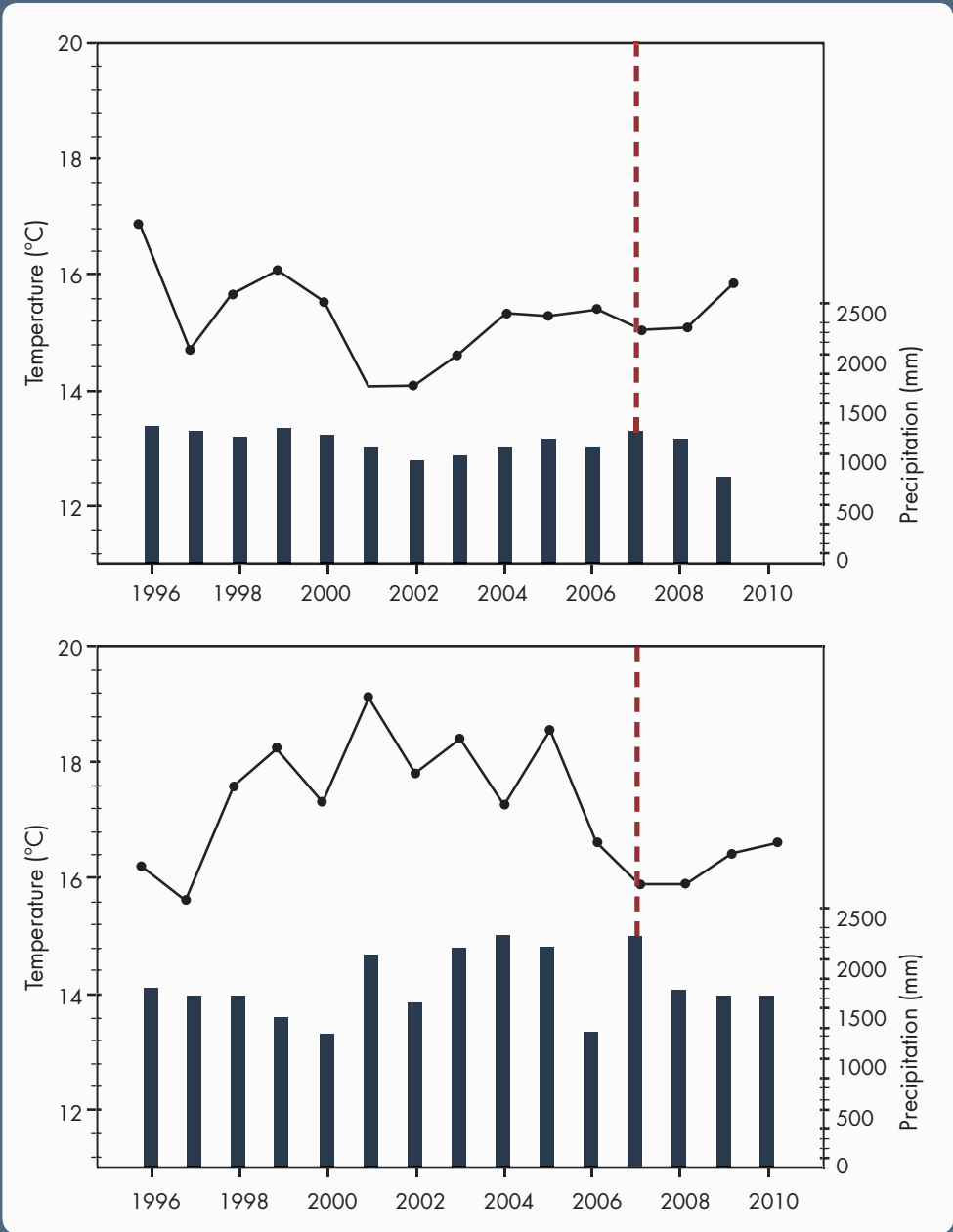
DJF = January, February, March (winter or dry season); MAM = March, April, May (pre-monsoon); JJAS = June, July, August, September (summer or monsoon season); ON = October, November (post-monsoon)

Source: Data from the Department of Hydrology and Meteorology, Ministry of Environment, Government of Nepal

Bhutan

Aggregated climate and precipitation records were obtained from two hydro-meteorological stations in Eastern Bhutan, one in Trashi Yangtse at 1,830 masl at (27.6 °N, 91.5 °E) and one in Pemagtsel at 1618 masl (27.03 °N, 91.42 °E) (Figure A7). There was a marked variability in values over the 15 years and no marked similarity in the fluctuations at the two stations. Both stations showed lower rainfall in the immediate years preceding the survey (from 2006/07, marked with a red line in the figure).

Figure A7: Mean annual air temperature (black line) and total annual precipitation in Trashi Yangtse (above) and Pemagtsel (below)



Source: Data from the Meteorology Section, Hydromet Services Division, Department of Energy, Ministry of Trade and Industry, Royal Government of Bhutan