

Climate Change Impact to Human and Society in Nepal

Prem S Chapagain

Central Department of Geography, Tribhuvan University, Nepal.

“Water and its availability and quality will be the main pressures on, and issues for, societies and the environment under climate change.” IPCC, 2014

*In Nepal, **changes in monsoon patterns will greatly exacerbate the situation of unacceptable presence of poverty and inequalities** of opportunities in the country. ..., the state must design and implement effective strategies to adapt to climate change impact to achieve economic and social progress.*

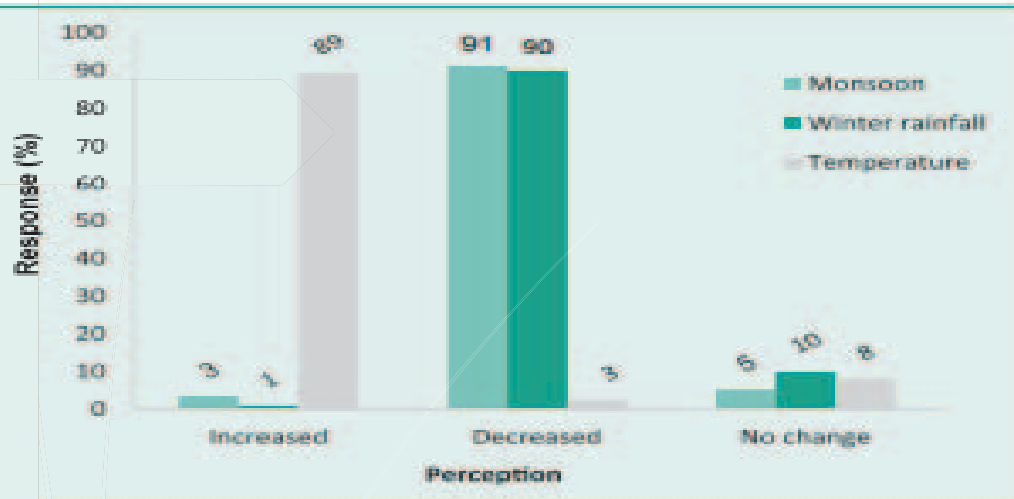
World Resources Report, World Resources Institute

(<http://www.wri.org/our-work/project/world-resources-report/climate-change-nepal-impacts-and-adaptive-strategies>)

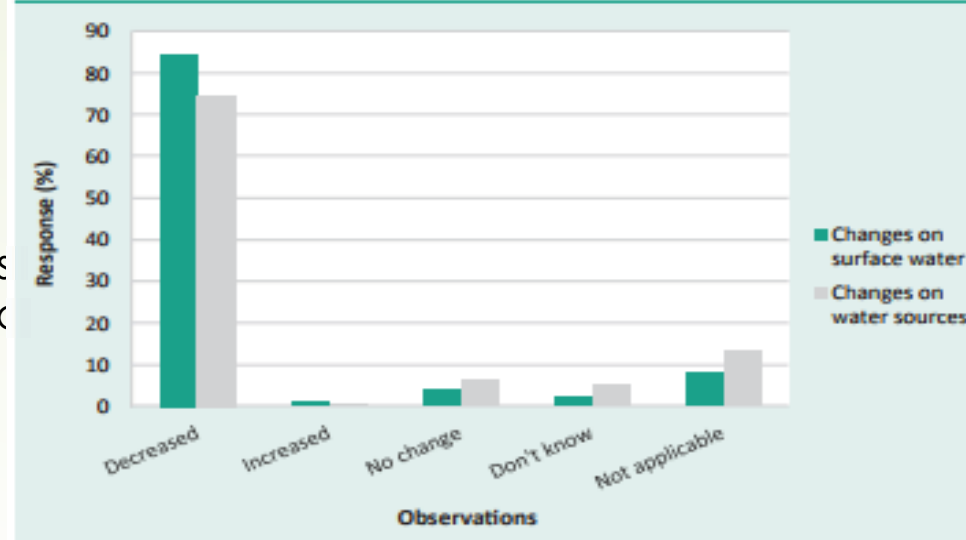
Agriculture remains Nepal's principal economic activity, employing over 70 percent of the population. Only 20 percent of the total area is cultivable. Recurring **climate related natural hazards undermine agriculture productivity causing poverty and food insecurity**. Agriculture dependent livelihood activities are frequently exposed to a variety of recurring natural disasters.

Implications of Climate Change for Agriculture and Food Security and Adaptation Priorities in Nepal (FAO, 2010, (<ftp://ftp.fao.org/TC/CPF/Country%20NMTPF/Nepal/thematic%20studies/Adaptation%20to%20Climate%20Change.pdf>))

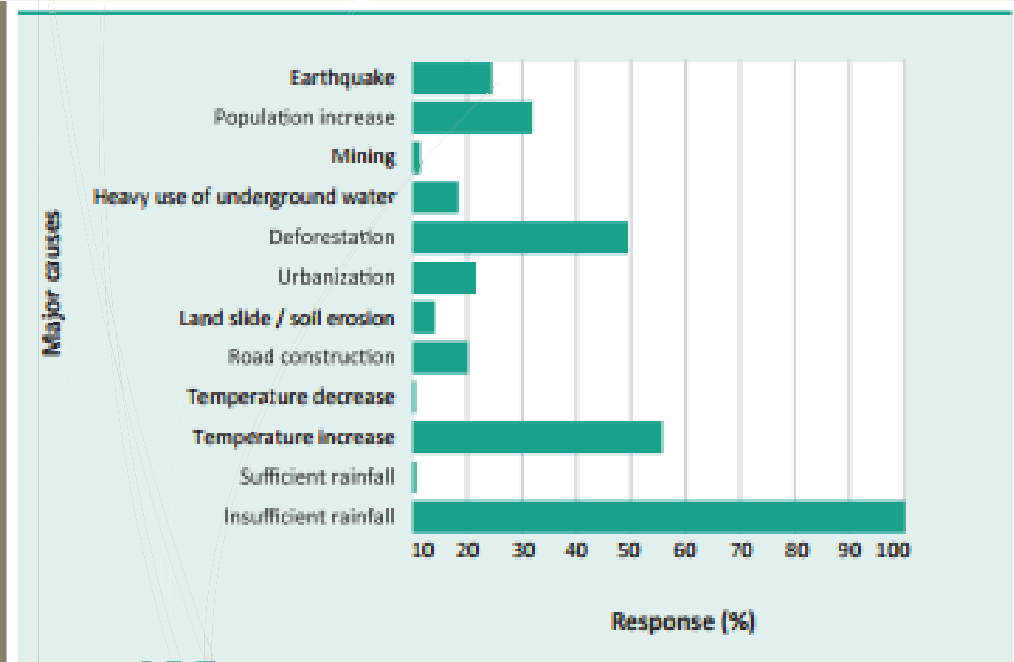
Climate Change Impact



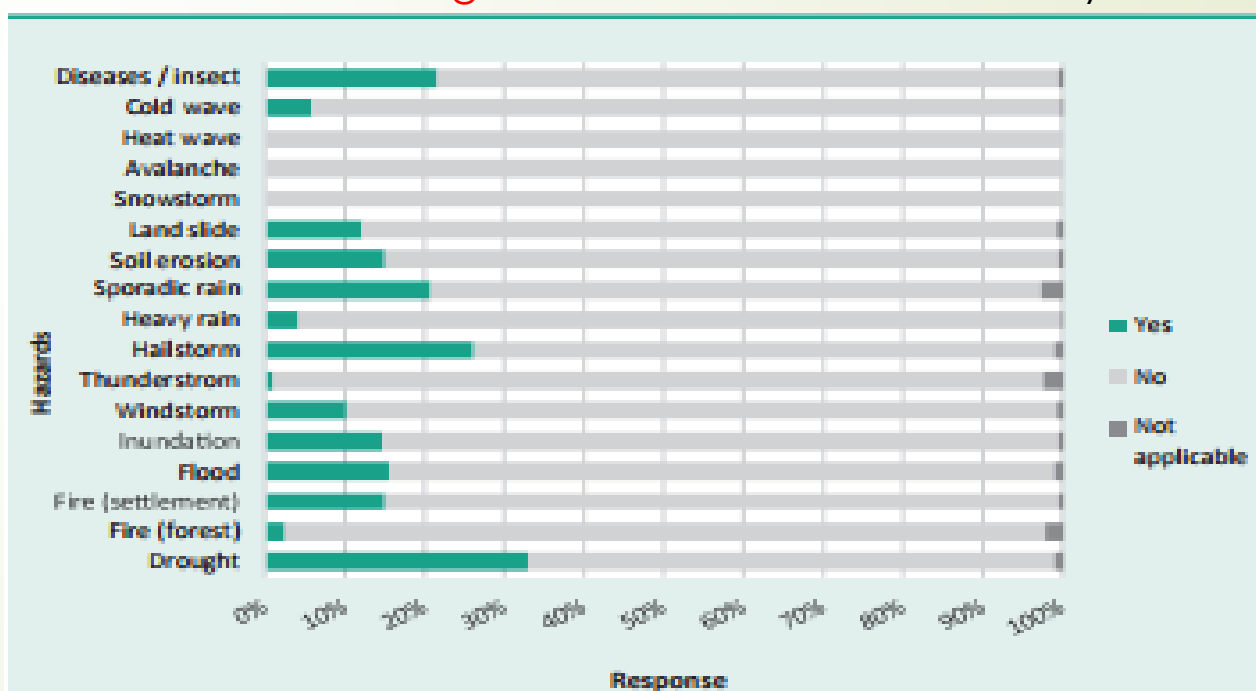
Changes on climatic variables in last 25 years, Nepal



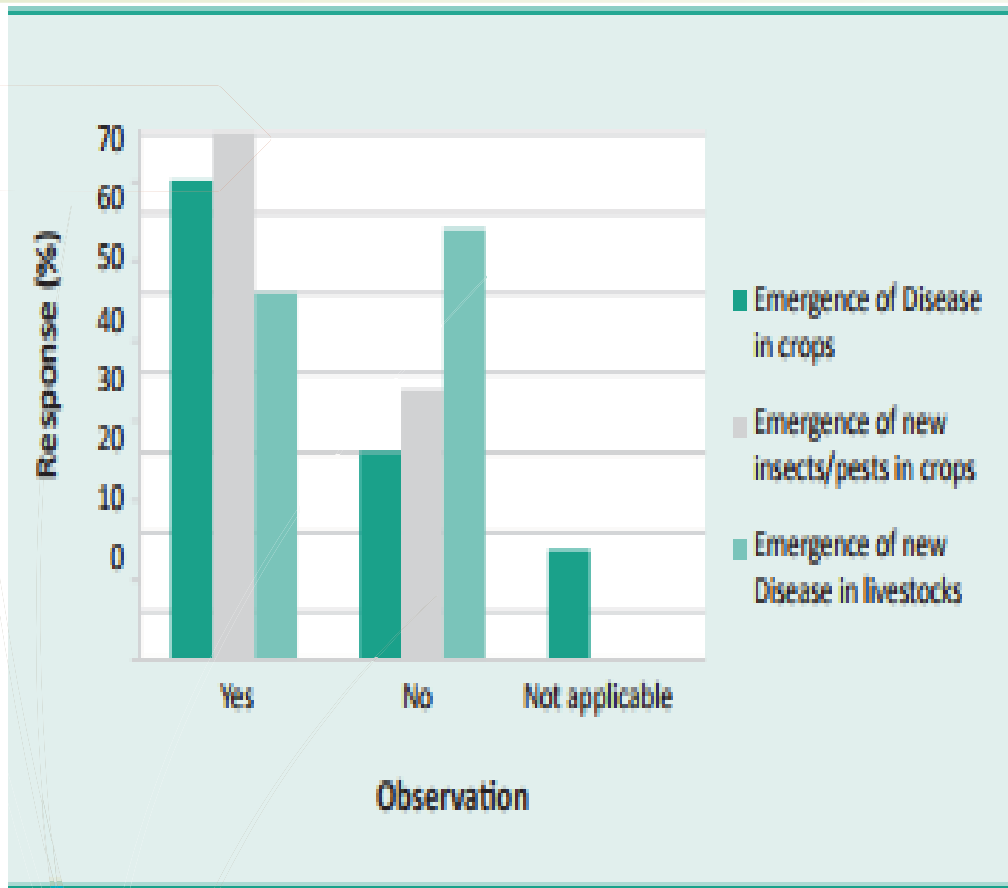
Observed change on water resources in last 25 yrs



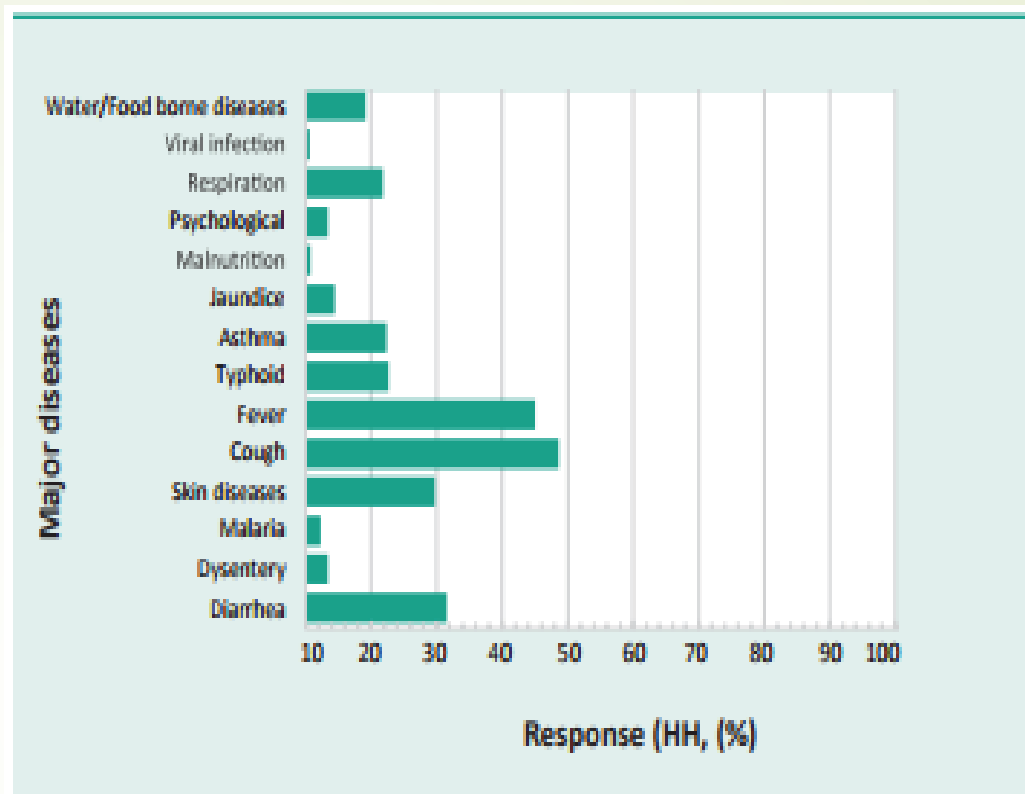
Causes of changes in water resources



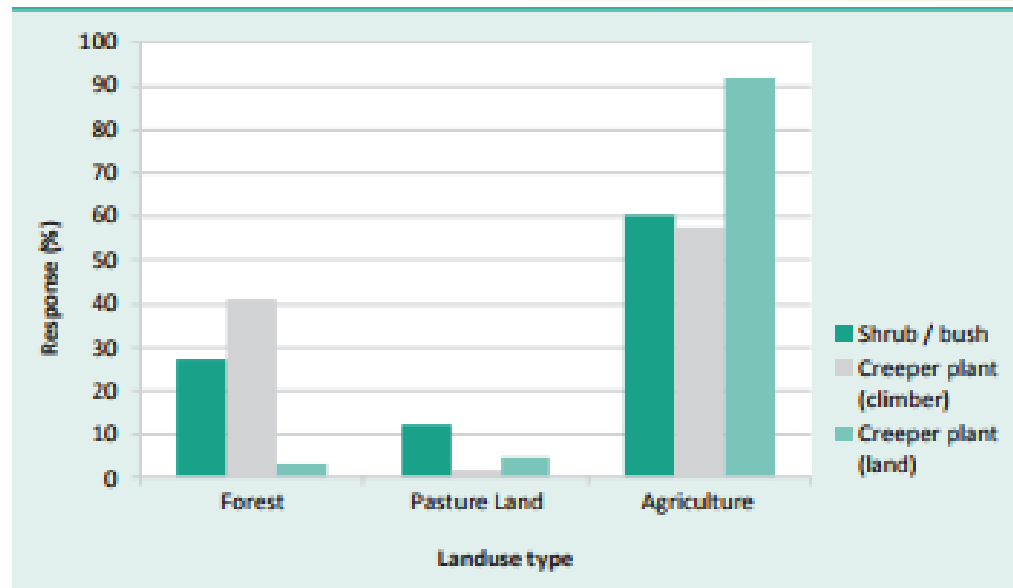
Household experiencing food insecurity due to disasters 2010-2015.



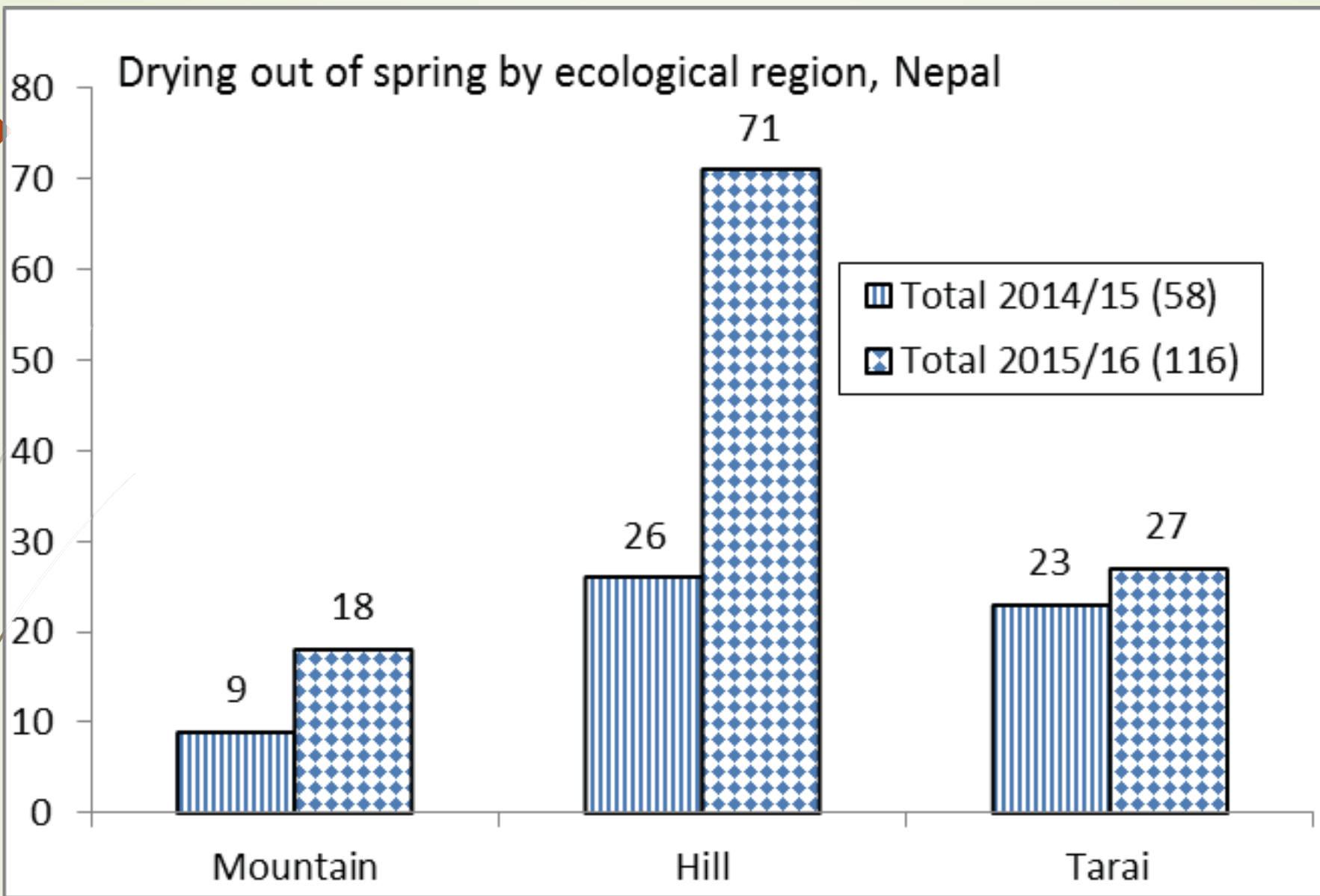
CC impact on **crops and livestock** in last 25 years



Main **diseases** and frequency of increment in last 25 years

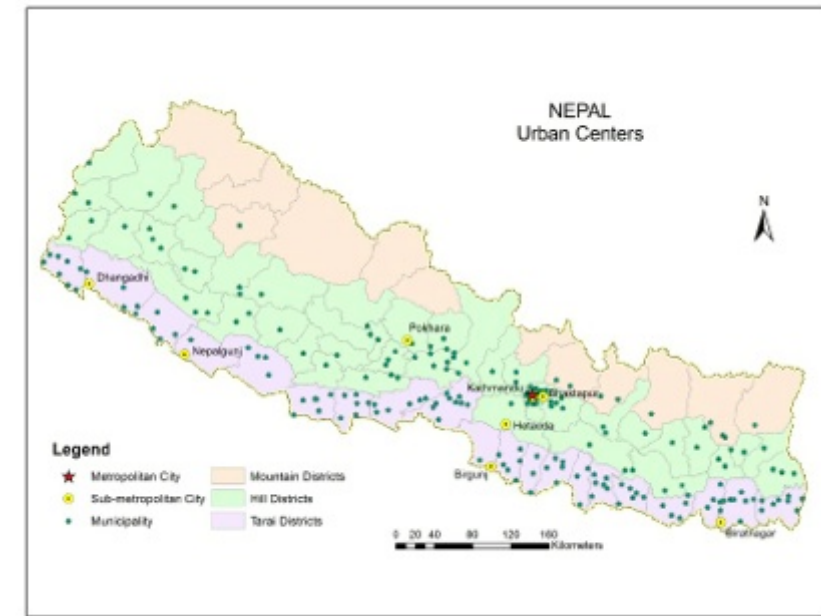
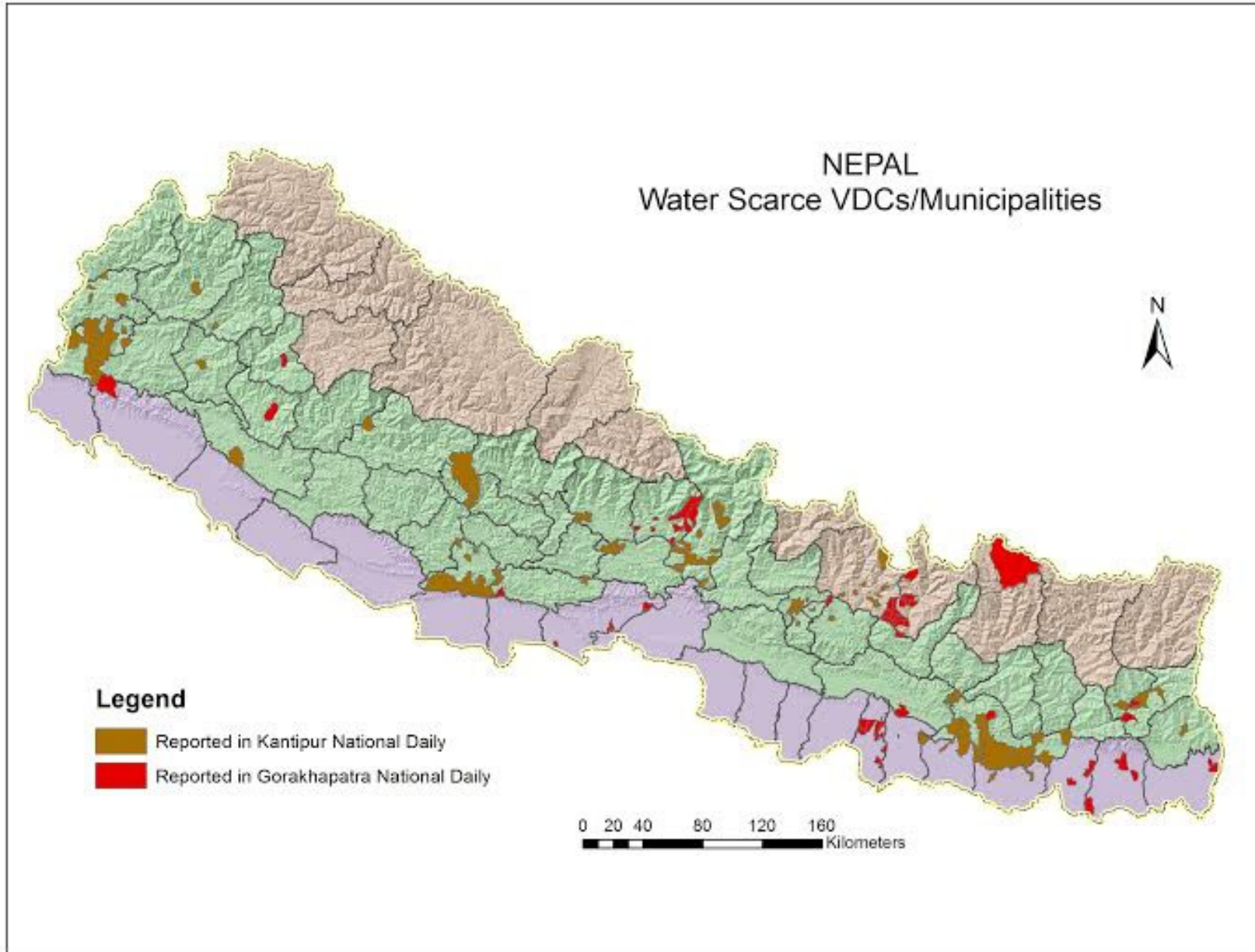


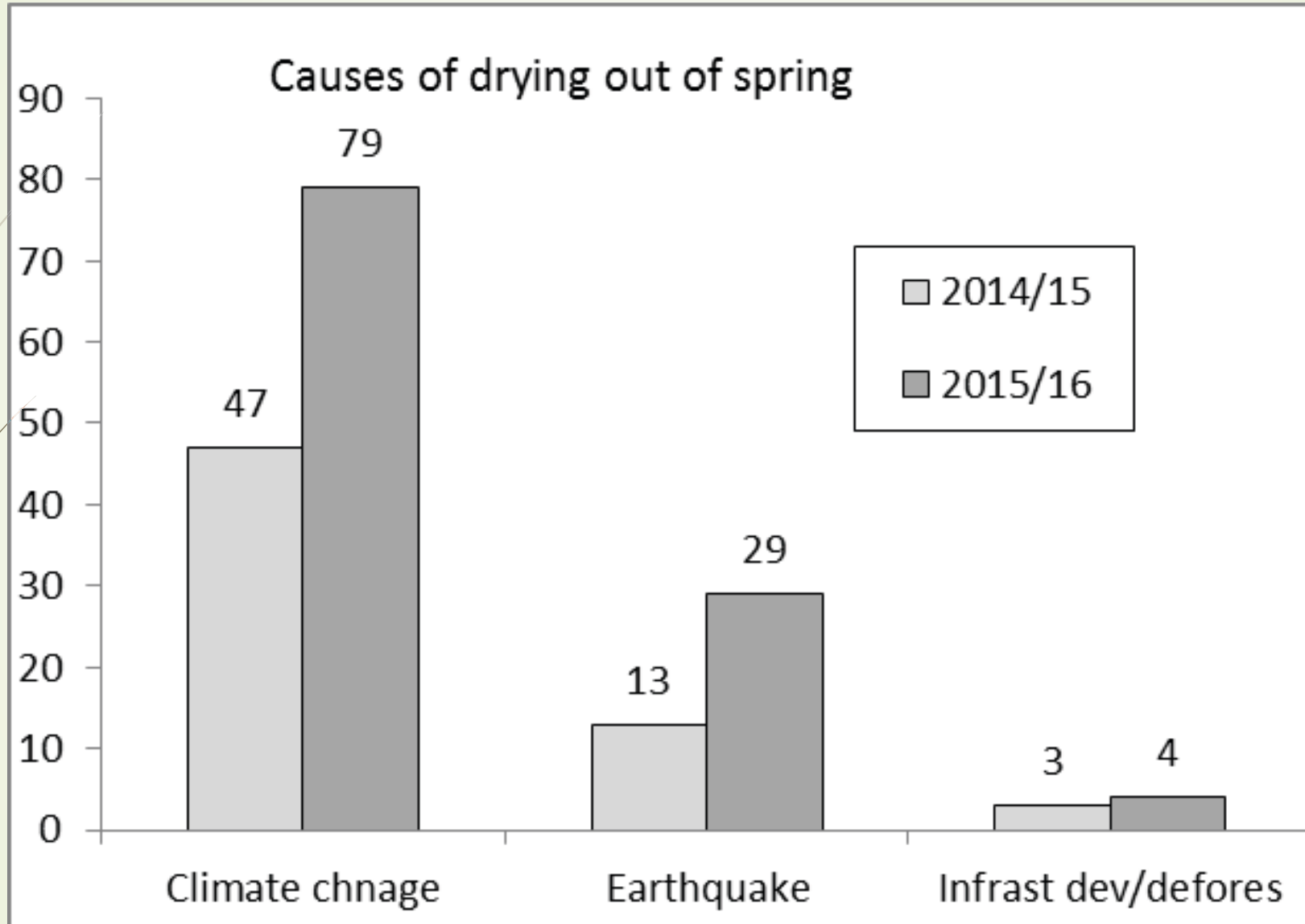
Appearance of **insavice species** in last 25 years



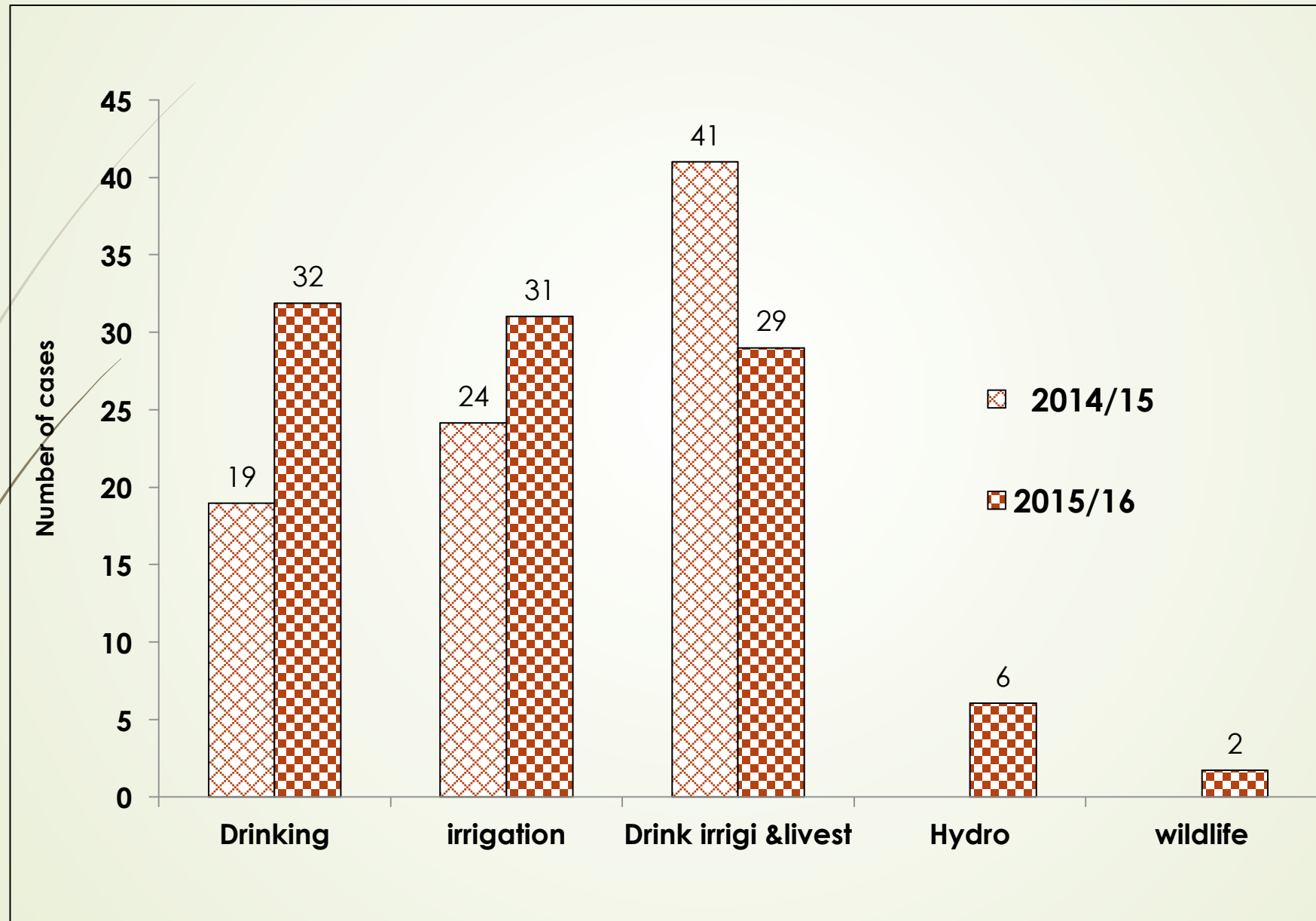
Note: Number of Village Development committee, smallest administrative unit, reported by national daily news papers (The Kantipur and the Gorkhapatra)

Water scarcity (Aug 2014 –Sept. 2015)

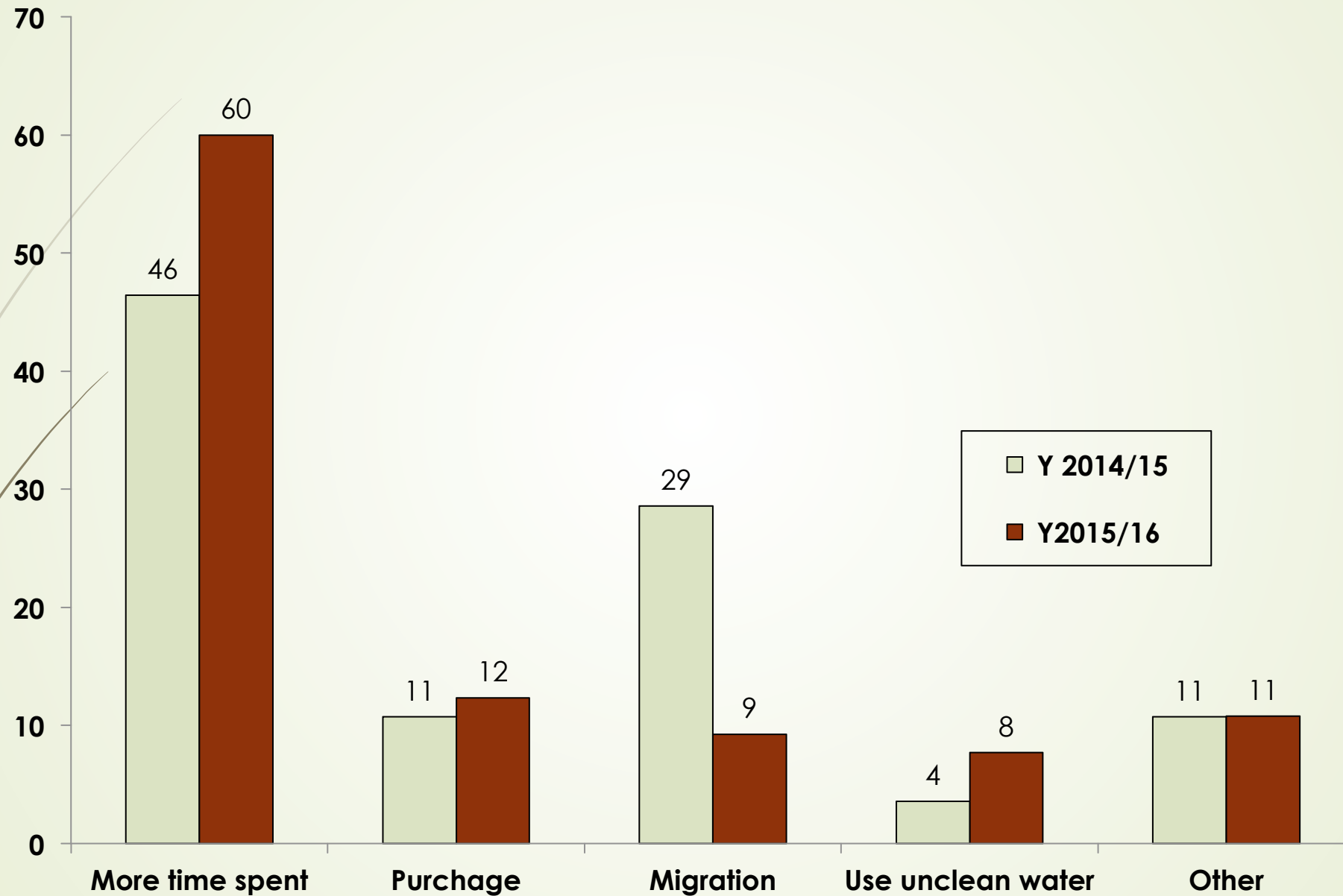




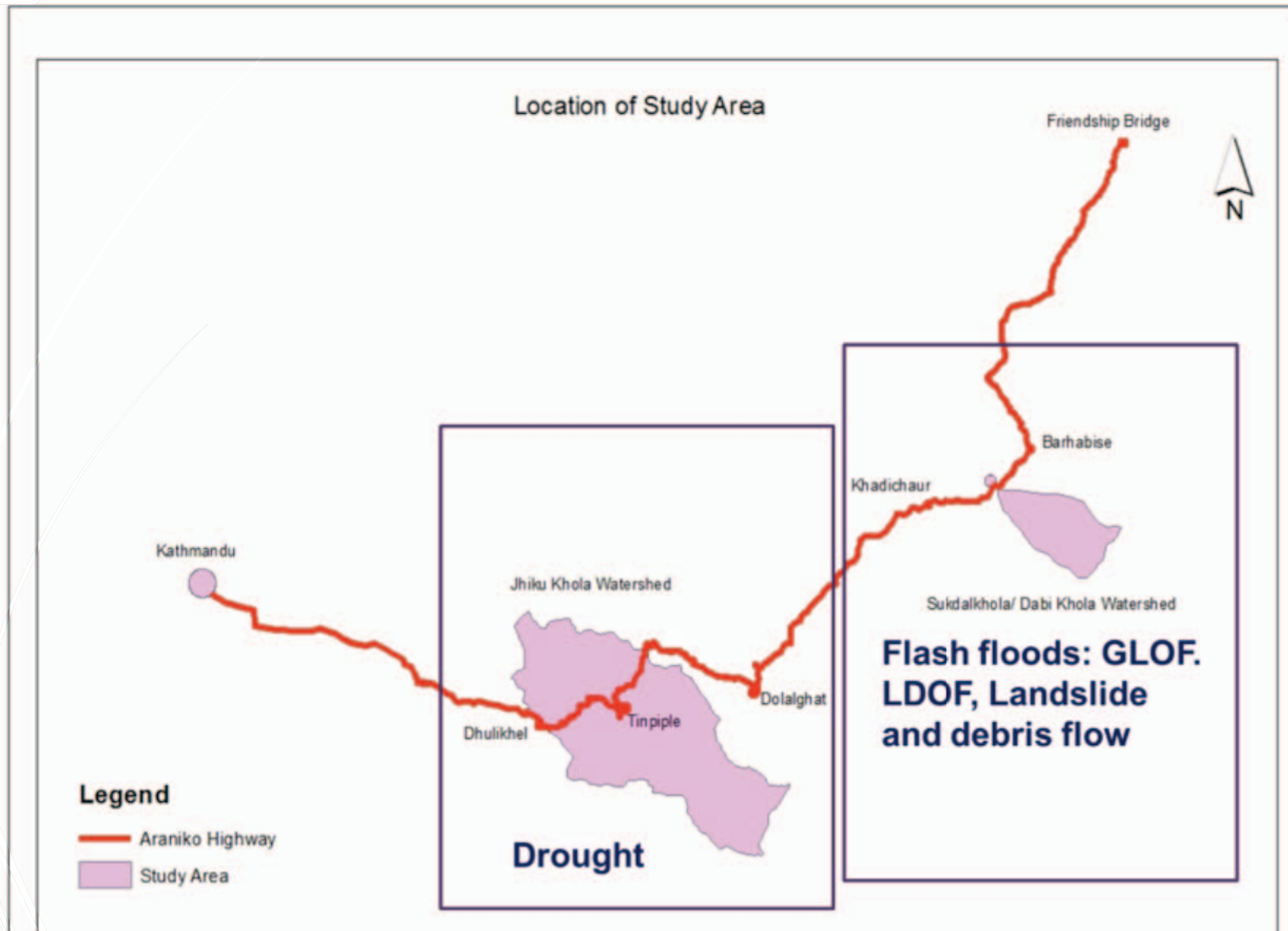
Impact of water scarcity due to drying out of springs, Nepal



Human response to water scarcity (in %)

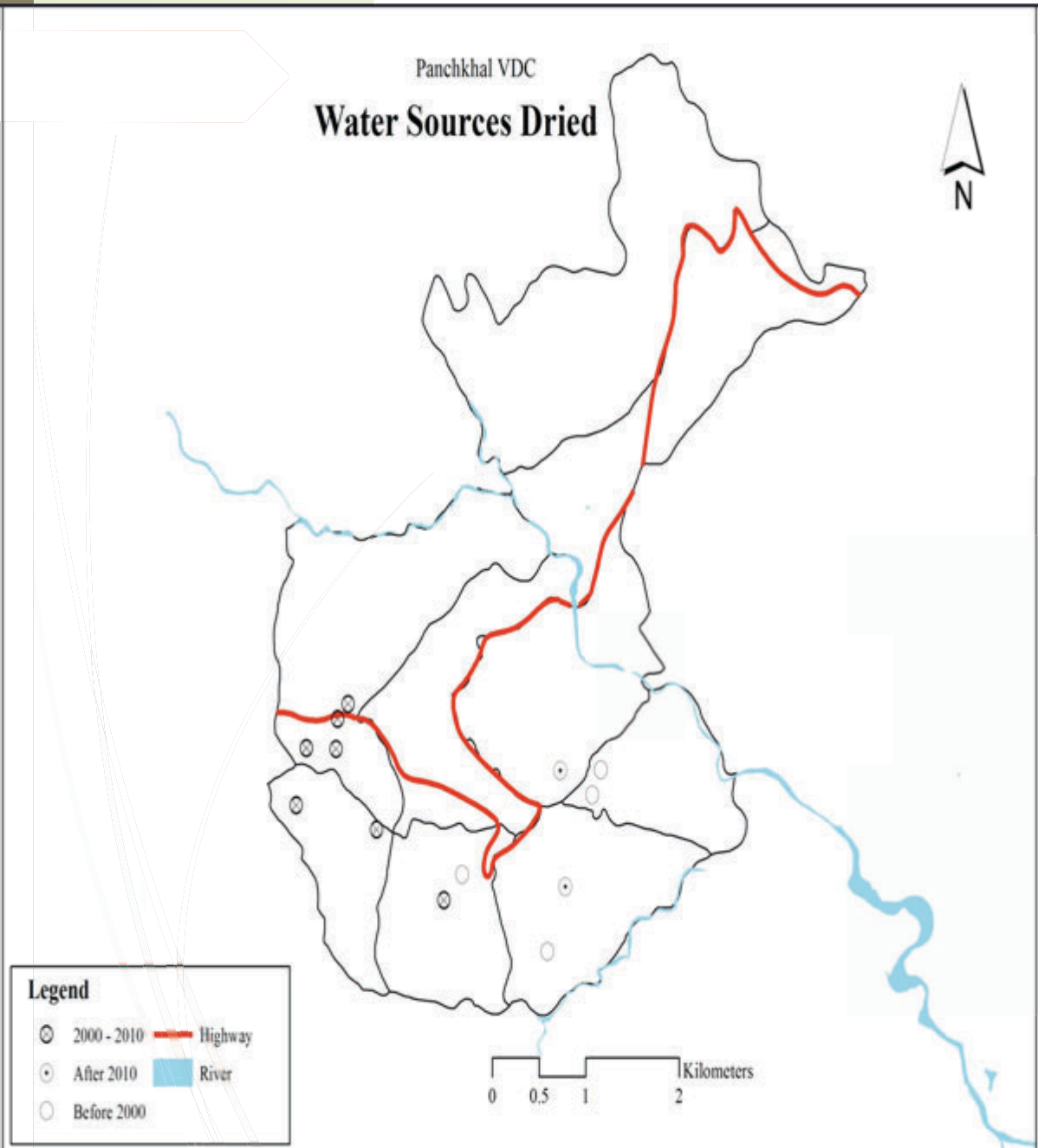


Water scarcity and its effects: Case studies from different sites in Nepal



Site 1. Panchkhal,
A periurban area

Dried natural springs within last 10-15 years

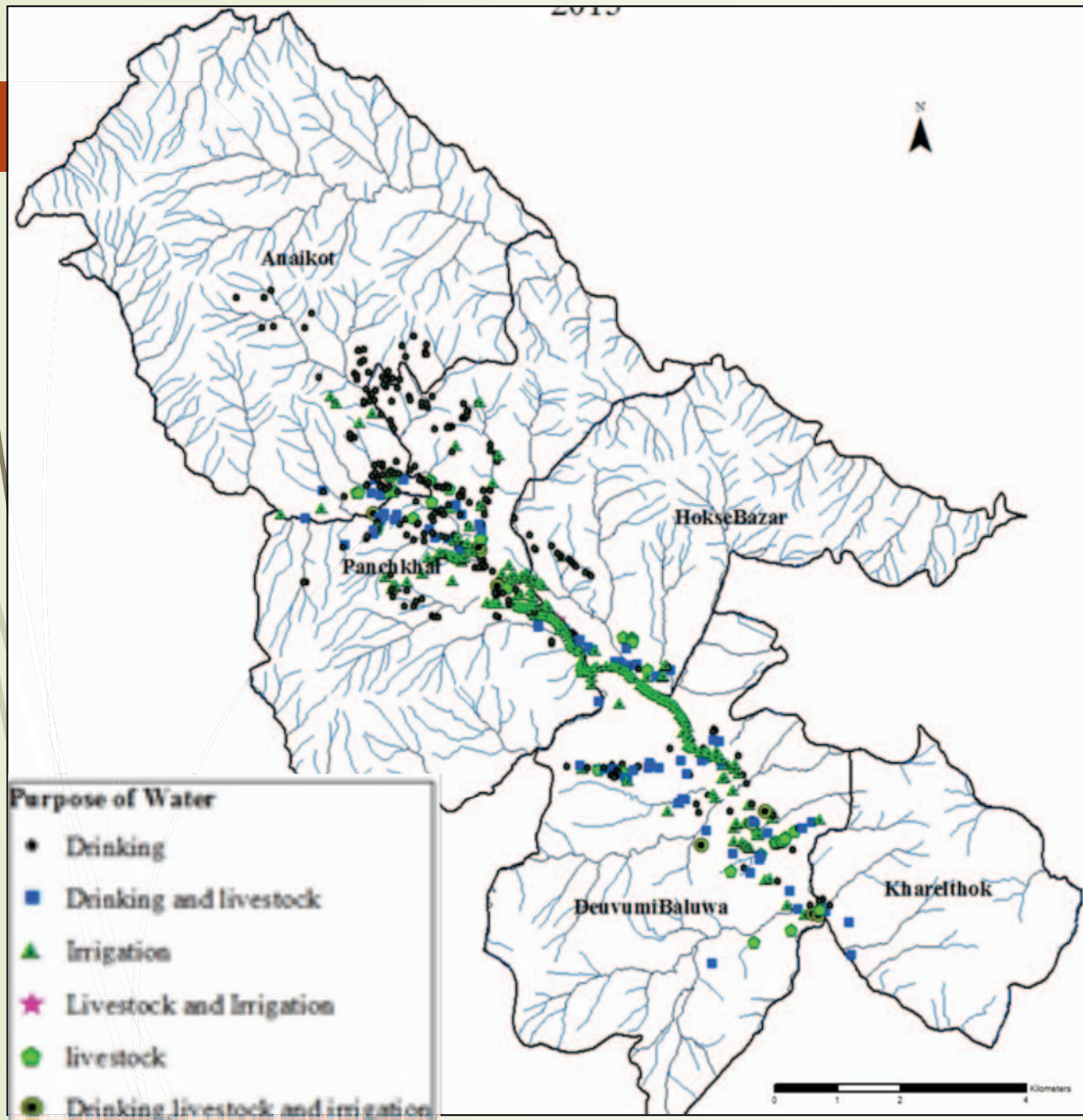




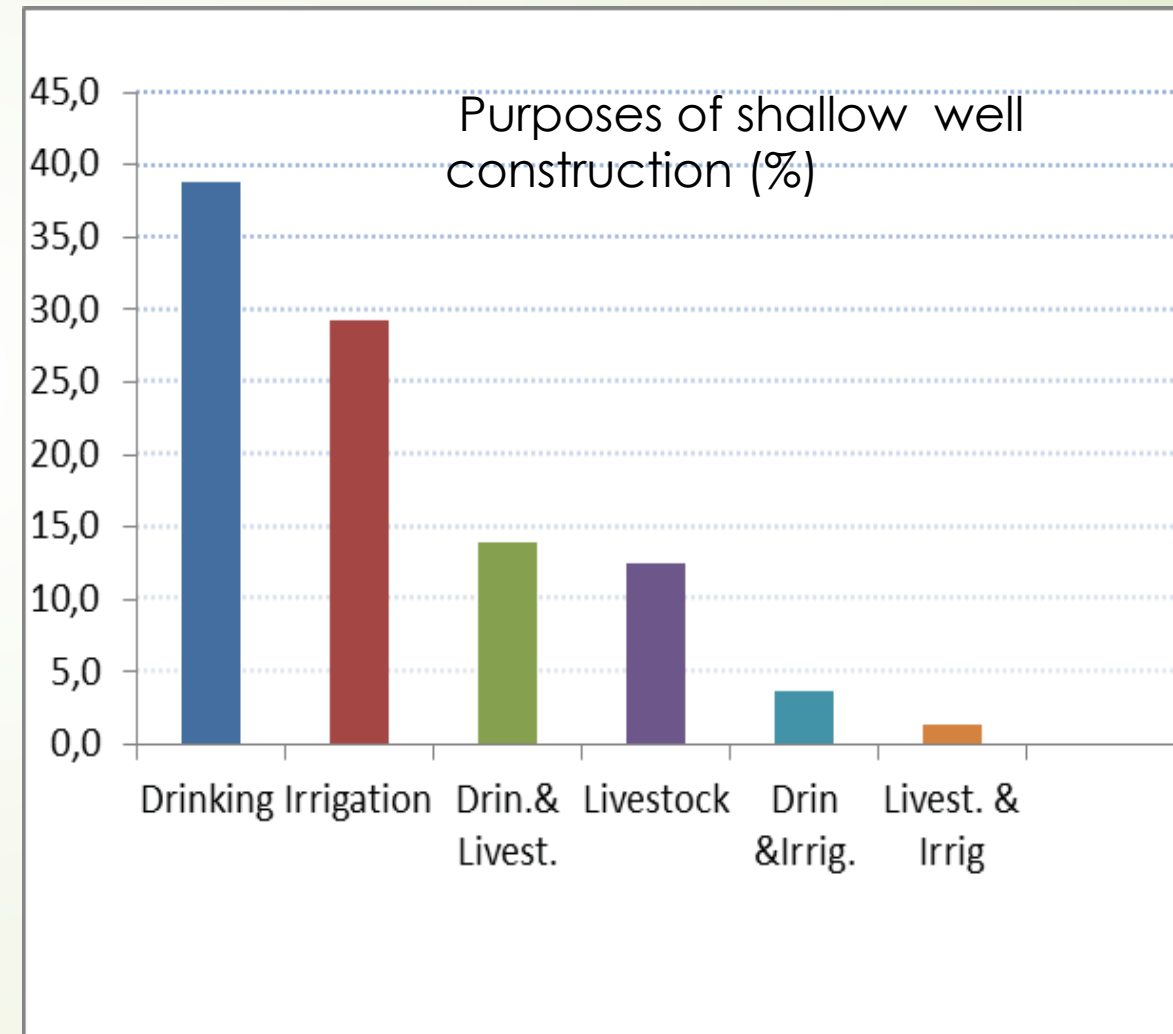
**Negotiated in
Frequency, Amount
and Timing of
collection**



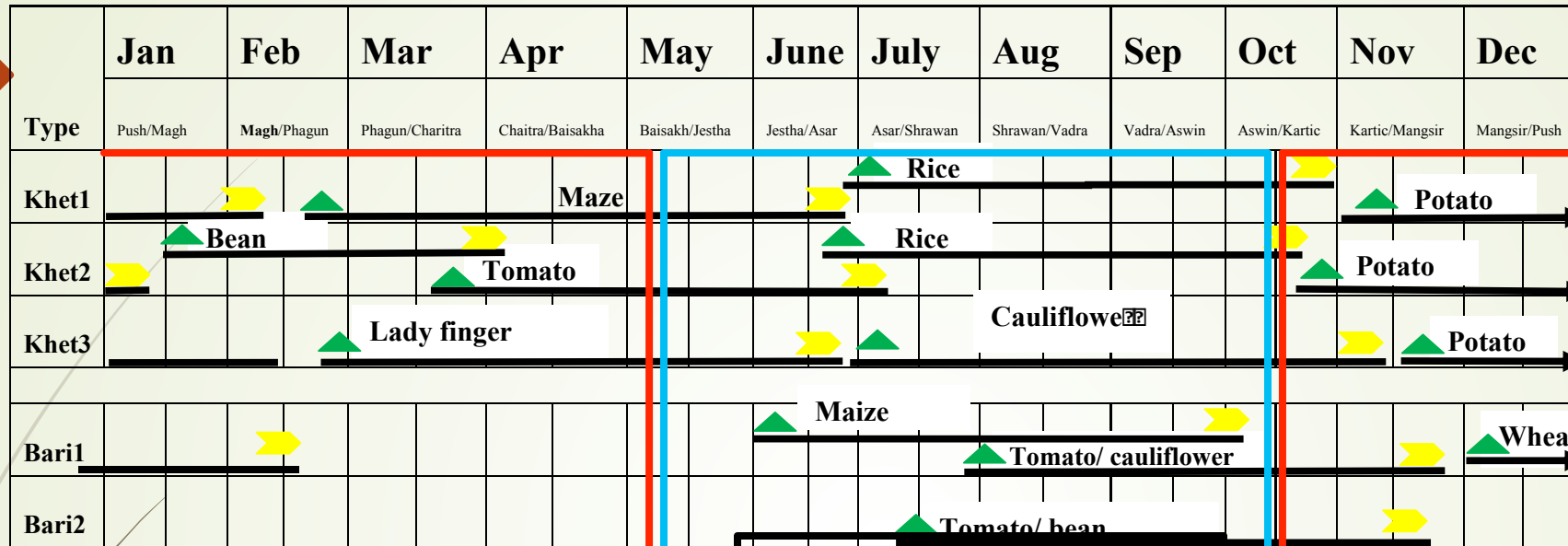
Collect water from any sources for livestock, and for non-drinking purposes



CC, water scarcity and its effect: Periurban area, Midhill Nepal



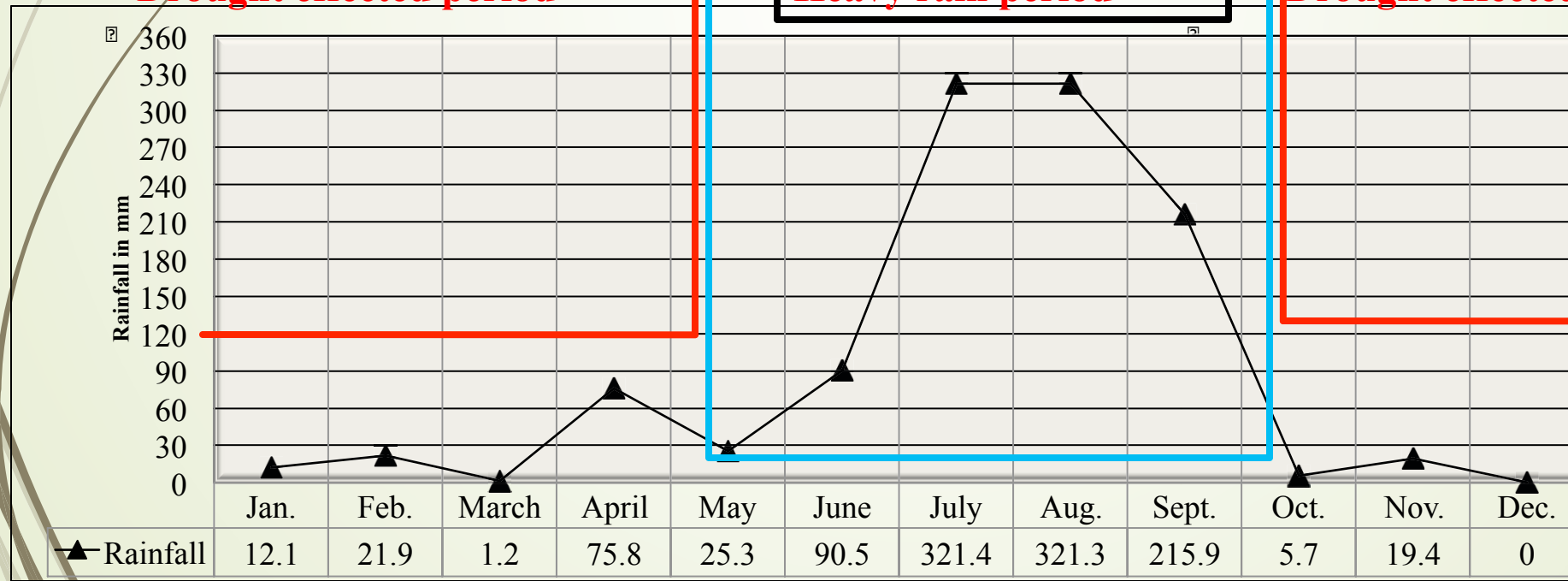
cropping pattern and water availability



Drought effected period

Heavy rain period

Drought effected period





Construction of ditches on river bed for winter irrigation

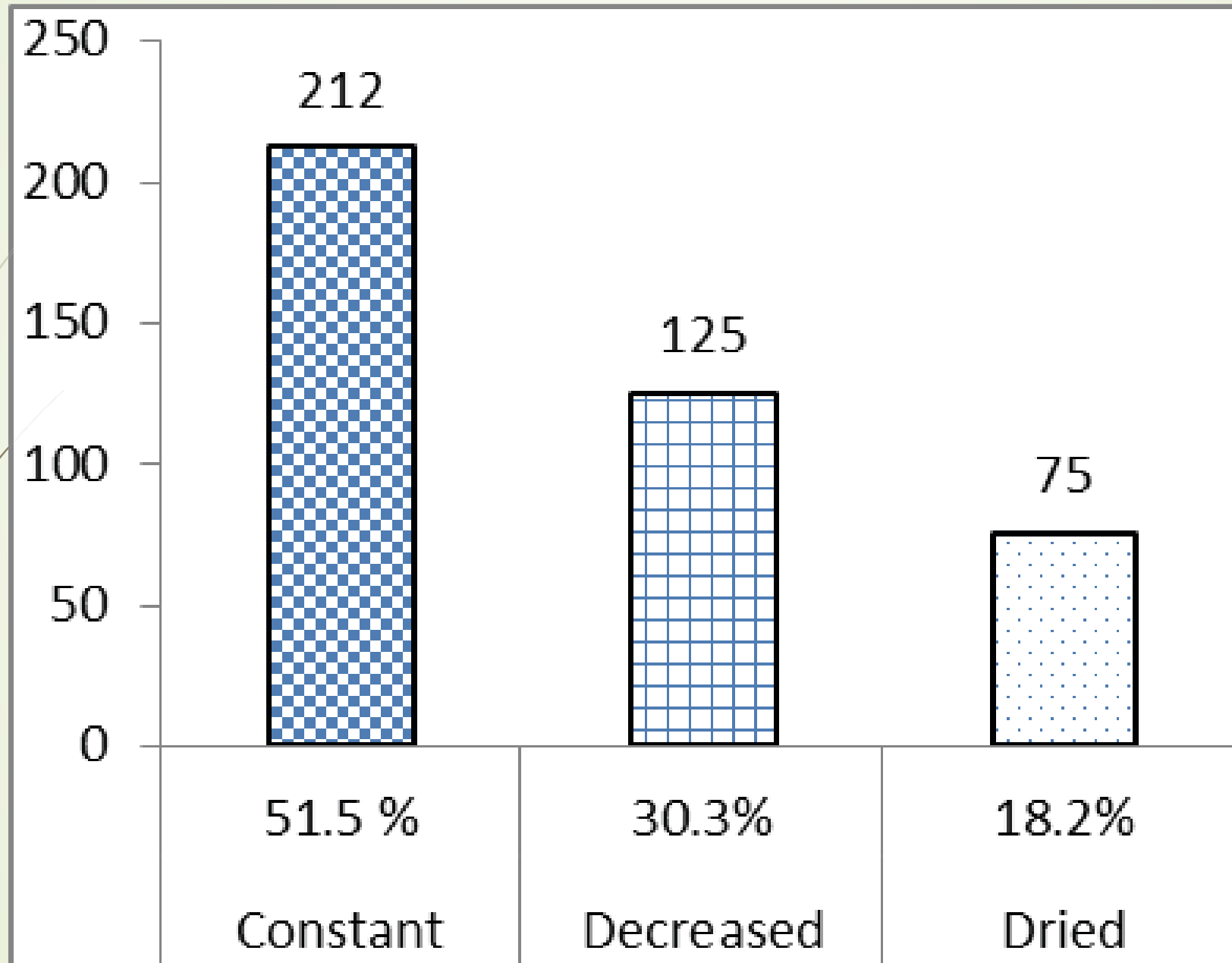
vegetables, a major source of income



Site 2. Melamchi Region: Source area of Melamchi water - project - to Kathmandu



Situation of water volume of springs within last 10 Years

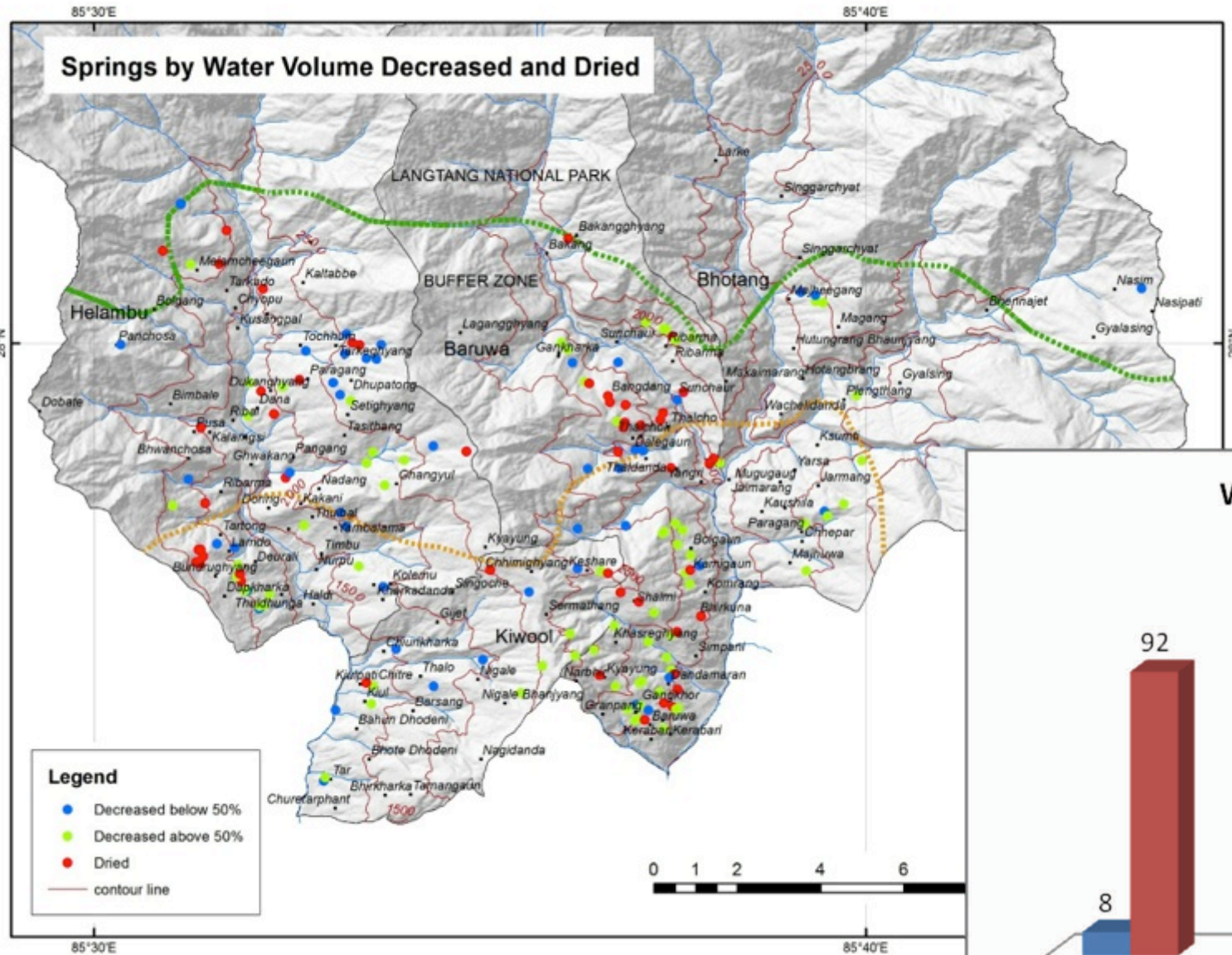




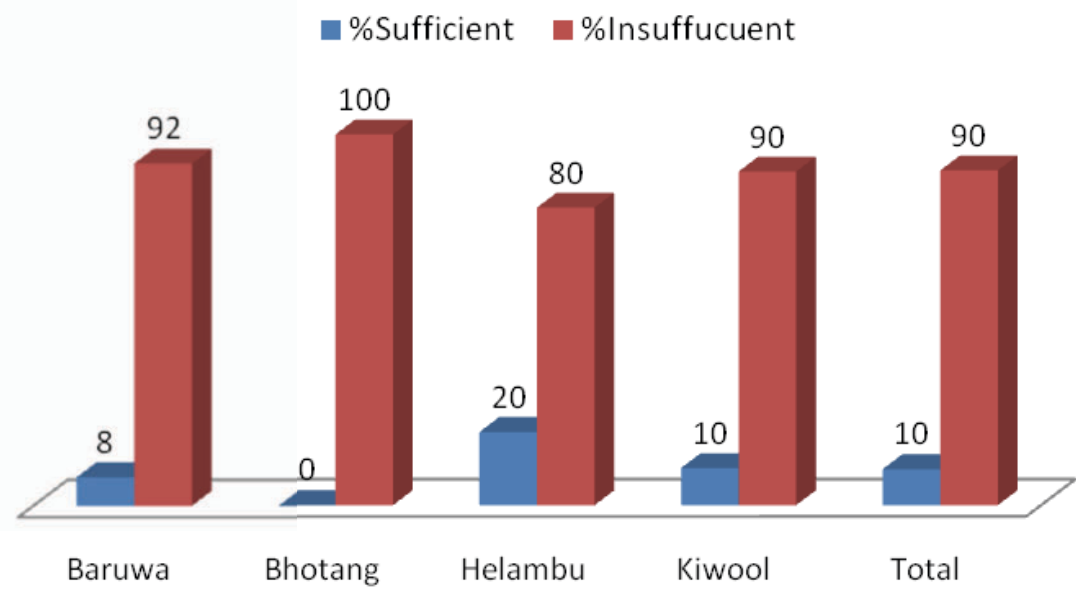
Bhotang VDC, Sindhupalchok



situation of springs, and Water availability for drinking and irrigation



Water Availability during Dry Season

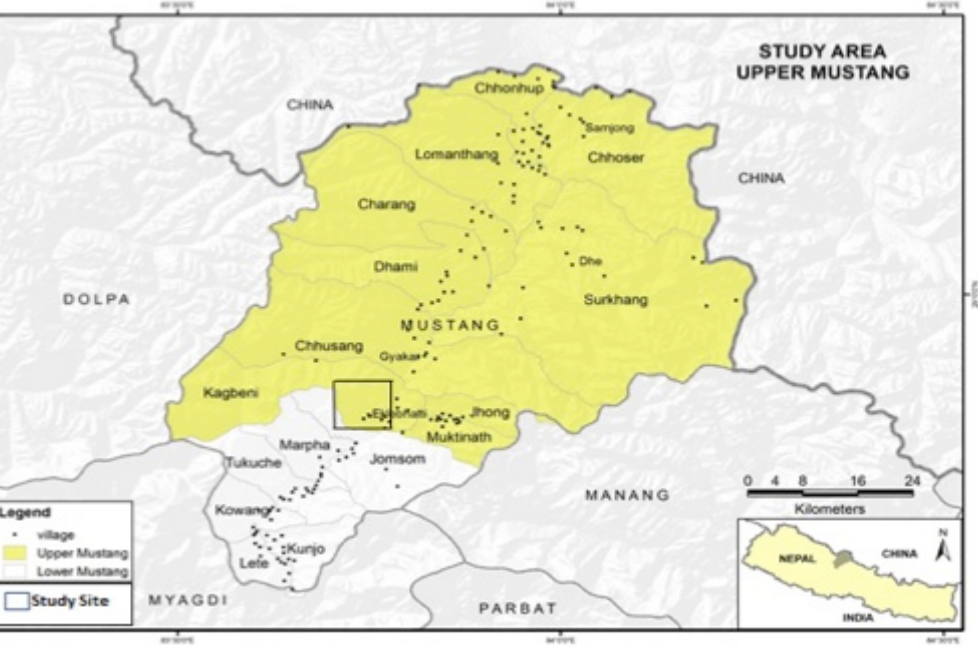


Environ Dev Sustain
DOI 10.1007/s10668-017-0036-4

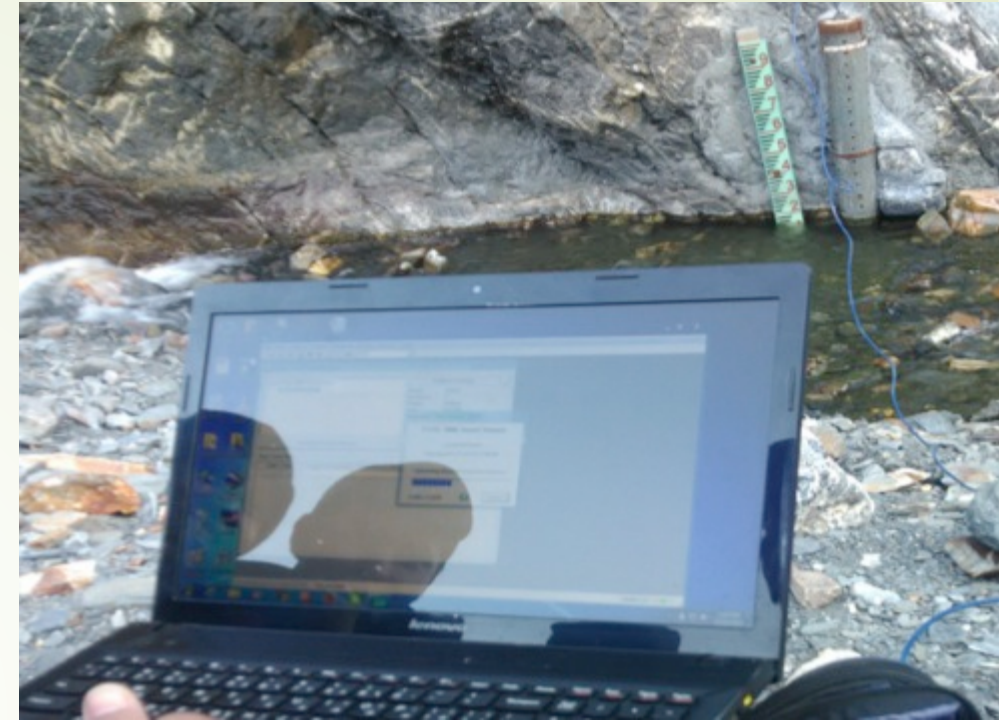


Status of natural springs in the Melamchi region of the Nepal Himalayas in the context of climate change

Prem Sagar Chapagain¹  · Motilal Ghimire¹ · Shova Shrestha¹



Site 3. Trans Himalayas, **(High Mountain):** Mustang, Nepal





Dhakarjiong: 39 hectares agri. land
Phalyak: 78 hectares agri. land.

33 % agri land abandoned in both village due to irrigation water scarcity.

- Affected household food security
- Compelled for out migration



1

ISSN: 2469-4452 (Print) 2469-4460 (Online) Journal homepage: <http://www.tandfonline.com/loi/raag21>

Water as “Time-Substance”: The Hydrosocialities of Climate Change in Nepal

Julian Clark , Praju Gurung, Prem Sagar Chapagain, Santosh Regmi, Jagat K. Bhusal, Timothy Karpouzoglou, Feng Mao & Art Dewulf

2

International Journal of Ecology and Environmental Sciences 42 (3): 217-226, 2016
ISSN: 2320-5199 (Online)
© NATIONAL INSTITUTE OF ECOLOGY, NEW DELHI

Mountains Under Pressure: Evaluating Ecosystem Services and Livelihoods in the Upper Himalayan Region of Nepal

JAGAT K. BHUSAL^{1*}, PREM SAGAR CHAPAGAIN^{1,2}, SANTOSH REGMI¹, PRAJU GURUNG¹, ZED ZULKAPLI^{3,4}, TIMOTHY KARPOUZOGLOU⁵, BHOPAL PANDEYA^{3,6}, WOUTER BUYTAERT^{3,6} AND JULIAN CLARK⁷

3



<http://www.scar.ac.cn>
Sciences in Cold and Arid Regions
2013, 5(1): 0133–0139
DOI: 10.3724/SP.J.1226.2013.00133



Changing water regime and adaptation strategies in Upper Mustang Valley of Upper Kaligandaki Basin in Nepal

Prem Sagar Chapagain ^{1*}, Jagat K. Bhusal ²



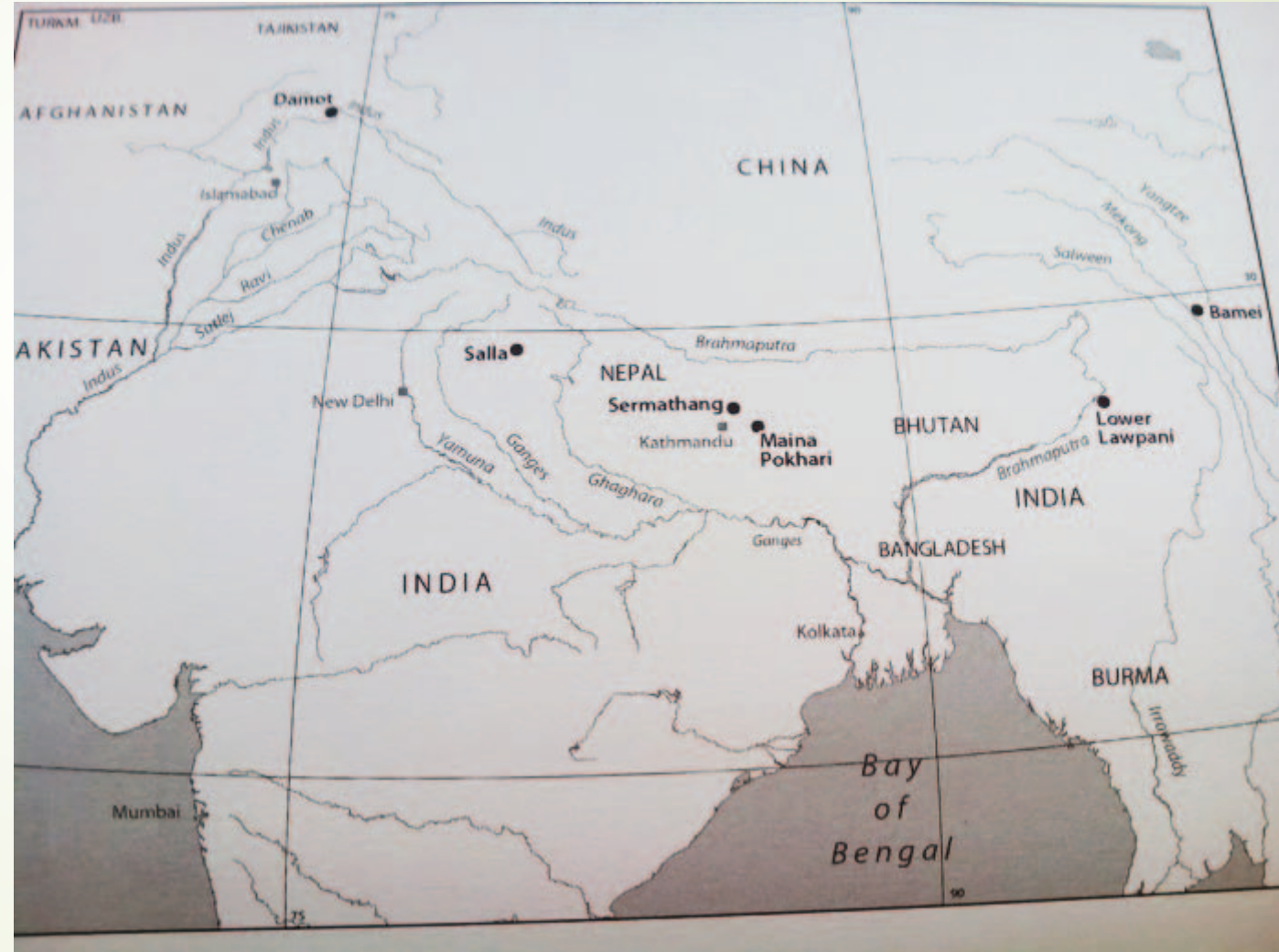
Climate Change

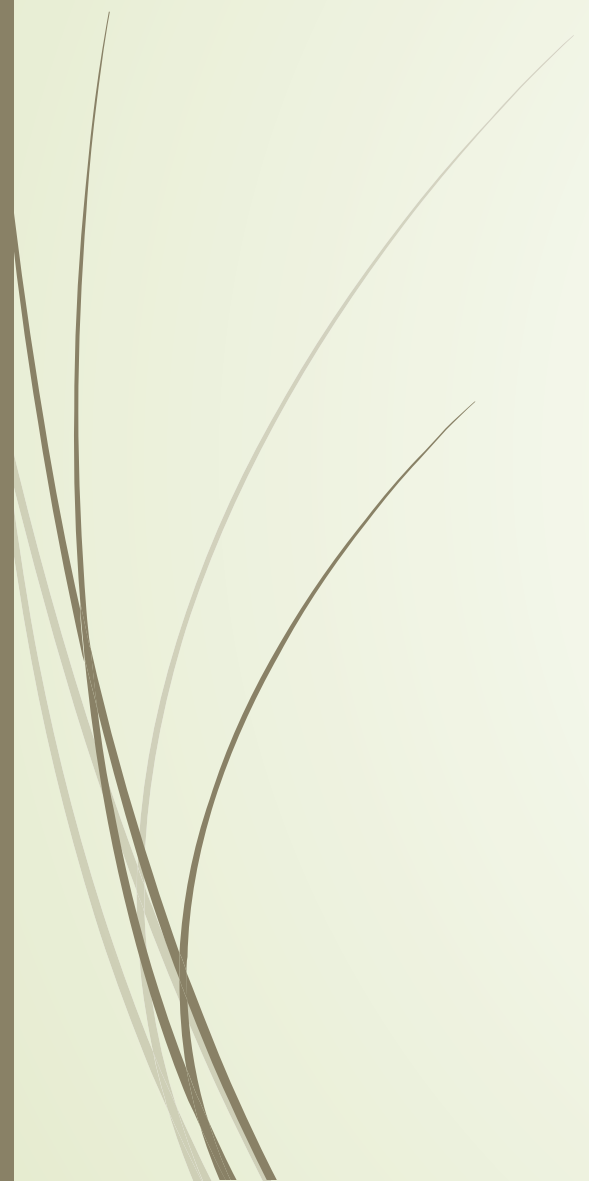
and the Future of

Himalayan Farming

edited by **Tor H. Aase**

Himalayan farmers' Adaptive Capacity to CC (Aug. 2017)





THANK YOU !