



Food-Energy-Water nexus approach for climate change adaptation in Gandaki River Basin, Western Nepal



Introduction

- The management of food, water, and energy resources and governance of adaptation to climate change particularly in developing countries are taken up in siloed sectoral approach which lacks understanding about interconnectedness and interdependence among multiple sectors (Rasul & Sharma 2016)
- An integrated approach of food-energy-water (FEW) nexus, also referred as water, energy and food security nexus (Figure 1), aims to understand the interlinkages between three resources (Hoff 2011)
- However, FEW nexus perspectives is criticized for being anthropocentric and narrow, e.g., it integrates only three of 17 Sustainable Development Goals
- The idea regarding FEW nexus comes from high level and fewer studies have been done at local and river basin level

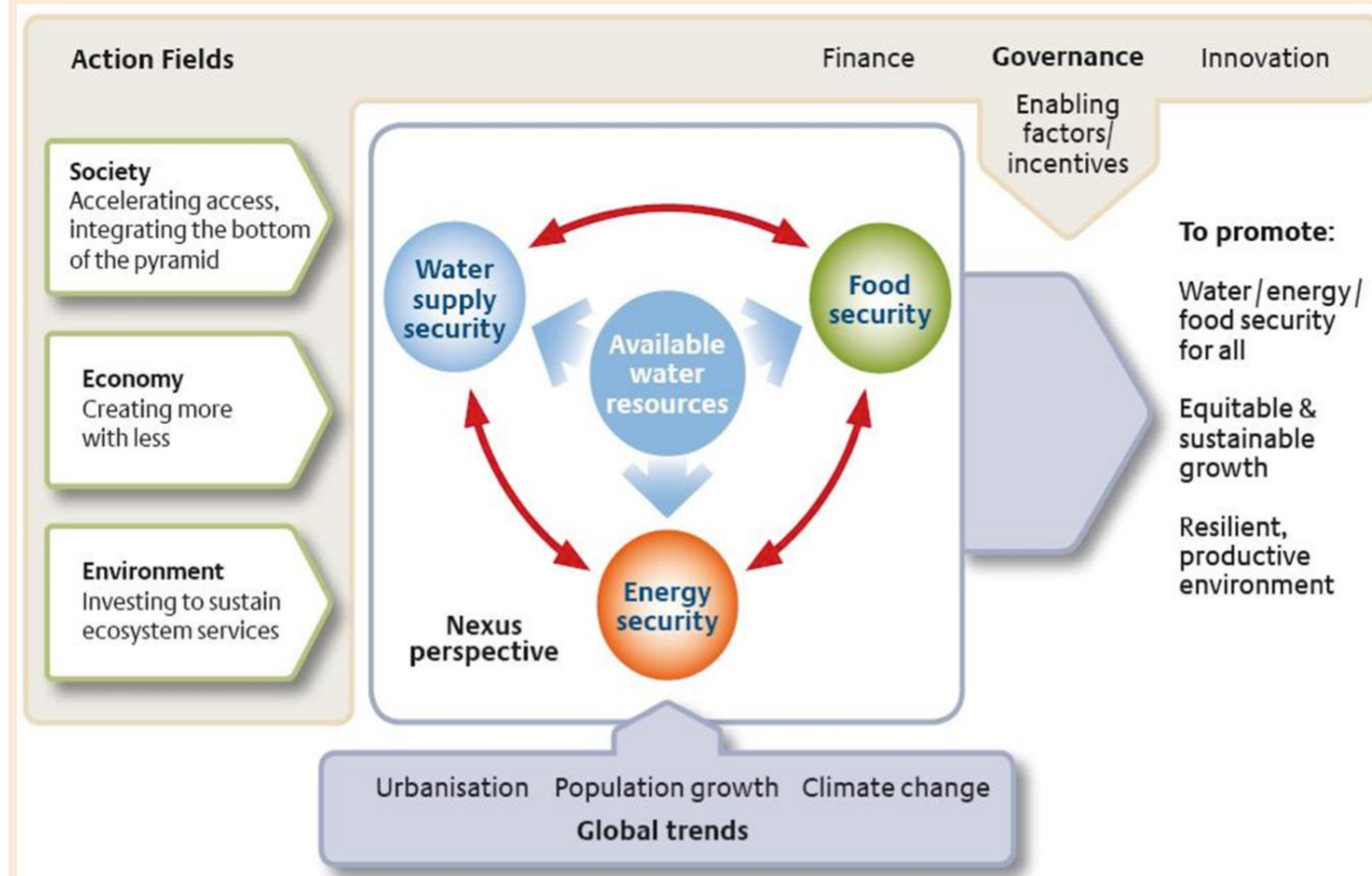
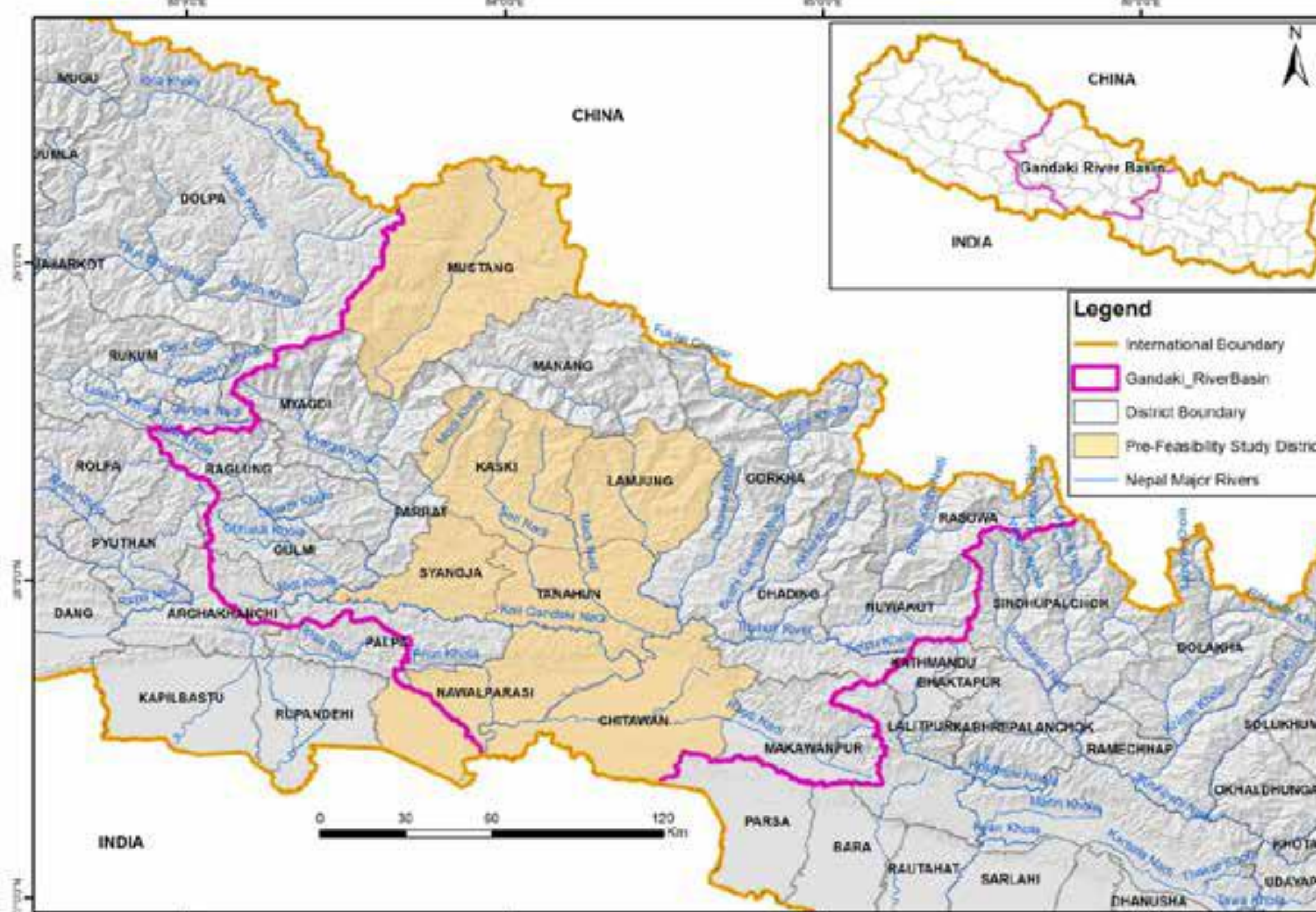


Figure 1. The water, energy and food security nexus (Source: Hoff 2011)

- It is important for FEW nexus to capture aspirations of local people residing in developing countries
- Local level climate change adaptation programs in Nepal such as Ecosystem Based Adaptation (EBA), Local Adaptation Plans of Action (LAPA), Community-Based Climate Change Adaptation Plan of Action (CAPA) etc. can be helpful in thinking about FEW nexus and climate change adaptation in new and integrated way

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| Objective 1
To find out concerns regarding food, water and energy in LAPA documents prepared at local level in Gandaki River Basin and look for possible FEW nexus in such plans | Objective 2
To conduct stakeholder analysis to identify challenges and prospects of FEW nexus and integrated climate change adaptation planning in Gandaki River Basin | Objective 3
To explore how FEW nexus has been changing in Gandaki River Basin, what value does FEW nexus perspectives add in Climate Change Adaptation and what it misses |
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Study Site



8-10 sites at different municipalities and rural municipalities will be selected later in consultation with key stakeholders

Figure 2. Map of Nepal Showing Gandaki River Basin (Source: IUCN 2018)

Methods and Data

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| Objective 1
Content analysis of LAPA documents and field visit | Objective 2
Discourse analysis and content analysis of Key Informants interviews (KII) | Objective 3 |
| <ul style="list-style-type: none"> Select representative sample of LAPA documents representing plains, hills and mountains Identify and code issues related to Food Water and Energy Look for interaction between issues related to water, agriculture and energy Visit 8-10 sites and conduct Focus Group Discussion (FGD) to understand implementation status of each plan | <ul style="list-style-type: none"> Conduct 50 key informants' interviews (KII) at national, provincial and municipal level About 8 KIIs at central (national) and provincial level followed by about 4 KIIs each in 8-10 municipalities and/or rural municipalities Municipalities and rural municipalities will be selected on the same areas where field visits of LAPA are done to minimize travel and to ensure triangulation of findings Interviewees identified by Snowball Sampling Strict protocol will be followed for interviewing experts and appointment will be scheduled ahead of time | |

Workplan

- The field research will be conducted from November 2019 to January 2020
- Tools required for field work such as interview schedules, FGD guidelines, checklist of data collection etc. will be prepared ahead of time
- Approval from Institutional Review Board and necessary permits from National Parks authorities and related governmental organizations in Nepal will be taken prior to field visit
- Recruitment of three research assistants and interviewees for KII will be done prior to the start of field work
- The preliminary results will be presented in American Association of Geographers (AAG) conference to be held at Denver, Colorado, from April 6 to 10, 2019
- A small grant for the field study is expected from Hariyoban program of WWF Nepal

Anticipated Results

- My research will explore if local people are concerned regarding availability of food, water and energy and/or the nexus between food, water and energy or if they have other major concerns while preparing local climate change adaptation plans
- My research will help understand how institutions are situated regarding working in integrated manner at central, provincial (or watershed) and local level
- My research seeks to expand relevance of FEW nexus approach in climate change adaptation and governance of natural resources
- I see strong possibility of making theoretical contribution to the idea of FEW nexus by understanding from local level efforts such as biodiversity conservation, forest governance, disaster management, and local level climate change adaptation plans and practices

Reference

Hoff, H. (2011). Understanding the nexus: Background paper for the Bonn2011 Nexus Conference.

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Rasul, G., & Sharma, B. (2016). The nexus approach to water-energy-food security: an option for adaptation to climate change. *Climate Policy*, 16(6), 682-702.

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