

# Reviving drying springs in the Nibuwa–Tankhuwa watershed, Dhankuta

Springs are one of the main sources of drinking water in the Nibuwa–Tankhuwa watershed in Dhankuta, Nepal. However, these springs are drying up, so communities are following ICIMOD’s six-step protocol for spring revival to:

- Improve water security
- Improve access to safe drinking water
- Reduce water-related conflicts among local communities
- Improve the wellbeing of women and girls (traditionally responsible for fetching water)
- Enhance ecosystem services
- Reduce climate risks

ADMINISTRATIVE AREAS

**Dhankuta Municipality and Chhathar Jorpati Rural Municipality**

POPULATION

**33,349**

VILLAGES

**Hile, Guranse, Chhathar Jorpati, Bhirgau, Tankhuwa, and Thoka**

AREA

**73 sq km**

ELEVATION

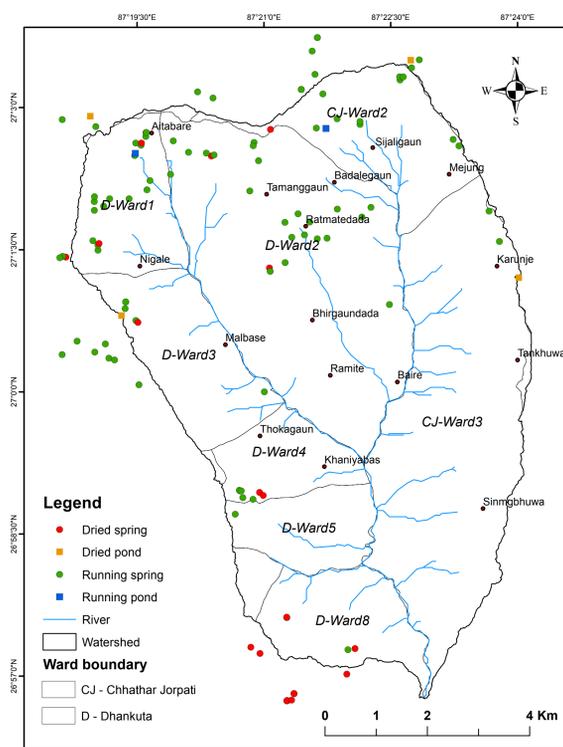
**243–2,239 masl**

TRIBUTARIES

**Nibuwa, Tankhuwa, Madhuganga, Thapre, and Chyarchyare**

ANNUAL AVERAGE RAINFALL

**960 mm**



Water bodies mapped in and around the Nibuwa–Tankhuwa watershed

## Field activities

### COLLECTION OF FIELD DATA

Basic information on springs was collected, including notes on spring type and surrounding geology

In all, 6 ponds, 23 dried springs, and 74 running springs were mapped.

Spring discharge is highest in Thapre Khola (300 lpm) and lowest in Biyesi Dhara (1.02 lpm).

Dhankuta Municipality and the Soil Conservation and Watershed Management Office practised measuring river/spring discharge and in situ water quality.

### Next steps

Focus on the three identified springsheds and apply the six-step protocol.

### HYDROGEOLOGY

General hydrogeological investigation was conducted.

Three locations were identified for springshed management on the basis of consultation with local authorities in: (i) Suke Pokhari, Shivalaya temple, and Dharabari Rupitar (Dhankuta), (ii) Dhoje Dada (Chhathar Jorpati), and (iii) Chuldhunga pond (Chhathar Jorpati)

A joint field visit with local government representatives and observations in the three identified springshed areas indicated that the watershed area consists of weathered and fractured metamorphic rocks. In such rocks, water moves slowly from pores or cracks in soils and rocks to infiltrate and saturate a region depending on local climate and geology.

### SOCIAL SURVEY

Various social surveys with locals and government representatives indicated that springs and traditional ponds are drying due to land use change, mining, and unplanned infrastructure development.

Twenty-nine springs were selected for seasonal monitoring in Dhankuta (wards 1, 2, and 3) and Chhathar Jorpati (wards 2 and 3), which provide drinking water for around 150 households from different ethnic groups.

## ICIMOD’s approach, the six-step protocol



**Step 1**  
Comprehensive mapping of springs and springsheds



**Step 2**  
Setting up a data monitoring system



**Step 3**  
Understanding social and governance systems related to springs



**Step 4**  
Hydrogeological mapping, development of conceptual layout, and identification of recharge area



**Step 5**  
Developing springshed management and governance protocols



**Step 6**  
Measuring impacts of spring revival activities

This activity is being jointly implemented by Dhankuta Municipality; Chhathar Jorpati Rural Municipality; Ward representatives; community members; Soil Conservation and Watershed Management Office, Dhankuta; Department of Forests and Soil Conservation, Kathmandu; District Forest Office, Dhankuta; and the Koshi Basin Initiative, ICIMOD