UN 2023 WATER CONFERENCE
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# Harvesting rainwater: essential to achieve 6.1 and for water security

## The Importance of Rainwater Harvesting and Management for realizing SDG 6

Zomba,Malawi

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International Rainwater Harvesting Alliance
IRHA

International Rainwater Harvesting Alliance

IRHA

IRHA is a Geneva-based NGO founded in 2002, after the Johannesburg World Summit on Sustainable Development

IRHA's mandate
is to promote rainwater harvesting as an effective and sustainable adaptation to water scarcity and climate extremes due to climate change.

The Alliance includes national RWH NGOs and professional associations in Korea, Cambodia, Sri Lanka, Malawi, Senegal, USA, Brazil and Mexico. [secretariat@irha-h2o.org; www.irha-h2o.org]

In addition, IRHA demonstrates rainwater harvesting approaches through its partners in developing countries as proof of concept to improve the health, livelihoods, and resilience of communities and ecosystems in the face of climate change effects.

# 2022 Global Rainwater Harvesting Alliance and Promotion Partners

- **Global Level**

International Rainwater Harvesting Alliance IRHA

IWA RAINWATER HARVESTING & MANAGEMENT Specialist Group

Rain Rainwater belongs to everyone

- **Regional Level**

Asia

SARNET SOUTH ASIA RAINWATER NETWORK

Rainwater Harvesting Promotion Collective

SearNet Southern and Eastern Africa

Africa

Clean Water – Healthy Village

- **National Level**: Associations, Consultancy, Private Sector

ABCMAC Brazil

CSE India

LRWHF Sri Lanka

Uganda Rain Water Association (**URWA**)

Kenya Rainwater Association (**KRA**)

Ethiopian Rainwater Harvesting Association (**ERHA**)

Rainwater Harvesting Association of Malawi (**RHAM**)

ARCSA American Rainwater Catchment Systems Association

Rainwater Cambodia

Rainwater Harvesting Association of Malawi Making sure every drop counts

AMSCALL Mexico

- **Sub-national Level:** Consultancy, Private Sector, NGOs

IRPAA Convivência com o Semi-Árido

Kanchan Nepal

smart paani

HELVETAS

IslaUrbana

and gradually ever more capacity at sub-national level

# Water Action Agenda Commitment

To develop and sustain a global alliance to improve water security through promoting rainwater harvesting and storage for households, schools and health centres; for agriculture and ecosystems; and for urban climate resilience

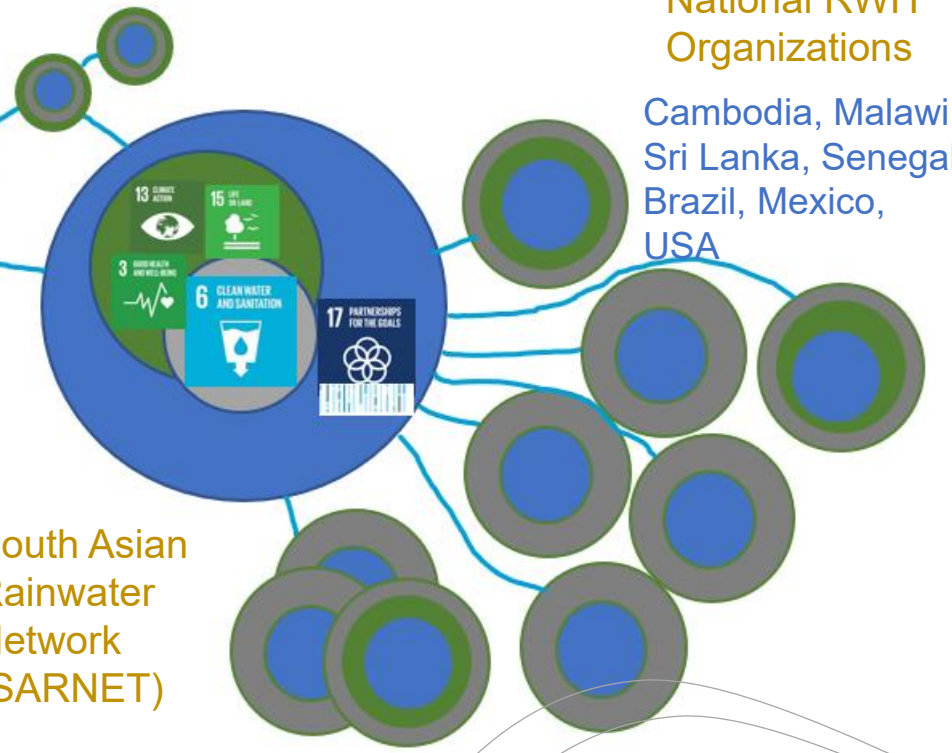
# International Rainwater Harvesting Alliance 2023

## Transcalar Ecosystem-based Adaptation (EbA): Greening the Grey

Pilot EbA Projects

Senegal
agroforestry; ridge to reef

Nepal
EbA & IWRM




National RWH Organizations

Cambodia, Malawi Sri Lanka, Senegal, Brazil, Mexico, USA

South Asian Rainwater Network (SARNET)

Rainwater Is?

'Wonderful'

Elizabeth Ndong

'Rain, Forests, People'

EbA Project Participant, Senegal

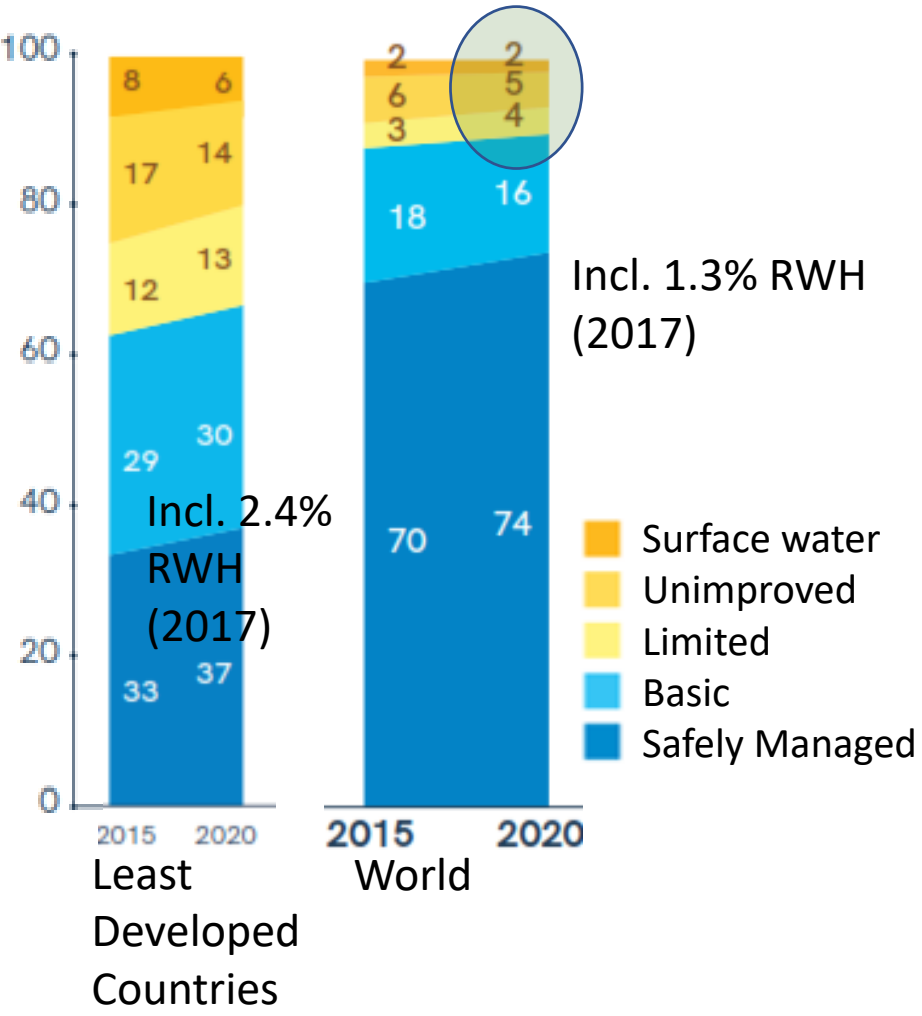
IUCN

International Rainwater Harvesting Alliance IRHA

iucn.org/sites/default/files/2022-07/ecosystem-based_adaptation_issues_brief_final.pdf

# Water is central to achieving SDGs

# Reaching out to the last unserved




6-8% of service can be RWH based (IRHA)

Source: 2017 and 2022 JMP report

## The remaining SDG challenge !

How to provide the last 7% with water?

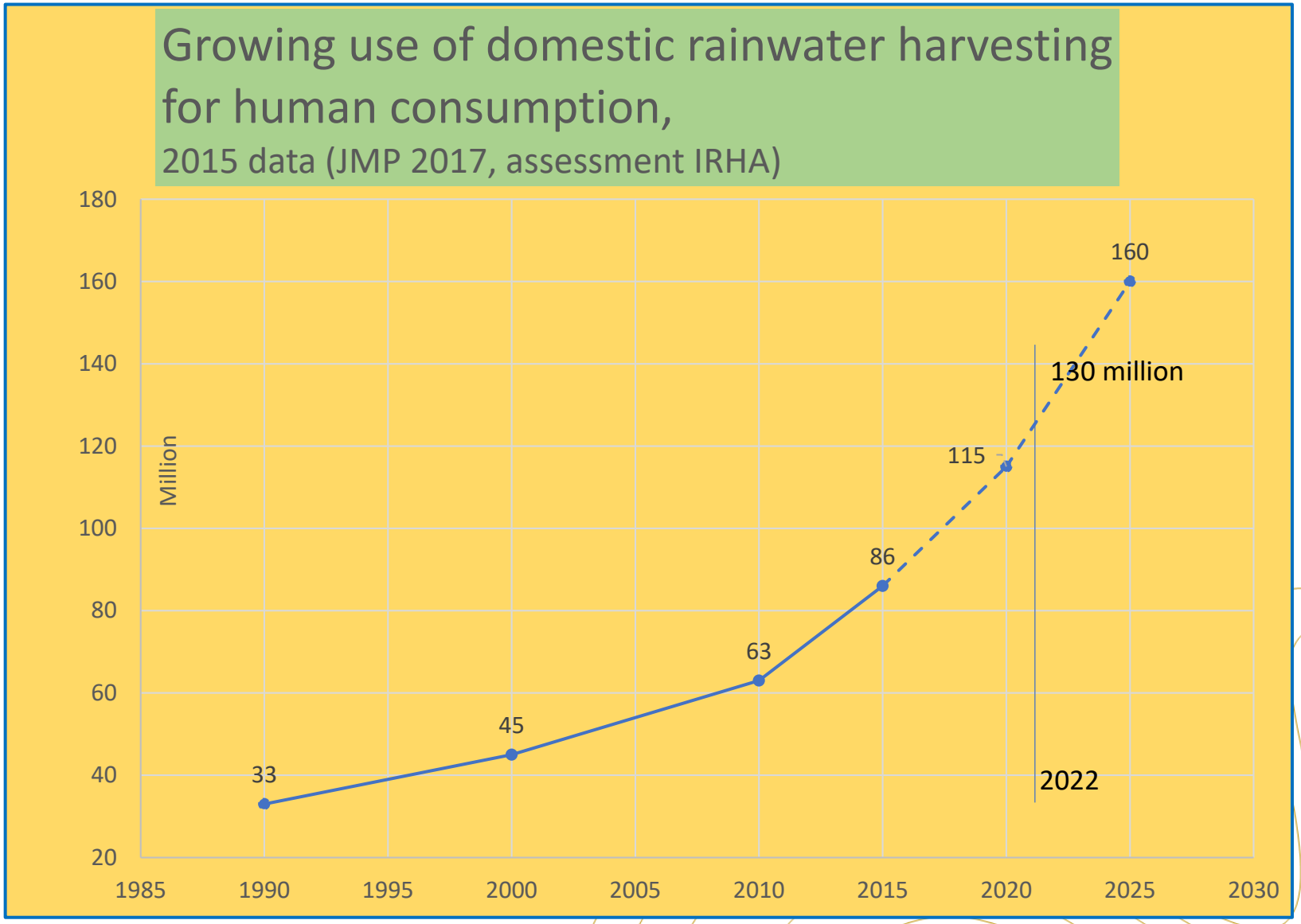
**Communication and water education:**
Engaging and informing society to conserve and save water

**Advanced planning & technology to reduce future water stress:**

- Domestic/homestead RWH systems
- Facilitate storing of water: ponds, lakes, managed aquifer recharge
- Integrated water resource management and watershed/ecosystem protection

**Good use of rain will make the difference !**
**The world can not afford to waste it !**

# Global Status Rainwater for Human Consumption



Han just drank a glass of rainwater directly from the Calabash, much to the delight of the ladies, in Lambulira, Zomba, Malawi, at Lidian's home
Veronica Kuchikonde, our dynamic project leader in Southern Malawi, the lady next to Han, died in early March of a stroke. We will miss her. R.I.P



**Guinee Bissau coastal belt and islands (De Gevulde Waterkruik, Calabash tank)**

**Senegal coastal belt (Rain Foundation), IRHA**



IRHA

# Million Rain Water Tank Programme, North East Brasil, since 2004

1 milhão de cisternas — This program has built **1.3 million** rural cisterns

P1+2 — This program has built **105.000** family use technologi
**1,313** community use techno

Cisternas nas Escolas — This program has built **6,228** tanks in rural schools

ASA Articulação Semiárido Brasileiro

**Survival** in the dry zone
Strategy depends on sound policy and pro-poor politics (Now being revived by ASA and partners with Lula da Silva government)


# Water quality

- Generally good if system is well designed and constructed with first flush, inlet filter, etc.

GUIDELINES FOR DRINKING-WATER QUALITY:

**Risk-based regulation, management and surveillance of small water supplies**

Forthcoming

Sanitary inspection based

World Health Organization

**Technical Fact Sheet** (Draft: 13 February 2020) **DRINKING-WATER**

## Rainwater collection and storage

**A rainwater collection and storage system consists of a catchment area (usually the roof of a permanent structure), guttering channels, and downpipes that direct rainwater into a water collection vessel (e.g. storage tank, pot, bucket).**

Though rainwater sources are generally considered to be of a higher quality than surface water sources, appropriate disinfection/treatment of rainwater is recommended where there is a risk of contamination.

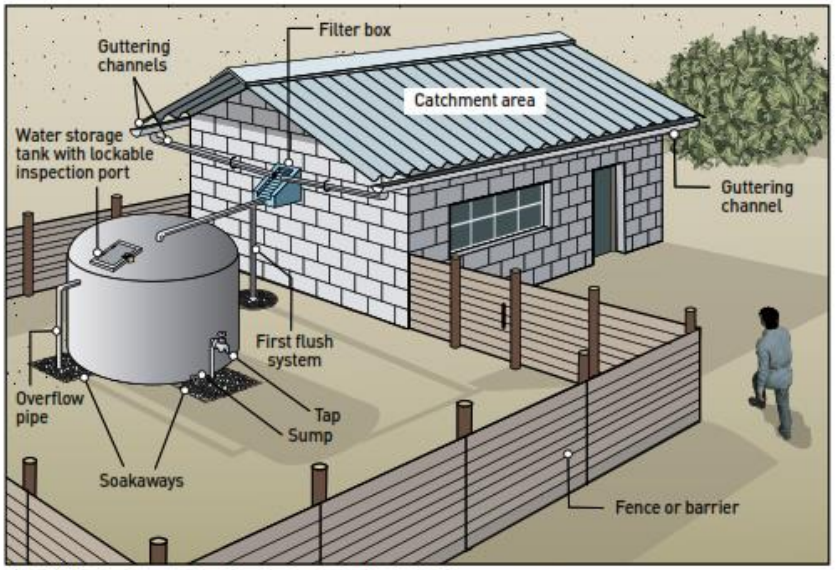
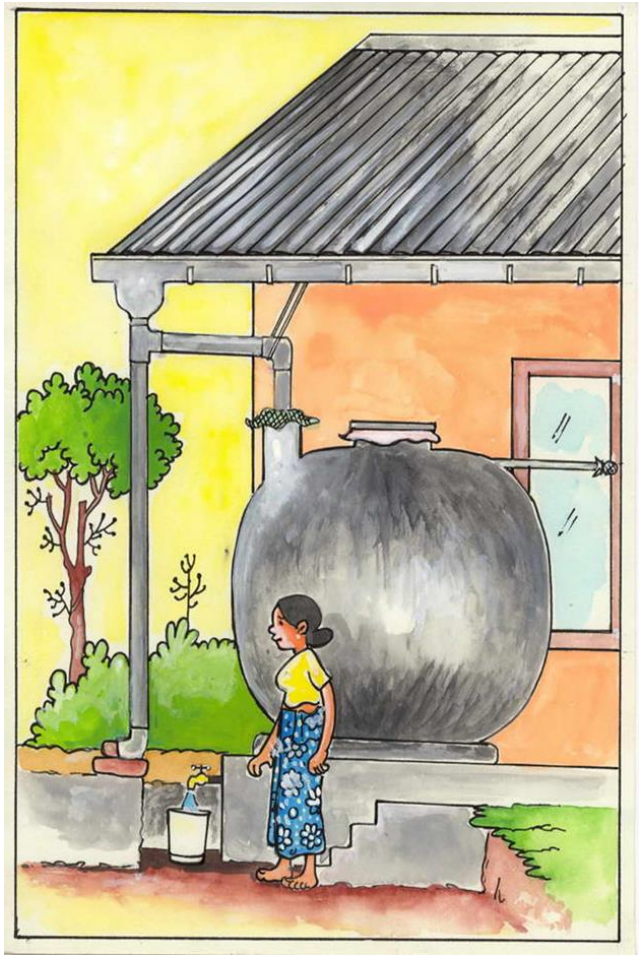



**Figure 1** A common rainwater collection and storage system for drinking-water

Presentation of Prof. Mooyong Han and Bob Boulware ARCSA later in this side-event deals further with water quality

# Why Rainwater Collection and Storage ?

- **(Semi-) Arid Areas, Higher Elevation**
  - Retention and conservation for survival: household & agriculture
- **Bad Taste :**
  - Salinity: coastal belts, small islands
  - High iron content of groundwater
- **Better Service : Urban & Rural**
  - Storage gives water security at home, bridges (seasonal) water shortage
- **Substitution : Arsenic, Fluoride**
- **Saving money and ecosystems**



**In the last 2 decades: managing rain in the city, retention, slowing down discharge, Reduce, Recharge, Reuse (RRR)**

# Rainwater harvesting: essential part of Integrated Water Resources Management

IRHA

- Decentralized resource for domestic water supply
- Aquifer recharge/soil and moisture conservation
- Synergy with agriculture enhancing food security
- Watershed restoration and improvement
- Raises ecosystem quality and productivity
- Slows run-off, mitigates flooding, less disasters
- Improves urban water management

**Rationale**

- Even in wet countries, water stress is growing, due to human activity, urban development, pollution, etc.
- Droughts are more frequent, as are extreme weather events leading to floods
- So, we need to plan and raise our water security; conservation including 3R practices: recharge, retention and reuse

# Climate (change effects) and water management

Traditional

Climate change adaptation

**Water scarcity and drought -**

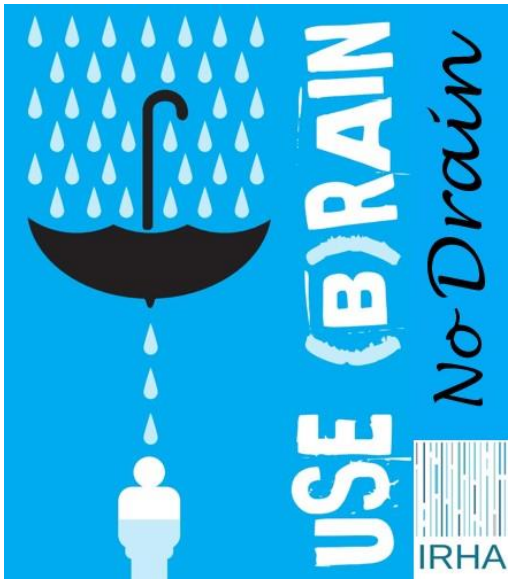
- More frequent drought periods, of longer duration
- In monsoonal regions, onset of the monsoon/rainfall delayed

- 1980s: China, Gansu province: very-low rainfall→ traditional RWH collection, now improved storage and agri-management, spread to half of China's provinces (concept largely followed in NE Brazil)
- South-Asia had a monsoon-based water culture with extensive storage, locally maintained. Centralization destroyed the management structure. Since 1990s trying to restore the storage capacity. Now becoming urgent due to climate change!
- Near East and North Africa had extensive traditional water harvesting/management systems. Lack of maintenance is affecting capacity. Restoration and system management is critical to service a growing population. FAO in 2022 is restoring RWH capacity building.
- 2000: Africa is promoting homestead ponds to counter climate change effects (due to poor spatial distribution and timing of rain). In Kenya, RWH ponds increased income six-fold (RELMA 2006)
- Europe is now suffering a 500-year drought. Causing drying rivers and saline intrusion. Since 2009 The Netherlands is implementing a water orientated 'deltaplan' to manage some consequences of climate change effects. Rainwater retention (rather than drainage) is an important component in drier parts of the country.

# Rationale for rainwater collection, storage and management

## Different countries, different rationale for promoting rainwater harvesting

**Australia**: seasonal water shortages **historically required rainwater harvesting** and storage. Now, as part of climate resilience, many cities require rainwater systems in place as secondary supply. 9.9% of Australians drink rainwater, 26% use it!




**Germany**: 1990s: **separating rainwater from the sewer** to extend sewer life. Then, it promoted rainwater use for other household purposes. New technologies developed into a flourishing industry.

**Singapore**, a city state, was once dependent on water supply from Malaysia. To **reduce and ultimately eliminate this dependency** it enacted rainwater collection and storage mandates, further complemented by mobilizing three more sources of water: imported water, NEWater and desalinated water. https://www.mse.gov.sg/policies/water

**Sri Lanka**: providing water supply to households **beyond the reach of piped supplies** and boreholes: dry zone areas, uphill and above spring sources; managing rainwater in low-lying city areas, **reducing flood risk** from intensive rain events;

# Restoration of Traditional Ponds in Nepal Himalayas, monsoonal rain

IRHA

Community engagement in the restoration of pond

Pond restoration activities (site clearance)

Stone lining the pond

Construction of trenches and siltation chamber

Pond after restoration activities, ready for harvesting rainwater

*Rain Communities* (2019-2021)
Kanchan Nepal & International Rainwater Harvesting Alliance

# Sand dam with well

Ethiopia

Rain Foundation

# Rainwater Harvesting tanks in use in Tobang village, Chitwan district, Nepal

# Rainwater Harvesting: Addressing Water Security and Climate Impacts

RAIN-WATER USE FOR LIFE

## Rainwater: too precious to waste

**Thank you for your attention**

Smart WASH Solutions, Nepal
19-20 March 2023 National Conference
Preparing for the monsoon
and setting up a national organization

International Rainwater Harvesting Alliance
IRHA