



WORKING GROUP ON RAINWATER HARVESTING (WG-RWH)

CONCEPT NOTE

1. Introduction

- 1.1 This concept note proposes a context, mandate and key principles for an ICID Rainwater Harvesting Task Team.
- 1.2 This document deals with 'rainwater harvesting' in the context of the harvesting rainwater from non-trafficable roof and roof-like structures. This is deliberately a narrow context in which harvested water can be used for many purposes with minimal treatment. It is inherently different to stormwater harvesting and water/runoff harvested from agricultural and other catchments. The second part of the definition refers to passive rainwater harvesting which is harvesting rainwater into groundwater at a small catchment scale rather than into a dam or other storage.
- 1.3 Definitions (from ARCSA)
 - Rainwater Harvesting is rainwater collected from a roof into a container
 - Passive rainwater harvesting is the collection and infiltration of rainwater into the ground for beneficial uses without intermediate storage in a container.
- 1.4 The underlying objective of the concept note and the task team is promoting a sustainable approach to water management considering all elements of the system. Rainwater harvesting is a natural source of water that can be assessed as one of a range of water sources. Rainwater harvesting also has important implications for drainage and urban stormwater management.
- 1.5 A key principle of sustainable development is working in unison with the earth's natural systems rather than in opposition to them. Natural systems are decentralised and use minimal amounts of energy and resources to achieve balanced growth and are therefore inherently efficient but not necessarily the most productive. Systems Analysis reveals that the desirable environmental outcomes are usually the best long-term economic outcome.
- 1.6 High energy, chemical and water use diminishes natural capital and does not represent long term economic growth. Unrestricted and unbalanced growth and development results in widespread loss of natural systems with catastrophic implications for future human health and safety.
- 1.7 Rainwater harvesting is a practical and accessible form of working with natural systems that provides high quality water and should be rapidly and universally adopted as the first and most efficient element of integrated water cycle management.

2. Context and Relevance for ICID

- 2.1 The ICID mission is to "Facilitate prudent agriculture water management by encouraging inter-disciplinary approaches to irrigation and drainage management." Rainwater Harvesting is directly relevant to action items A3, A5, A7, B1, B4, b5, B6, B7, C1, C2, C3, C4, C5, D1, D4, E3, E6, F1, F4 and F5 of the ICID Action Plan Strategies and Actions 2017-2021.

- 2.2 Passive rainwater harvesting is an important source of water for most agriculture and improved agricultural management can lead to linked improvements in water efficiency, soil quality, pasture and crop quality and yield and reductions in chemical use. Important proponents of this work include Massy (2018), Mollison and Holmgren (1970) etc.
- 2.3 Urban rainwater harvesting is inherently efficient. Rainwater falls on the roof of the building where it is needed, minimising transport and treatment costs. Urban areas have high water demands and produce large volumes of harvested rainwater which, if not utilised, represent a flooding risk. A combination of rainwater and centralised water sources allows utilisation of local, low volume storage cheap rainwater first with longer term water security from more expensive treated water from long term storages.
- 2.4 Rainwater Harvesting is relevant to many forms of agriculture and utilising this natural source of water close to urban areas has the potential for increased efficiencies.

3. Objectives and Mandate

The Rainwater Harvesting Task Team will:

- 3.1 Promote rainwater harvesting as a natural, local, efficient source of water in accordance with the Key Principles of Rainwater Harvesting in **Appendix**.
- 3.2 Provide research and advice from a range of disciplines to inform rainwater harvesting, irrigation and agricultural practices including water management, land use planning, policy environments, stormwater management and manufacturing.
- 3.3 Provide Rainwater Harvesting Codes of Practice suitable for urban and agricultural use.

4. Work Plan – 3 Years

- 4.1 Establish working relationships and disseminate key rainwater harvesting research in the broader ICID network.
- 4.2 Research and publish a Rainwater Harvesting Code of Practice suitable for use in Irrigation and Drainage.

Provide Rainwater Harvesting training for urban water users and urban stormwater (drainage) managers and agricultural water users.



KEY RAINWATER HARVESTING PRINCIPLES

- 1.1 Rainwater can be used locally, making it a natural, sustainable, cost efficient resource. OR Rainwater falls on the buildings and land where it can be used, making it a sustainable, cost efficient water source.
- 1.2 Rainwater harvesting is a natural, local, efficient source of water for water management systems including irrigation and provides drainage and stormwater benefits.
- 1.3 Rainwater harvesting is particularly suited to urban areas where there is high potential for harvesting and rainwater harvesting reduces damage urban flooding and water quality deterioration. Using rainwater harvesting in combination with a central supply has a synergistic efficiency. Rainwater harvesting is an important tool in drainage, stormwater and flood management
- 1.4 Integrated water cycle management models that supports and benefits from natural systems provide long term economic and environmental benefits
- 1.5 Rainwater harvesting is a significant source of high-quality water in both rural and urban areas. Plants respond better to rainfall than any other water source.
- 1.6 Water management must be considered in the context of integrated water cycle management, understanding the water cycle through the natural and man-made landscape and considering the whole system. In this context rainwater harvesting is the first and most efficient element of an integrated water cycle management approach.
- 1.7 A systems approach to integrated water cycle management will use rainwater harvesting first and then combine it with other water sources and applications considering how they impact on the wider system. For example, a farm may take into account rainwater first, collect rainwater runoff into local dams for secondary use, use an allocation from a local waterway and supplement that with sustainable groundwater use.
- 1.8 Rainwater Harvesting research and practices promoted and influenced by organisations selling other forms of water or funded by them are often unreliable, particularly in terms of health, cost and rainwater reliability. Independent research and local knowledge should be sought out.
- 1.9 Harvested rainwater, used locally, may preclude this rainwater providing ecological benefits elsewhere in the hydrologic system. Rainwater storage can still result in catchment flows with delayed runoff into the catchment. Using rainwater for irrigation will also have downstream benefits for the catchment.

