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Domestic rainwater harvesting (DRWH) systems represent a critical approach for achieving water security for rural households in Latin America and the Caribbean. As there is increasing momentum in the construction of such systems, often supported by international financial institutions, a greater examination of what factors influence the effectiveness of DRWH systems is needed. Insights from a recent qualitative study conducted among the indigenous Wichi people in Argentina, reveals variations in DRWH system performance, community participation, language barriers, and the need for local value chains and safe spaces for practitioners to share experiences in multicultural contexts. These findings show that a much greater emphasis is needed on understanding relevant socio-cultural factors in DRWH literature and initiatives, especially when designing programs intended to reach marginalized populations.

DRWH in Latin America and the Caribbean: a growing, yet disconnected, regional movement

Rainwater harvesting is one of many options available to rural households throughout Latin America and the Caribbean to achieve water security. However, for families in remote dispersed rural communities, effective domestic rainwater harvesting (DRWH) and management becomes a critical tool to build water resilience.

With more than 1.2 million domestic rainwater harvest systems built to date in Brazil's semi-arid region alone¹, and thousands of domestic and community rainwater catchment systems currently under construction in Mexico, Central America's dry corridor, South America's Gran Chaco region, Haiti and other Caribbean nations, DRWH is gaining new momentum. Even international and regional financial institutions like the World Bank² and the

Inter-American Development Bank³ are funding DRWH projects to serve indigenous and other marginalized populations.

Despite a few exceptions, DRWH efforts in Latin America and the Caribbean remain largely disconnected from each other and opportunities for capacity-sharing, learning and advocacy are less than optimal. Brazil's⁴ rich rainwater harvesting and social mobilization experience, for instance, is unknown to most Central American and Caribbean practitioners, advocates and experts to the point it is rare to see Brazil-related bibliography or resources listed in DRWH studies, reports and training modules, including reports on universal access to WASH in rural dispersed areas.

1. [Water Harvesting Boosts Agriculture in Brazil's Semi-arid Northeast](#)

2. [Sustainable Water Access for All: Providing Water for Remote Settlers in the Chaco Region of Argentina](#)

3. [El BID invierte en Salta más de 90 millones de dólares en obras de agua y saneamiento](#)

4. Regional exceptions include the work of Plataforma Semiáridos and, in the past, efforts by Global Water Partnership Central America; at the national and subnational levels, Articulacion Semiárido Brasileiro and Mesa de Agua del Chaco salteño are examples of established and emerging models, respectively.

In view of the observed growth in DRWH investments intended to reach marginalized populations, it is crucial to invest in regional and multi-country networking, learning and advocacy opportunities. This will ensure the circulation and dissemination of the region's culturally and methodologically diverse DRWH experience, amplify the voices and demands of DRWH users and stakeholders and accelerate circulation of knowledge, learning and best practices.



A case study: socio-cultural determinants of DRWH performance in one indigenous group in South America's Gran Chaco region

In early 2023, Church World Service (CWS) and Fundación Asociana commissioned a qualitative study to bring for the first time the voices and perspectives on domestic rainwater harvesting of members of the indigenous Wichi people and other stakeholders in twenty rural dispersed settlements of two departments in Salta province, Argentina, to make evidence-based recommendations.⁵

The research team formed by anthropologists from the University of Salta (UNSa) adopted a qualitative research methodology based on the collaborative ethnography framework. Field work took place between December 2022 and May 2023 and consisted of community visits to twenty dispersed rural settlements with DRWH systems where researchers conducted in-depth interviews, directed and non-directed group talks and site visits. The research team also interviewed a range of non-indigenous local and provincial authorities, health and education workers and water advocates and conducted a desk-review of literature, policy and program documents.

Although the study's findings cannot be not extrapolated to all indigenous peoples or dispersed rural settlements, they contribute to fill a knowledge-gap on socio-cultural determinants of the performance of DRWH-based interventions in this area.

The study's findings and initial recommendations are now being shared with local and provincial stakeholders. These include:

1. As currently implemented, DRWH systems' performance varies between Wichi indigenous and non-indigenous users, as well as between community and household rainwater harvesting systems. Indigenous Wichi users strongly prefer household-level rainwater harvesting systems over community ones, an approach affirmed by practitioners' experience.

2. Lack of a shared community understanding of socio-cultural factors shaping indigenous users' behavior and practices result in:

- Contradicting community narratives around indigenous Wichi users' acceptance of rainwater.
- DRWH projects' use of very different approaches to community participation and mobilization and cost recovery that result in visible variances in users' ownership, acceptance, and maintenance practices. This is a very important tension to address in view of DRWH scale-up initiatives.
- Limited non-Spanish speaking indigenous users' input into DRWH projects' design, implementation, and evaluation.

3. Poor indigenous housing requires rainwater harvesting projects to include roof construction, which, in turn, adds an extra layer of methodological complexity in areas such as: logistics, cost recovery, rooftop maintenance.

4. The creation of local DRWH value chains to serve dispersed rural communities, including the formation and equipment of local construction crews, present clear advantages and positive effects, along with practical difficulties that need to be addressed through community dialogue, negotiation and regulations.

5. DRWH practitioners in multicultural contexts and dispersed rural communities need access to safe spaces where they can exchange experiences, lessons learned and best practices.

5. 2023, Álvarez, Marcela A.; Flores Klarik, Mónica; Naharro, Norma, Diagnóstico y Recomendaciones en torno a la construcción de sistemas de cosecha de agua de lluvia (SCALL) en comunidades indígenas del Chaco Salteño.

Socio-cultural factors contributing to successful DRWH projects at the rural margins



As DRWH investments accelerate at the rural margins and peripheries to serve historically excluded and marginalized populations, the higher the importance of understanding the multiple factors contributing to domestic rainwater harvesting's performance.

There is a growing body of evidence that socio-cultural factors influence the performance and long-term sustainability of DRWH systems and other water solutions. This is especially true as NGOs and state institutions attempt to reach the most vulnerable populations. However, these socio-cultural factors remain largely overlooked in DRWH literature, trainings and resources in favor of attention devoted to infrastructure and technical aspects.⁶

Additionally, as DRWH systems are built in neglected geographies, research shows that the standardized methodologies become less effective and may even obscure important socio-cultural considerations. In the words of a CWS partner: *"looking at domestic rainwater harvesting as mere WASH infrastructure construction projects is a gross mistake and a recipe for failure"*.

In CWS' experience, some of the socio-cultural factors contributing to successful DRWH projects at the rural margins include in their design:

- Assessments of community readiness for DRWH scale-up interventions.
- Awareness of how race, ethnicity, structural racism and discrimination, and interracial or inter-ethnic relations affect resource management decisions and practices.
- Understanding of users' agency and political representation in current resource management practices. As well as recognizing clientelism in practices including water trucking / water tankering.
- Evaluations of pre-existing rainwater use, acceptance and hygiene practices and beliefs.
- Gender sensitive analysis on resource management decisions with attention paid to the status of women and their participation.
- Understanding of the roles played by local religious and spiritual leaders and Local Faith Communities (LFCs) in WASH and WASH-related issues.
- Engagement of community and family members in all phases of development and humanitarian interventions (from diagnostic and design to evaluation).
- Understanding of households' access to alternative and/or complementary WASH options.
- Genuine commitments to accountability to affected populations (AAP) practices, especially proactive solicitation of feedback and complaints.
- Understanding of past community and households' experience with WASH projects.

6. With the noticeable exception of a 2019 Technical Note published by the Inter-American Development Bank "Access to water and sanitation services in dispersed rural settlements: the path to universalization / Lourdes Álvarez. – (Inter-American Development Bank IDB -Technical Note; 1729)".

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