Integrated Resources Management of Water and Ecosystem through Rainwater harvesting in Kurunegala District in Sri Lanka

Gestion intégrée des ressources en eau et des écosystèmes grâce à la collecte des eaux de pluie dans le district de Kurunegala au Sri Lanka

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RÉSUMÉ

Les sécheresses et les inondations fréquentes qui ont frappé le Sri Lanka ces dernières années ont eu des répercussions négatives sur les ressources en eau, en raison de l'épuisement des nappes phréatiques, de la pollution de l'eau et de l'érosion des sols. En conséquence, les populations vivant dans les zones touchées voient leurs conditions de vie et leurs moyens de subsistance gravement affectés.

Le projet a été lancé dans le district de Kurunegala, dans la zone aride du Sri Lanka, dans le but d'améliorer la productivité et de renforcer la résilience des systèmes agricoles et des chaînes de valeur, et ainsi de soulager les communautés de l'insécurité alimentaire et des revenus en leur fournissant des outils et des capacités pour la restauration des services écosystémiques des bassins versants.

En conséquence, les agriculteurs ont adopté des pratiques agricoles régénératrices sans déchets, des jardins agroforestiers, des stratégies de conservation et de gestion des eaux de pluie. Les agriculteurs sont passés de la culture traditionnelle Chena à la culture forestière avec zone tampon. De plus, les agricultrices ont été autonomisées grâce à l'augmentation de leur niveau de revenu et à leur reconnaissance sociale au sein de la communauté agricole.

ABSTRACT

Frequent droughts and floods in Sri Lanka in recent years have had a negative impact on water resources, due to the depletion of groundwater, water pollution and soil erosion. As a result, people living in affected areas are seeing their living conditions and livelihoods severely affected.

The project was launched in the Kurunegala district, in the arid zone of Sri Lanka, with the aim of improving productivity and strengthening the resilience of agricultural systems and value chains, thereby alleviating food and income insecurity in communities by providing them with tools and capacities for the restoration of watershed ecosystem services.

As a result, farmers have adopted regenerative zero-waste agricultural practices, agroforestry gardens, and rainwater conservation and management strategies. Farmers have transitioned from traditional Chena cultivation to forest farming with buffer zones. In addition, women farmers have been empowered through increased income levels and social recognition within the farming community.

KEYWORDS

Résilience Climatique, Gestion Intégrée des Bassins Versants, Collecte d'Eau de Pluie, Agroforesterie Régénérative, Climate Resilience, Integrated Watershed Management, Rainwater Harvesting, Regenerative Agro-forestry

1 INTRODUCTION

1.1 Background

In Sri Lanka during the last decade the frequency of climate related disaster occurrence has caused water stresses to people in almost all 25 districts due to drought and floods. Frequent droughts and floods adversely affect water resources, which alongside ground water depletion, water pollution, and soil erosion affect water security. Recurrent hydrological disasters have eroded the coping capacity of dry zones communities making them even less able to plan for and overcome climate-related variabilities in water availability.

It is against this background that a 3-year project is launched in June 2025 in selected divisions of Kurunegala Districts in the North Western Province of Sri Lanka to restoration of degraded watersheds in order to build climate resilience of smallholder farmers and forest ecosystems and restore the agricultural productivity through rainwater management

1.1.1 Objective

Improve community resilience against climate change, health and livelihood by restoring ecosystem functionalities, enhancing water availability, consolidating agricultural practices and strengthening collective / sustainable management of natural resources by local actors.

2 METHOD

2.1 Approach

The project aims to showcase to achieve national and regional water sustainability through promoting, demonstrating, capacity building, and networking on rainwater harvesting for domestic use in partnership with local authorities and community.

2.2. Activity plan

- Participatory development of integrated Watershed Management Plans with communities and beneficiaries
- Planning and construction of household rainwater harvesting facilities, well water recharging systems, sanitation facilities
- Planning and construction of rainwater harvesting facilities in schools and health Centres
- Establishment of family agro-ecological production systems, recharging infrastructure (ponds and contour drains) plant nurseries, drip irrigation systems, bee keeping systems
- Identification of marketing opportunities and support for the commercialization of harvests
- Training communities and households on integrated water resource management, sustainable land management and climate change adaptation strategies, maintenance of rainwater harvesting systems infrastructures, Water, Sanitation and best Hygiene practices (WASH)
- Training youth on Agro forestry home gardening, weather monitoring, rainwater harvesting techniques and water quality and quantity monitoring
- Knowledge and experience sharing at a South Asian regional level
- Webinar series on the regional country overview, and experience
- Monitore and Evaluate the outcomes including conduct water quality testing of wells and selected RWHS

3 RESULTS AND OUTCOMES

In consultation with local authorities (District Secretary, Education, Health and Divisional Secretariat), Diwulgane, Ehetuwewa Divisional Secretariat was selected to pilot test the concept initially. During the last 6 months 17 selected farms at Diwlgane, were established with zero-waste farm concept and regenerative agro-forestry garden practices. Farmers were trained on mapping and planning their farms. Households and schools were installed with roof rainwater harvesting system and well recharging systems. Communities were trained on soil and water conservation, integrated water resource management and climate change adoption strategies, organic agriculture practices, operation and maintenance of rainwater harvesting systems. Which resulted in farmers increasing their cultivation land, adopting organic farming practices, increase in soil fertility and water conservation, enhanced farm biodiversity and ecosystem resilience. Conversion of traditional chena land to forest garden with buffer zone. Additionally women farmers were empowered through building their capacity.