

Disaster Risk Reduction through River Rehabilitation in the Heart of Flood-Prone Balangoda Town

May 2014, Balangoda, Sri Lanka: Over recent years, the Balangoda town centre had been subject to severe flooding during heavy rains, thereby posing major challenges to its residents. The recently completed *Rehabilitation of the Dorawela Oya and Flood Mitigation Project*, implemented by UN-Habitat with funding from the Government of Australia, has contributed towards making Balangoda a more disaster resilient, sustainable and healthy city.

Balangoda town, located in the central hilly region of Sri Lanka, is home to 35,875 people. The Balangoda Urban Council (BUC) area has been identified as a location for future urban development by the Urban Development Authority (UDA) due to its strategic and economic importance in the region. However, the Dorawela Oya (river), which flows through the centre of the town, had a history of causing widespread flooding following heavy rains. This had brought negative economic as well as health impacts to its residents. When UN-Habitat commenced implementing the “Disaster Resilient City Development Strategies for Sri Lankan Cities Project” in Balangoda in 2012, flood mitigation was identified as the highest priority by the Urban Council.



Banks of the Dorawela Oya, before the project was implemented.

The Flood Mitigation Project (the project), implemented between August 2012 and November 2013, addressed the flooding in the main bus stand and public market areas, previously severely affected by the flooding of the *Dorawela Oya*. The Project was also designed to enhance the water quality of the river as well as the aesthetic value of the area. When the water levels are low, the river is regularly used by the community for washing and bathing. However, the water was of poor quality thereby posing health risks to the community. A small linear park, “Thuru Viyana”, located along one of the river banks, provided an ideal location for social interaction. However, this area was under-utilised as it lacked basic amenities required to function as a recreational space.

The project strengthened the banks of the *Dorawela Oya* using flood mitigation measures while enhancing the public space adjacent to the river through landscape design. Improving the water flow and removing debris significantly improved the water quality of the river. Designed by a landscape architect and engineer, the technical components of the Flood Mitigation Project included applying river bank stabilisation measures to prevent erosion and to guide the water flow. The design included the use of rubble and concrete retaining walls and gabion walls as stabilisation measures. The riverbank was aligned at an appropriate grade and turfed, existing trees were retained and additional vegetation planted to assist with bank stabilisation.

Approximately 250m on both sides of the *Dorawela Oya* has been rehabilitated covering the most critical, flood-prone areas. The construction was undertaken by a private construction company under the direction of the Provincial Engineer of the Sabaragamuwa Province, Work Superintendent and Technical Officer of the BUC in close coordination with UN-Habitat project team. A detailed Flood Mitigation Plan has also been designed for the entire *Dorawela Oya* area through this intervention. The project was successfully completed in November 2013 and the town centre has since been free of flooding. The BUC aims to implement the detailed Flood Mitigation Plan once funding is available.

Mr. W.M.N.G. Weerasinghe, Chairman of the Balangoda Urban Council, stated “Before this project was implemented, we experienced severe flooding in the town centre during heavy rains, but now we are free from that problem. We are thankful to the Australian Government and UN-Habitat for this assistance. We now have a detailed landscape design and flood control plan for the entire Dorawela area. The ‘Thuru Uyana’ public park has also been upgraded and the people are enjoying better quality water for bathing and washing.”

The community of the Dorawela area were very supportive of the Flood Mitigation Project. Their suggestions and recommendations had assisted the designers to prepare a project with multiple solutions, including flood mitigation, improved water quality, improved aesthetic value and recreational opportunities. A “*Shramadhana*” (voluntary community working day) campaign was organised to clean the Dorawela Oya at the inception of the project, with over 150 people participating. This was a good indication of the importance of the project for the local community. Mr. D.B. Pabilis, a community member explained his participation in the Shramadhana campaign: “I can still remember how the

Dorawela Oya flooded in April 2010. The town centre area, including the bus stand and public market, was inundated up to three feet. During that time, we experienced many health issues. We are very happy to support this project to rehabilitate the Dorawela Oya area.”

Open communication and cooperation between the BUC, the construction company and UN-Habitat was one of the key factors behind the successful completion of this project. Construction had been interrupted several times due to wet weather conditions and high water levels of the *Dorawela Oya*. However, the project partners had re-adjusted work schedules to ensure the project was completed on time. The flexibility of the project partners was a key component in overcoming the unexpected challenges of project implementation.

Mr. U.V. Dela Bandara, Superintendent of Works, Balangoda Urban Council, stated: “This project posed many challenges. Undertaking construction work during heavy rains and with high water levels was the most difficult aspect. But thanks to the project team and all stakeholders, we managed to overcome these challenges. Good understanding and flexibility among the stakeholders was the key factor behind its success. Thanks to this project, the Dorawela area is now safer, cleaner and more aesthetically pleasing.”



The rehabilitated banks of the Dorawela Oya near the central bus stand of Balangoda town

The *Disaster Resilient City Development Strategies for Sri Lankan Cities Project* is being implemented in two phases by UN-Habitat in collaboration with the UDA, Ministry of Disaster Management, University of Moratuwa and selected Local Authorities. The Local Authorities of Balangoda, Batticaloa, Kalmunai and Ratnapura were supported in the first phase. The second phase is ongoing in the Local Authorities of Mannar, Vavuniya, Mullaitivu and Akkaraipattu.