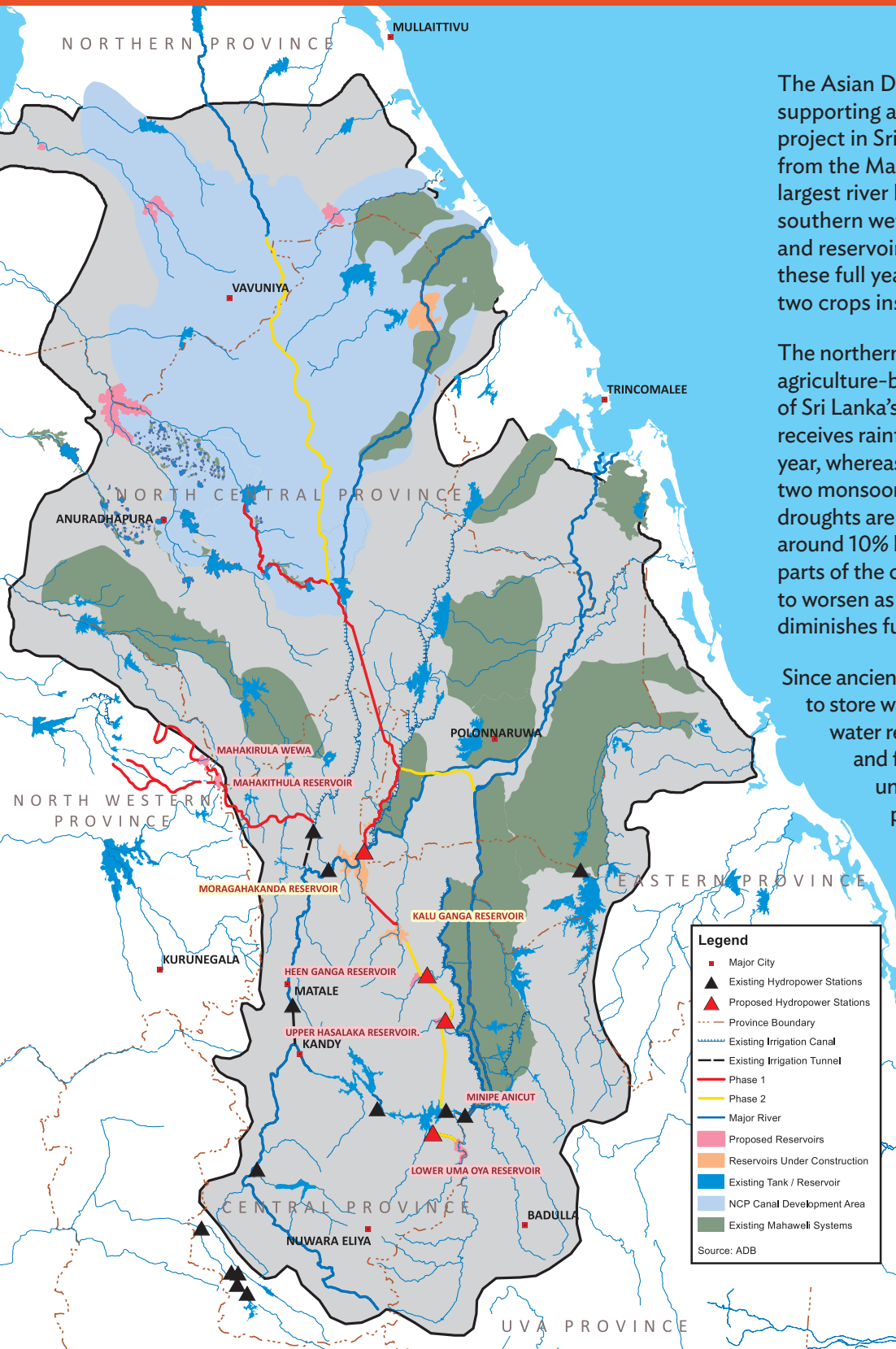


ENDING WATER SCARCITY IN SRI LANKA'S DRY ZONE



The Asian Development Bank (ADB) is supporting a major government water resources project in Sri Lanka to divert untapped water from the Mahaweli River.¹ This is the country's largest river basin with headwaters in the southern wet zone. The project will feed tanks and reservoirs in the northern dry zone to keep these full year-round, allowing farmers to plant two crops instead of the usual single crop.

The northern dry zone of Sri Lanka is a largely agriculture-based area and home to about a third of Sri Lanka's population of about 21 million. It receives rainfall in one monsoon season each year, whereas the southern zone benefits from two monsoons. The weather is highly variable and droughts are common; household incomes are around 10% lower in the dry zone than in other parts of the country. This situation is expected to worsen as the population grows and rainfall diminishes further due to climate change.

Since ancient times, Sri Lanka has built tanks to store water and maximize the use of its water resources. However, monsoon flows and floods still flow into the ocean unproductively. The intention of the project is to retain this excess water and distribute it through new canals linking existing and new tanks, and reservoirs being constructed. In effect, the project is putting in the backbone plumbing system to deliver the runoff into existing tanks that up to now have been isolated from the Mahaweli System. This will optimize the use of storage infrastructure and minimize the number of new dams that need to be built.



¹ ADB, 2014. *Report and Recommendation of the President for the Proposed Multitranchise Financing Facility to the Democratic Socialist Republic of Sri Lanka for the Mahaweli Water Security Investment Program*. Manila.



Minipe Anicut (Weir) on the Mahaweli River. (Photo: Lance Gore)

The project will finance about 260 kilometers of new and upgraded canals, tunnels, reservoirs, and other irrigation infrastructure by 2024. When completed, up to 1 billion cubic meters of water will be transferred annually to irrigation systems in the northern dry zone. This will increase agricultural production significantly and strengthen water and food security. With more reliable flows of water, farmers will be encouraged to move into higher-value crops, leading to higher incomes. The project will also provide safe and reliable drinking water to northern towns and villages.

Most of the water will be transferred by gravity flow made possible by over 35 kilometers of new tunnels. These represent about half of the project cost but are necessary to avoid pumping and also protect important wildlife areas. The intricate canal system (map, page 1) features alternative routes to convey water from the Mahaweli River to beneficiary areas. This allows the system to handle large flows during the monsoon and maintains supply during routine maintenance and canal closures.

The project is using detailed and robust water balance analysis—including rainfall runoff model—and sensitivity testing taking into consideration expected climate change impacts. Climate change is projected to bring less rainfall to the northern dry zone and higher temperatures. By 2080, the entire dry and intermediate zones, which represent 75% of the island, are projected to become prone to drought with 30% less rainfall in worst hit areas. Over the same period, temperatures are expected to increase from 1°C to 4°C. Higher temperatures mean more water will be needed to maintain crop productivity, underlining the importance of the project.

The water balance studies show that there is indeed enough water to transfer from the Mahaweli River to quench the thirst in the northern dry zone, without affecting existing downstream water users. In addition, the project will use remote sensing, detailed flow monitoring, and water accounting to help system managers and farmers improve water management and irrigation efficiencies.

A 3-year study will be conducted on improving system efficiencies and water productivity, or how water is used by

farmers. The project will also introduce measures to strengthen water management and governance practices.

The Mahaweli water transfer scheme was started by the government back in the 1970s, but was halted by Sri Lanka's prolonged conflict, which ended in 2009. Now, this important and innovative project to improve water security for the 6 million people of the northern dry zone will finally be completed.

PROJECT IMPACT AND OUTCOMES

- 260 kilometers of new and upgraded canals, tunnels, reservoirs, and other irrigation infrastructure by 2024
- Up to 1 billion cubic meters of water transferred annually to irrigation systems in the northern dry zone, when project completed
- Tanks and reservoirs kept full year-round, allowing farmers to plant two crops instead of one
- Agricultural production will increase significantly, and water and food security will be strengthened
- With more reliable flows of water, farmers encouraged to move into higher value crops, leading to higher incomes
- Safe and reliable drinking water provided to northern towns and villages

THE AUTHOR

Lance Gore (lgore@adb.org) is senior water resources specialist at the Asian Development Bank's South Asia Department.

For more information on ADB's water resources projects, contact:

Pia Reyes
Water Resources Officer
piareyes@adb.org



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