

# Filling the gaps in carbon credits from Alternate Wetting and Drying (AWD) in Bangladesh

## Summary

Bangladesh has a unique opportunity to use carbon markets to reward farmers who adopt water-saving rice cultivation practices. Yet progress has been constrained by gaps in evidence, monitoring systems, farmer awareness, and policy frameworks.

Anchored in the Swiss Agency for Development and Cooperation (SDC) supported SoLAR project, IWMI and its partners are turning evidence, digital innovation, and institutional alliances into the building blocks of a new frontier, where Alternate Wetting and Drying (AWD) in Solar Irrigation Pump (SIP) command areas becomes a bridge to carbon finance, a shield for water resilience, and a catalyst for climate-smart agriculture.

This activity advances climate-smart agriculture, benefiting farmers, saving water and helping achieve national climate targets.

In SIP command areas, AWD could turn verified emissions reductions into carbon revenues of \$12–\$87 per hectare for farmers, a financial incentive that could finally unlock adoption at scale in Bangladesh.

AWD can turn climate ambition into farmer prosperity—but only if stakeholders act now to build the evidence, MRV systems, and trust needed to scale adoption with confidence.



IWMI researcher at an Alternate Wetting and Drying (AWD) pilot site in Naogaon, Rajshahi, Barind region, Bangladesh. (photo: IWMI)



**\$12–\$87**

per ha carbon income  
from AWD adoption



**600**

farmers in the  
field pilot



**26**

BADC SIP sites  
across 6 districts



**60%+**

of carbon revenue  
guaranteed to farmers



**10,027**

SIPs targeted by 2030  
under Bangladesh's  
NDC

## Identifying policy gaps and project responses

No field-level evidence linking AWD + SIPs to verified emission reductions in real farmer plots

IWMI is leading a rigorous treatment-control pilot across 26 Bangladesh Agricultural Development Corporation (BADC) SIP sites and 600 farmers (Boro seasons 2026–2028), directly measuring CH<sub>4</sub> and CO<sub>2</sub> reductions with Bangladesh Rice Research Institute (BRRI)'s Soil Science Division.

No operational MRV system — digital monitoring, reporting and verification — to make carbon credits credible and bankable

The pilot installs flow meters, AWD sensors and monitoring tools at every site and builds a comprehensive water-use, yield and GHG data management system from the ground up.

Farmers and SIP sponsors don't yet understand carbon income potential, so adoption stalls despite the financial case

NGO Forum for Public Health is running structured AWD and carbon-literacy training, demonstration plots and farmer-to-farmer mentoring across all 26 sites, with women and marginal farmers prioritized.

No clear pathway from local pilot data to national carbon market and policy frameworks (Article 6, NDC 3.0)

IWMI is exploring carbon financing pathways (JCM, Gold Standard, voluntary markets) and feeding pilot evidence directly into policy briefs and a national AWD scaling roadmap.

## Key policy recommendation

### Operationalise the national carbon market & Agricultural Carbon Credit Framework

Finalise rules, registry and a 60% farmer revenue-sharing floor; register pilot AWD carbon projects before end-2026.

### Invest in national digital MRV infrastructure

IoT sensors, drone-based methane sensing and a national AWD data platform to cut MRV costs and raise credit quality.

### Build carbon revenue into SIP financing

Infrastructure Development Company Limited (IDCOL) to recognise carbon income in SIP appraisals; blended-finance fund for long-tenor, grid-integrated SIP loans.

### Remove policy constraints on SIP investment

Cut import duties, mandate feeder segregation, expand grid access — 5,000 additional SIPs by 2028.

### Deliver national AWD & carbon literacy training

Scale farmer training, mobile advisory tools and demonstration plots, with women as primary beneficiaries.

### Establish a PPP framework for carbon project developers

Dedicated Article 6 coordination unit; minimum 65–70% farmer revenue share; direct part of the \$900M World Bank facility to MRV.

## Authors

**Jayanta Bhattacharya**, Bangladesh Lead – SoLAR Project, and Associate Scientist – Solar Energy and Climate Resilience, International Water Management Institute (IWMI), Dhaka Bangladesh

**Gaurav Tripathi**, Consultant, IWMI, New Delhi, India

**Darshini Ravindranath**, Project Lead-SoLAR Project and Research Group Leader, Climate Policies, Finance and Processes, IWMI, Colombo, Sri Lanka

## CRedit Contributorship Statement

Conceptualization: Jayanta Bhattacharya, Darshini Ravindranath; Methodology: Jayanta Bhattacharya, Gaurav Tripathi; Validation: Jayanta Bhattacharya, Darshini Ravindranath; Formal analysis: Jayanta Bhattacharya, Gaurav Tripathi, Darshini Ravindranath; Writing: Jayanta Bhattacharya, Gaurav Tripathi, Darshini Ravindranath; Visualization: Jayanta Bhattacharya; Supervision: Jayanta Bhattacharya; Project administration: Jayanta Bhattacharya

## Citation

Bhattacharya, Jayanta, Gaurav Tripathi, and Darshini Ravindranath. 2026. *Filling the Gaps in Carbon Credits from Alternate Wetting and Drying (AWD) in Bangladesh*. International Water Management Institute.

## Acknowledgements

This research was carried out under the Solar Energy for Agricultural Resilience (SoLAR) Phase II project. The authors would like to acknowledge the Swiss Agency for Development and Cooperation (SDC) for funding this project and Johan Gély (Asia Director for Research Impact, IWMI, Colombo, Sri Lanka) for his guidance. We acknowledge the support provided by Tanmoy Bhaduri (Communications Specialist, IWMI, New Delhi, India) in designing it.

## Disclaimer

This publication has not been independently peer-reviewed. Responsibility for editing, proofreading, layout, opinions expressed, and any possible errors lies with the authors and not the institutions involved.

© 2026 International Water Management Institute. Some rights reserved. This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0)

## Contacts

Please send inquiries and comments to:

**Darshini Ravindranath**, Project Lead-SoLAR & Research Group Leader, Climate Policies, Finance and Processes, IWMI, Colombo, Sri Lanka ([D.Ravindranath@cgiar.org](mailto:D.Ravindranath@cgiar.org))