

Climate-related disasters and index-based risk transfer

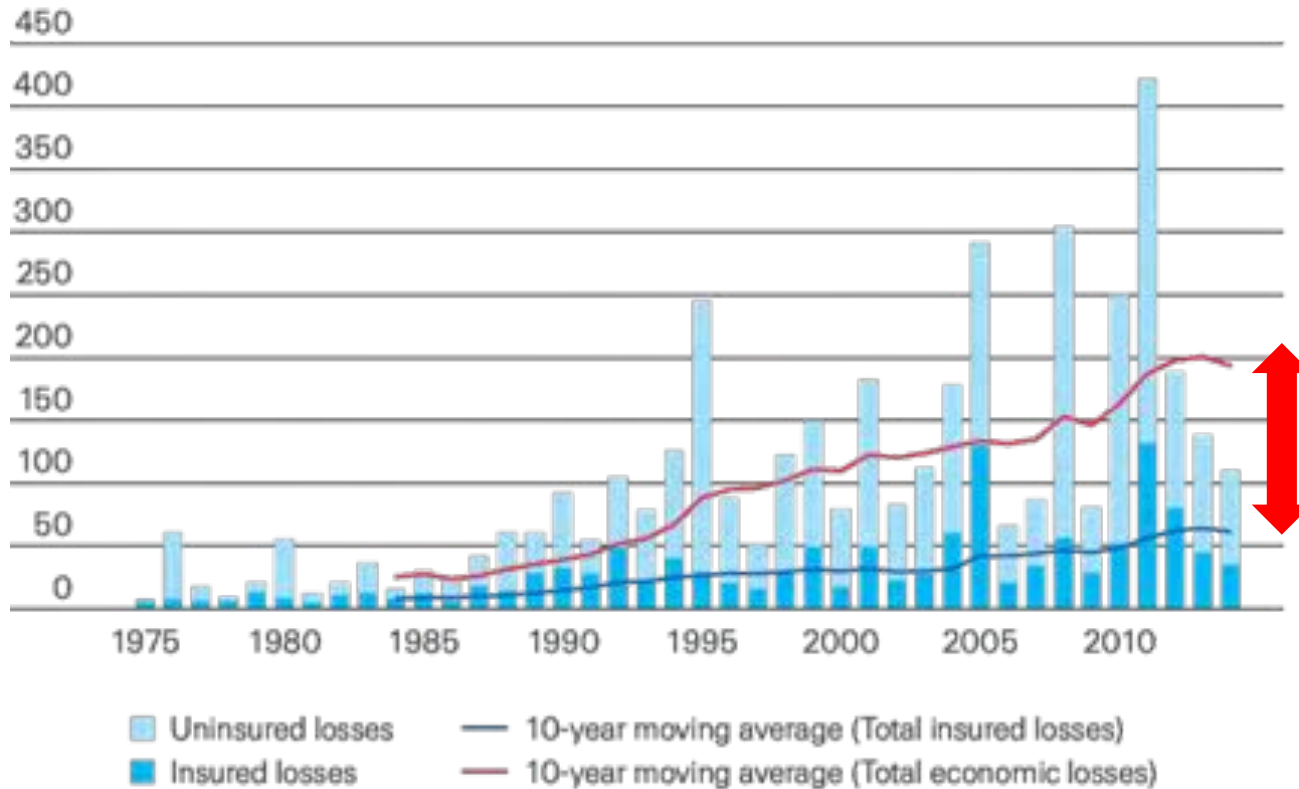
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Development and Resilience

25 November 2020



Global economic losses due to floods in 1990- 2019



409 catastrophes = loss of \$232 billion



Disaster events claimed more than 11,000 victims in 2019



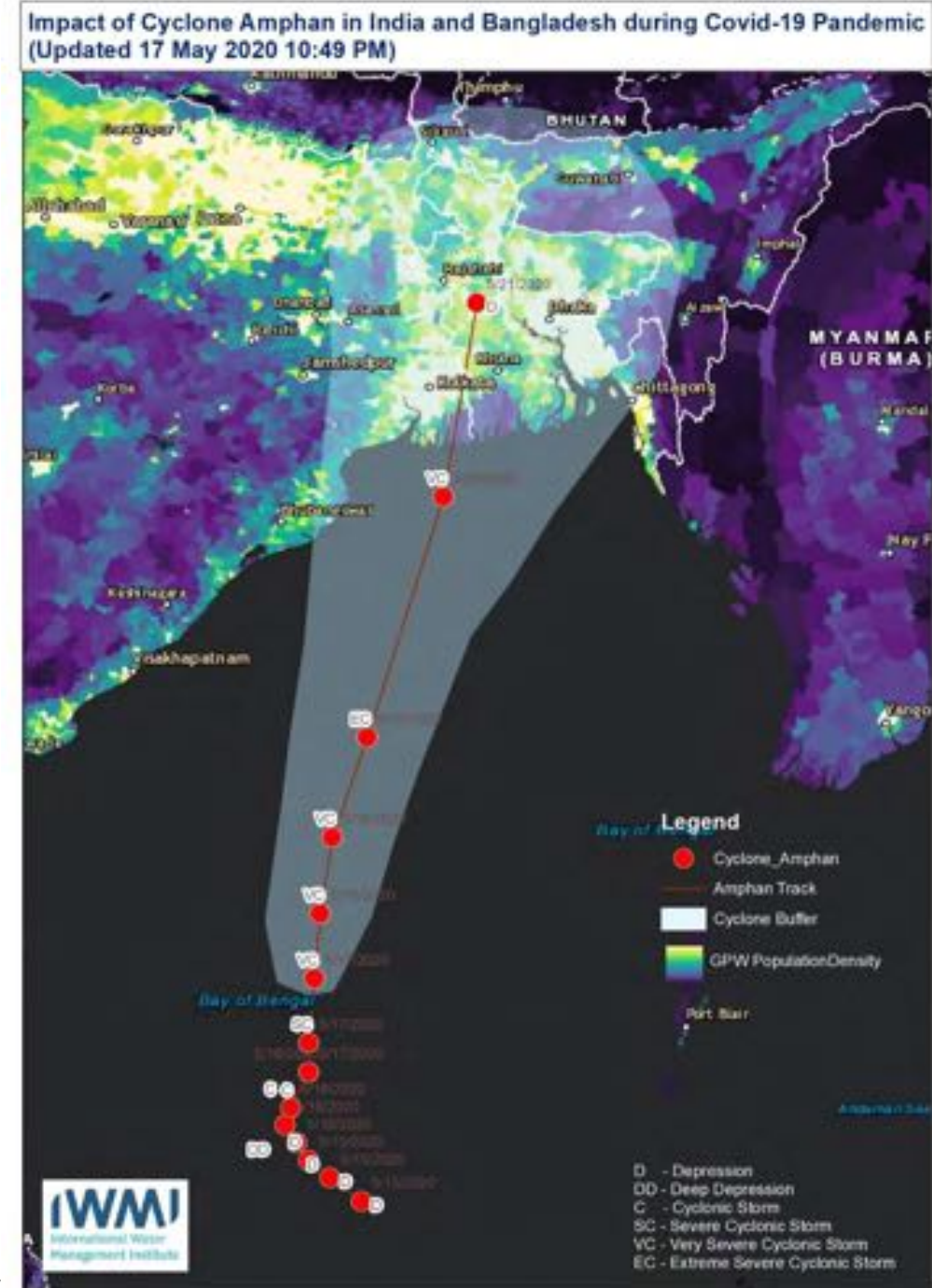
Record-breaking flood events globally the new normal

- Who is funding the deficit between insured and uninsured losses?
- Financial resilience as a component of DRM
- Role of catastrophe insurance in a sustainable development framework



Super “Cyclone” 20 May 2020

- Super Cyclonic Amphan was a powerful and deadly tropical cyclone that caused widespread damage in Eastern India, specifically West Bengal, and also Bangladesh in May 2020.
- Amphan's forecast track placed 38.9 million people in India and Bangladesh at risk of exposure to the storm's winds, according to the US Pacific Disaster Center.
- With 124 fatalities and causing US\$13 billion of damage, Amphan is also the costliest cyclone ever recorded in the North Indian Ocean, surpassing the record held by Cyclone Nargis of 2008.





“Data – essential first step for making agricultural insurance universally accessible among smallholder farmers”

- Poor insurance penetration for floods in Asia
- Insuring the uninsured i.e. parametric insurance
- Monitoring crop health using satellite data and digital innovation
- Better coordination among public and private sectors
- Ensure readily accessible financial instruments for smallholder farmers

How does Parametric Insurance work?



Index based flood insurance (IBFI)

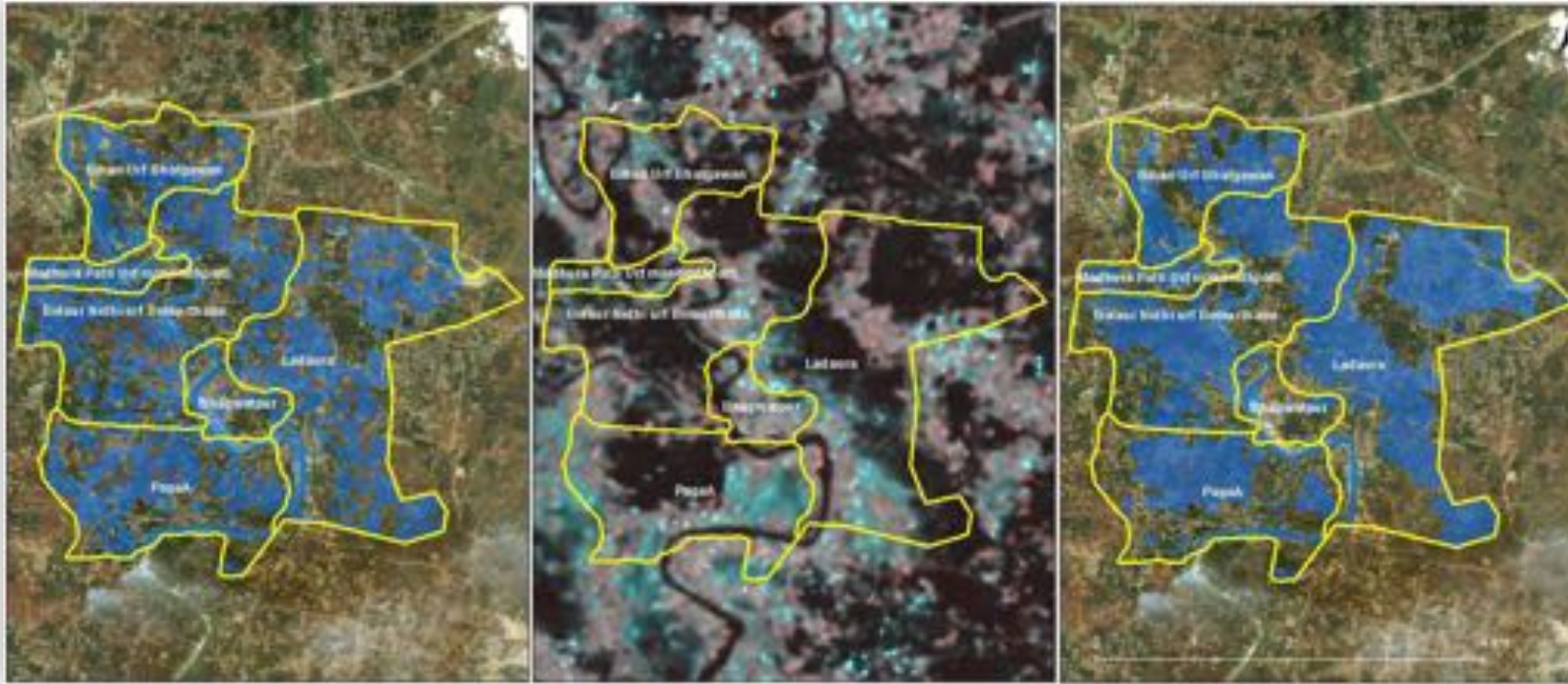
Earth observation data and modeling tools strengthen scaling risk solutions in protecting poor and vulnerable people in developing countries



RESEARCH PROGRAM ON
Climate Change,
Agriculture and
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Ecosystems



- Since 2017 pilot trials in India and Bangladesh over 7,000 households with total payout of \$150,000 USD
- Insurance solutions could help bolster farming livelihoods, reduce post-disaster costs for governments and contribute to reducing poverty, achieving gender equality and underpinning food security.

Index-Based Flood Insurance in Kurigram District

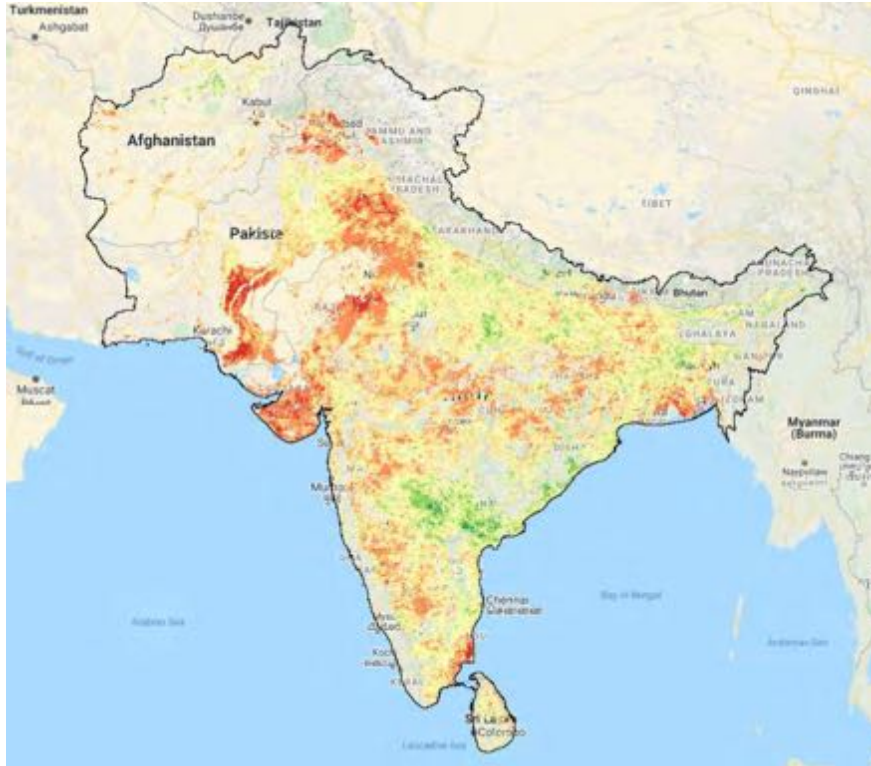
GDIC developed the product partnering with World Food Program (WFP), OXFAM Bangladesh and National Development Programme (NDP)
Coverage: 1st July 2020 – 30th September 2020

 PARTNER	Key Partner : WFP & OXFAM Local Partner : National Development Partner (NDP)	 PREMIUM	@ 11.50% Net Premium BDT 4.1 million
 LOCATION	Jatrapur Union & Raniganj Union of Kurigram District	 CLAIM	BDT. 5.4 million through bKash 
		 COVERAGE	2,000 Household
		 excluding permanent water body areas	Jatrapur: 17.828 sq km Raniganj: 13.900 sq km
		 DATA PROVIDER	The International Water Management Institute (IWMI), Sri Lanka
		 TECHNOLOGY	Satellite Image (MODIS)
		 PERIL	Flood

Drought Surveillance System for South Asia



Information and Action



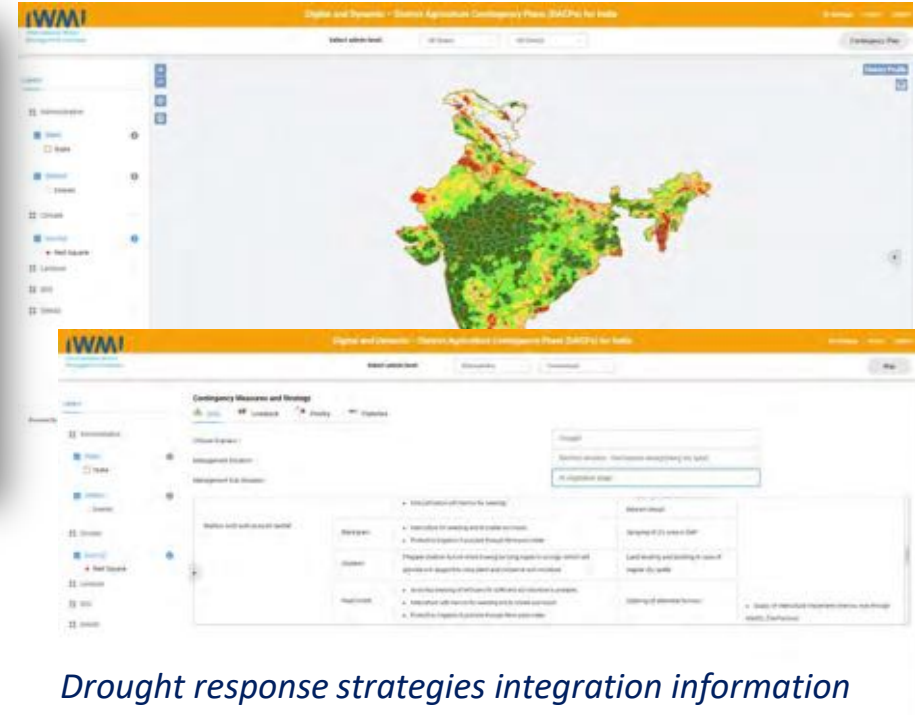
Agriculture Stress monitoring using satellite indices

Knowledge



Consultation and awareness on the digital tools and actionable information

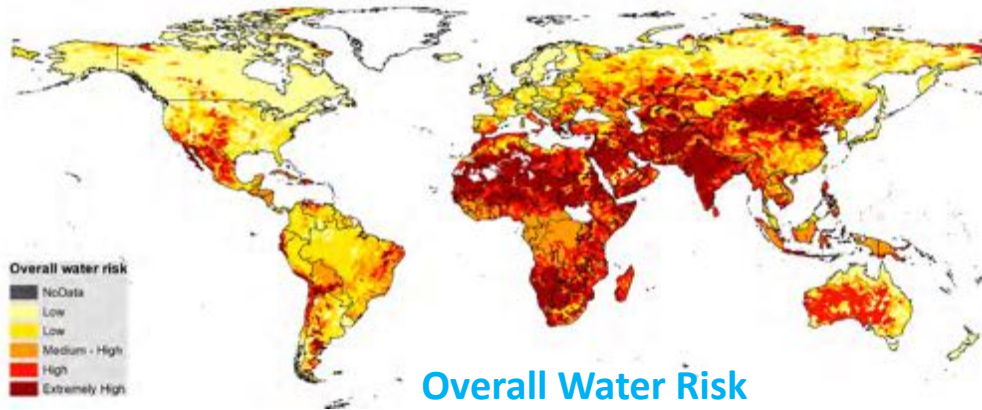
Decisions



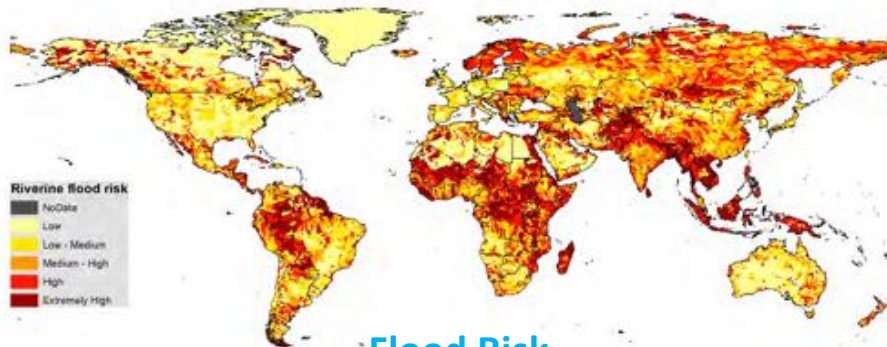
Drought response strategies integration information and knowledge products for decision making process

Connecting Water Stress and agriculture production and its impact on food security

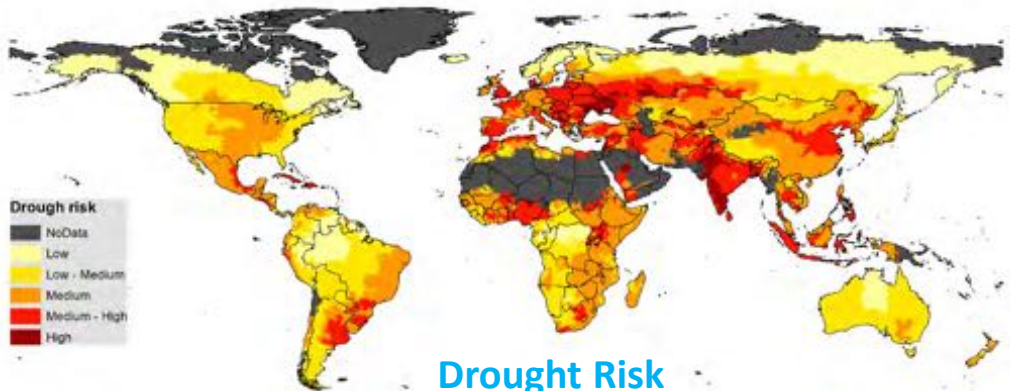
“A third of irrigated crop production faces extremely high water stress”



Overall Water Risk

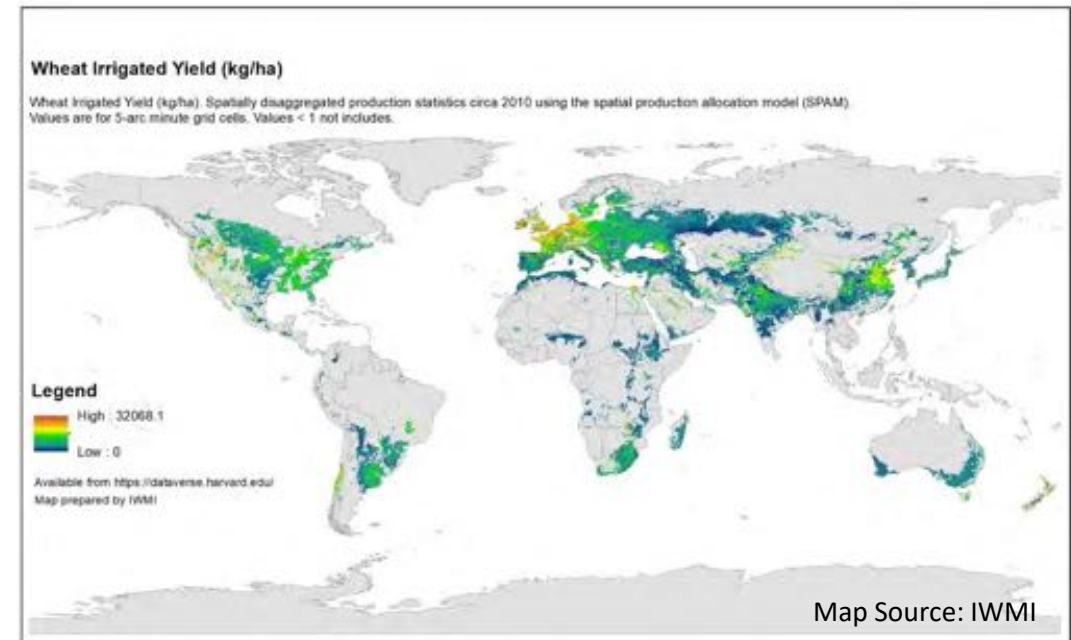


Flood Risk



Drought Risk

Map Source: IWMI



Thank you

IWMI would like to acknowledge and thank the contribution from CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Water, Land and Ecosystems (WLE) for supporting this initiative.

Reading materials

IBFI Concept (YouTube): [Index Based Flood Insurance: A more secure future for India's farmers](#)

IWMI GEO SDG 2020 award <https://www.iwmi.cgiar.org/2020/11/iwmi-receives-the-2020-geo-sustainable-development-goals-sdg-award/>

IWMI Success stories <https://www.iwmi.cgiar.org/success-stories/how-hi-tech-insurance-is-helping-farmers-survive-floods/>

Report on IWMI's Index-Based Flood Insurance included in Chapter 4 of: Perera, D.; Smakhtin, V.; Pischke, F.; Ohara, M.; Findikakis, A.; Werner, M.; Amarnath, G.; Koeppel, S.; Plotnykova, H.; Hulsmann, S.; Caponi, C. 2020. [Water-related extremes and risk management](#). In UNESCO World Water Assessment Programme (WWAP); UN-Water. The United Nations World Water Development Report 2020: water and climate change. Paris, France: UNESCO. pp.58-67.

Information on IWMI and partners' BICSA initiative in Bihar, India, was included in the following report (page 29):

Smith, D.M., Matthews, J.H., Bharati, L., Borgomeo, E., McCartney, M., Mauroner, A., Nicol, A., Rodriguez, D., Sadoff, C., Suhardiman, D., Timboe, I., Amarnath, G., and Anisha, N. 2019. "[Adaptation's thirst: Accelerating the convergence of water and climate action](#)." *Background Paper prepared for the 2019 report of the Global Commission on Adaptation*, Rotterdam and Washington, DC. Available online at www.gca.org.

The article [Raise their resilience](#), by Giriraj Amarnath on satellite-based insurance, was published in: Down to Earth's *State of India's Environment 2020* report

The article [Insurance helps reduce risk from flooding for Asia's vulnerable rural smallholders](#) by Giriraj Amarnath, was published on: Geospatial World

News: [India's water-logged farmers try out revamped flood insurance](#)

Blog: [First satellite-based insurance trial in Bangladesh helps farmers recover from flooding](#)

Aheeyar, Mohamed et al. 2019. [Unpacking barriers to socially inclusive weather index insurance: towards a framework for inclusion](#). *Water*, 11(11):1-19.

Aheeyar, Mohamed et al. 2019. [Pilot evaluation of the Index Based Flood Insurance in Bihar, India: lessons of experiences](#). *Technical report*. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Research Program on Water, Land and Ecosystems (WLE). 31p.

