

Nuclear and Plant Breeding Technologies Addressing Agricultural Challenges

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**Nuclear Technology for
the Sustainable Development Goals**



Hunger in Bangladesh

A very great need for food is called Hunger

- ✓ **41% children (approx. 7 million) under five are chronically malnourished.**
- ✓ **26% children under five are stunted.**
- ✓ **One third of children from 0.5- <5 years are anemic.**
- ✓ **16% children under five in Bangladesh are wasting (low weight-for-height).**
- ✓ **40% school-aged children are iron deficient.**
- ✓ **Among women, 24 percent are underweight and 13 percent are short.**

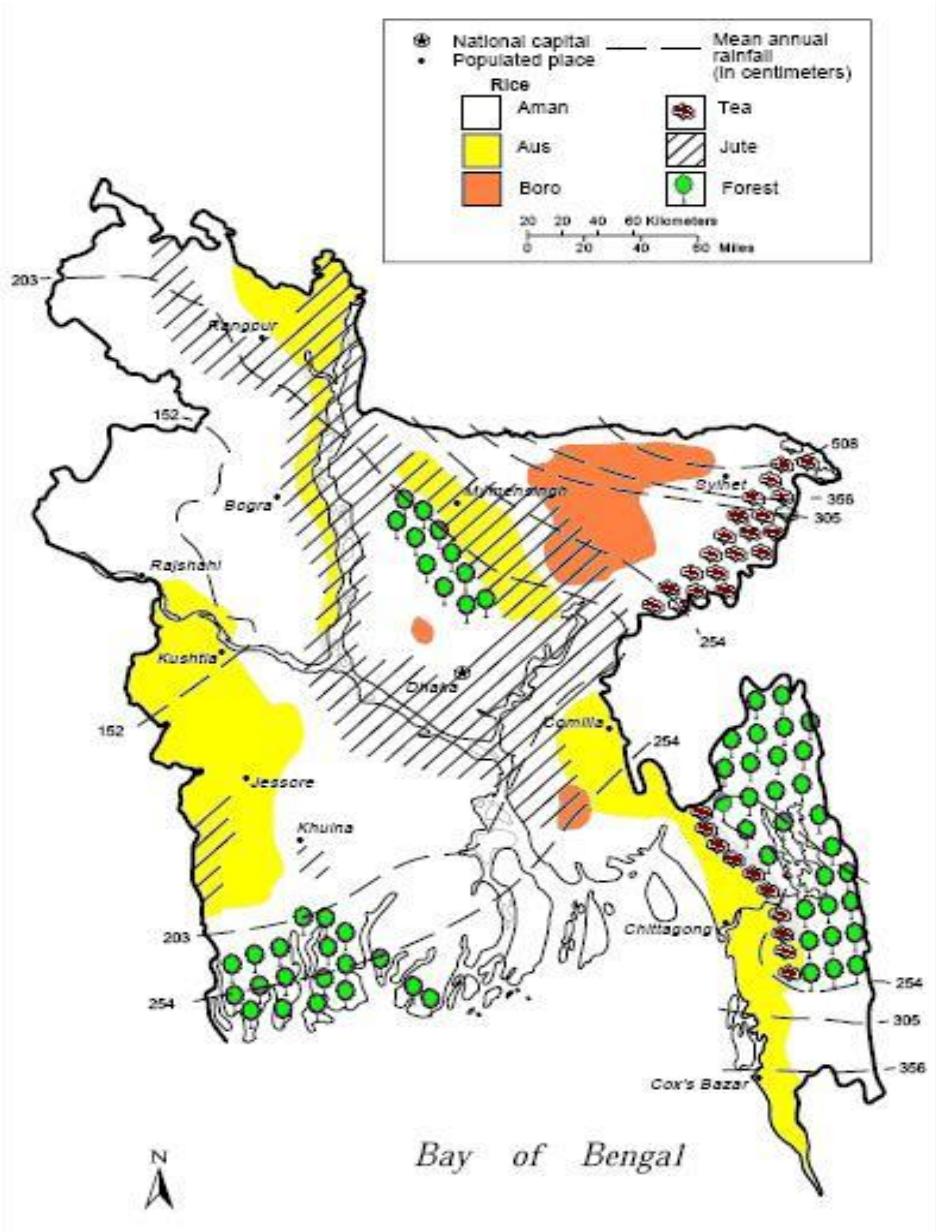


Fig. Major agricultural products growing areas

Impact of BINA Rice varieties during 2015-16

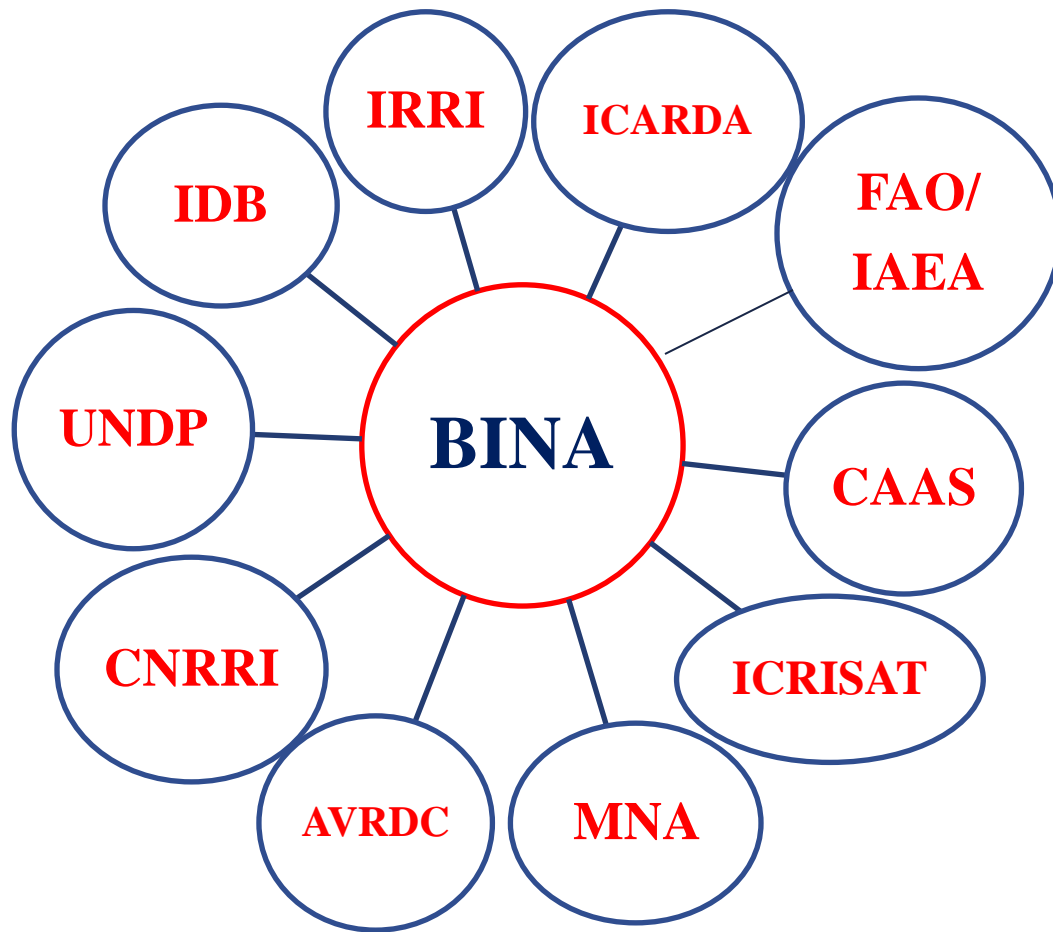
Varieties	Area (ha)	Region	Remarks
Binadhan-7	20,512	North (Rangpur)	Monga (seasonal unemployment) mitigation and crop intensification northern region
Binadhan-11	243	North (Rangpur)	Facilitate crop raising in flood prone areas
Binadhan-8	4355	South (Satkhira, Khulna, Bagerhat)	Facilitate crop production in fallow lands in saline areas
Binadhan-10	3956	South (Satkhira, Khulna, Bagerhat)	
Total	29,066		

Production and Area coverage in last five years (2010-15)

Items	2010-2011		2011-2012		2012-2013		2013-2014		2014-2015	
	Area (‘000’ ha)	Prod’n (‘000’ M. tons)	Area (‘000’ ha)	Prod’n (‘000’ M. tons)	Area (‘000’ ha)	Prod’n (‘000’ M. tons)	Area (‘000’ ha)	Prod’n (‘000’ M. tons)	Area (‘000’ ha)	Prod’n (‘000’ M. tons)
Rice	11359	31975	11534	33542	11533	33889	11429	33834	11807	35659
Pulse	233	218	254	232	270	240	284	265	333	352
Oil seed	366	786	374	730	394	787	385	763	434	848

M. tons = Metric tons

Collaboration and Linkage



IDB: Islamic Development Bank

IRRI: International Rice Research Institute

ICARDA: International Center for Agricultural Research in the Dry Area

FAO: Food and Agriculture Organization

IAEA: International Atomic Energy Agency

CAAS: Chinese Academy of Agricultural Sciences

ICRISAT: International Crops Research Institute for the Semi-Arid Tropics

MNA: Malaysia Nuclear Agency

AVRDC: Asian Vegetable Research and Development Center

CNRRI: China National Rice Research Institute

UNDP: United Nations Development Programme



Alignment of Plant Breeding with Sustainable Development Goals (SDGs)

➤ Developed Crop varieties specially Binadhan-7 to alleviate Monga (seasonal unemployment in northern region (Goal No.1)

➤ Developed high yielding and nutrition rich crop varieties to reduce hunger and hidden hunger (Goal No.2)

- BINAdhan-7, BINAsoybean-1, BINAsoybean-2, BINAtomato-5 & 6

➤ Development of Climate Resilient Crop varieties for Combating Climate Change (Goal No. 13)

-Salt tolerant rice varieties (BINAdhan-8 & 10), submergence tolerant rice varieties (BINAdhan-11 & 12), salt tolerant wheat variety (BINAgom-1), salt tolerant groundnut varieties (BINAchinabadam-7, 8 & 9), salt tolerant mustard varieties (Binasarisa-5 & 6).

➤ Agricultural products provides employment opportunities (Goal No. 8)

- Short duration rice varieties (BINAdhan-7 & BINAdhan-14) increases cropping intensities



FUTURE THRUST

- Development of high yielding, short duration, stress tolerant varieties of cereals, pulses, oilseeds and jute (fibre crops)
- Development of improved varieties of horticultural crops (Tomato, Papaya, Grape fruit, Pome Granate, Chilli, Brinjal, Onion and Bottle gourd)
- Development of climate resilient technologies
- Genes isolation for important traits and development of GMO
- Development of nutrient rich and premium quality crop varieties
- Improvement of landraces for stress tolerance and high yielding
- Collection, conservation and utilization of plant genetic resources
- More International collaboration and cooperation



Thank you!



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