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Bangladesh Resilience Assessment: Findings and Lessons Learned

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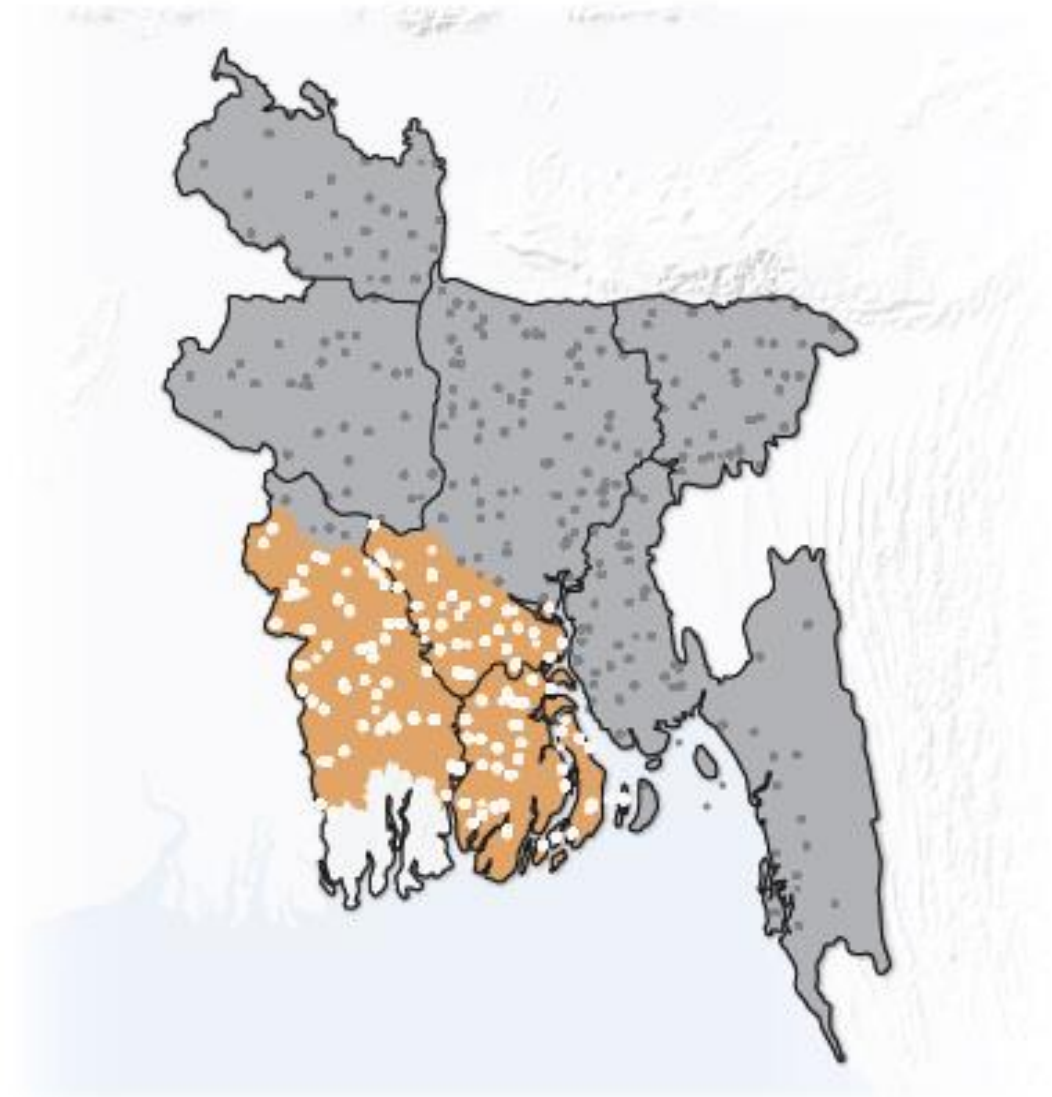


Resilience Assessment

- Reviewed over 100 documents
 - USAID - qualitative risk and resilience capacities data and narratives from the FFP endline surveys; assessments and evaluations in FtF ZOI
 - IFPRI - data on movements into and out of poverty
 - ODI - study on sustainable poverty escapes and backsliding in Bangladesh
 - GeoCenter maps
- Conducted new analyses of resilience program data

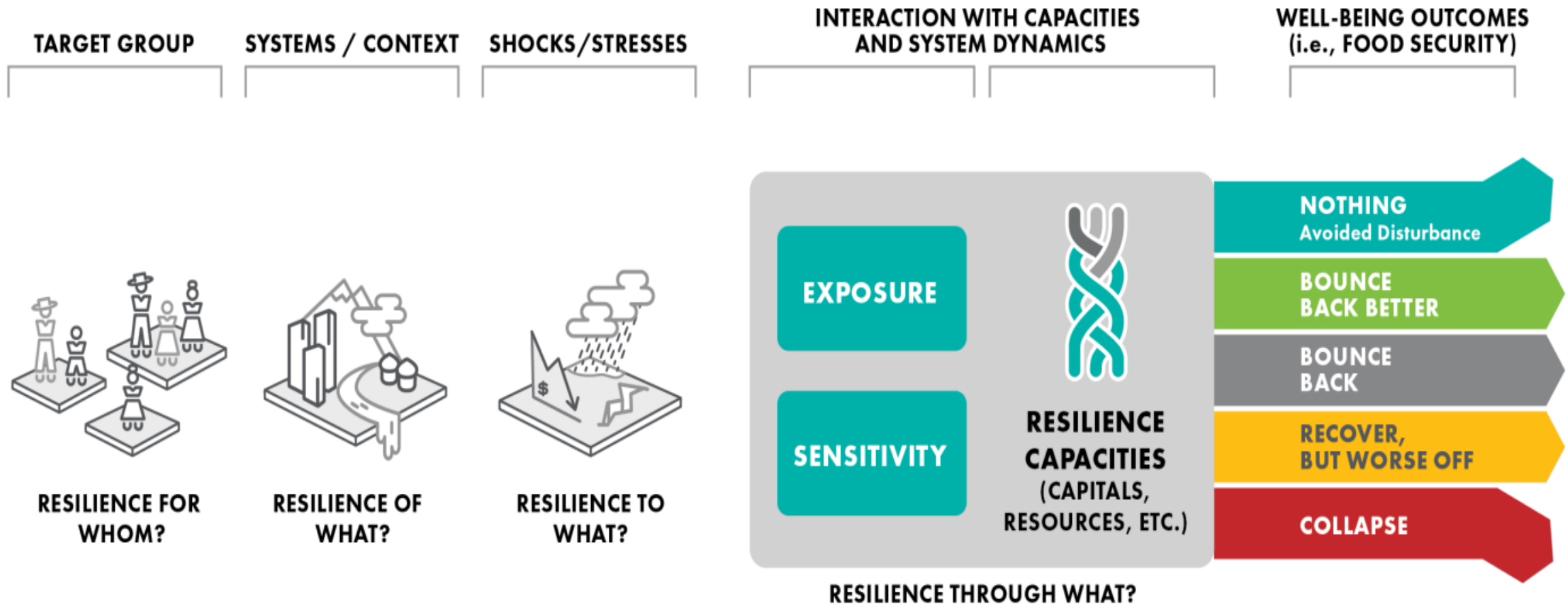
Resilience Assessment

- Geographic scope:
 - National
 - FtF ZOI (Khulna and Barisal)
- Large evidence base
- On-the-ground information/experience



GeoCenter Map. 2015.

Resilience Conceptual Framework



Resilience for Whom?

National level

- People who are exposed to physical hazards (natural disasters)
 - People in NE are exposed to flash floods and have the highest livelihood vulnerability due to high reliance on rice farming and limited alt. livelihood opp's (Toufique & Islam 2014)
- Chronically poor
- People with disabilities

Resilience for Whom?

- Women and children
 - Women have fewer income-earning opp's (WFP 2016) and receive about ½ the pay that men receive for the same work (Fakhruddin & Rahman 2015)
 - Children are esp. vulnerable in hazard-prone areas due to poor nutrition + water-related illness
- Rohingya refugees in Cox's Bazaar are vulnerable to human trafficking, labor exploitation, and GBV

Resilience for Whom?

Khulna and Barisal Districts

- People who are exposed to physical hazards (natural disasters)
 - Coastal areas exposed to tropical cyclones, sea-level rise (main threat), salinity intrusion, and fishery declines (Fakhruddin and Rahman 2015)
 - Waterlogging in Khulna impacts a range of livelihoods
 - Farmers, fishers, fish farmers (e.g., gher farmers), livestock producers, input suppliers, and fish and rice processors

Resilience for Whom: the poor

Factors central to HHs moving out of /into poverty:

Ascent out of poverty

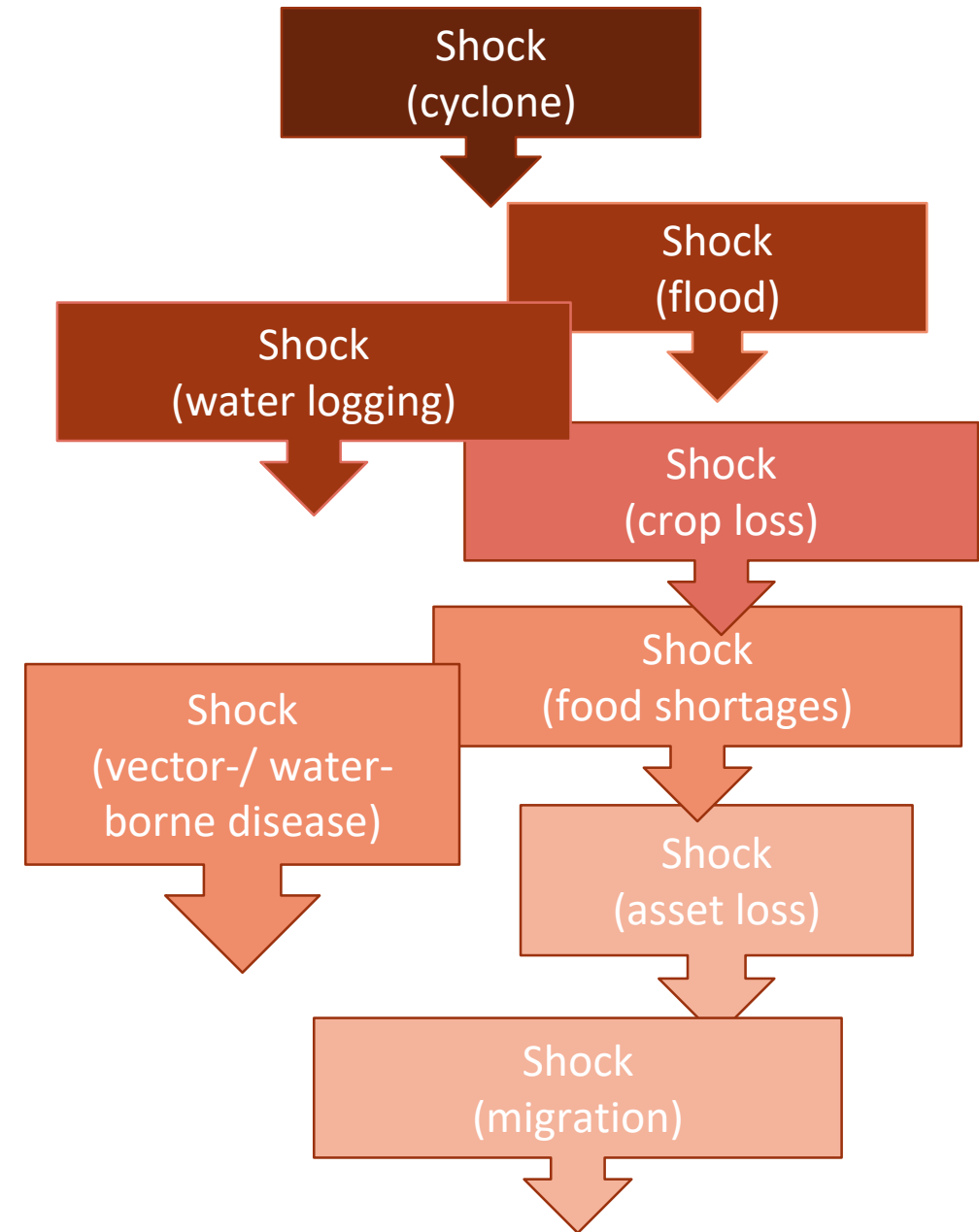
- Education
- Non-farm income
- Women's empowerment
- Access to electricity
- Savings
- Physical asset holdings

Descent into poverty

- Any increase in the # of HH members or dependency ratio
- Crop losses

Resilience from What?

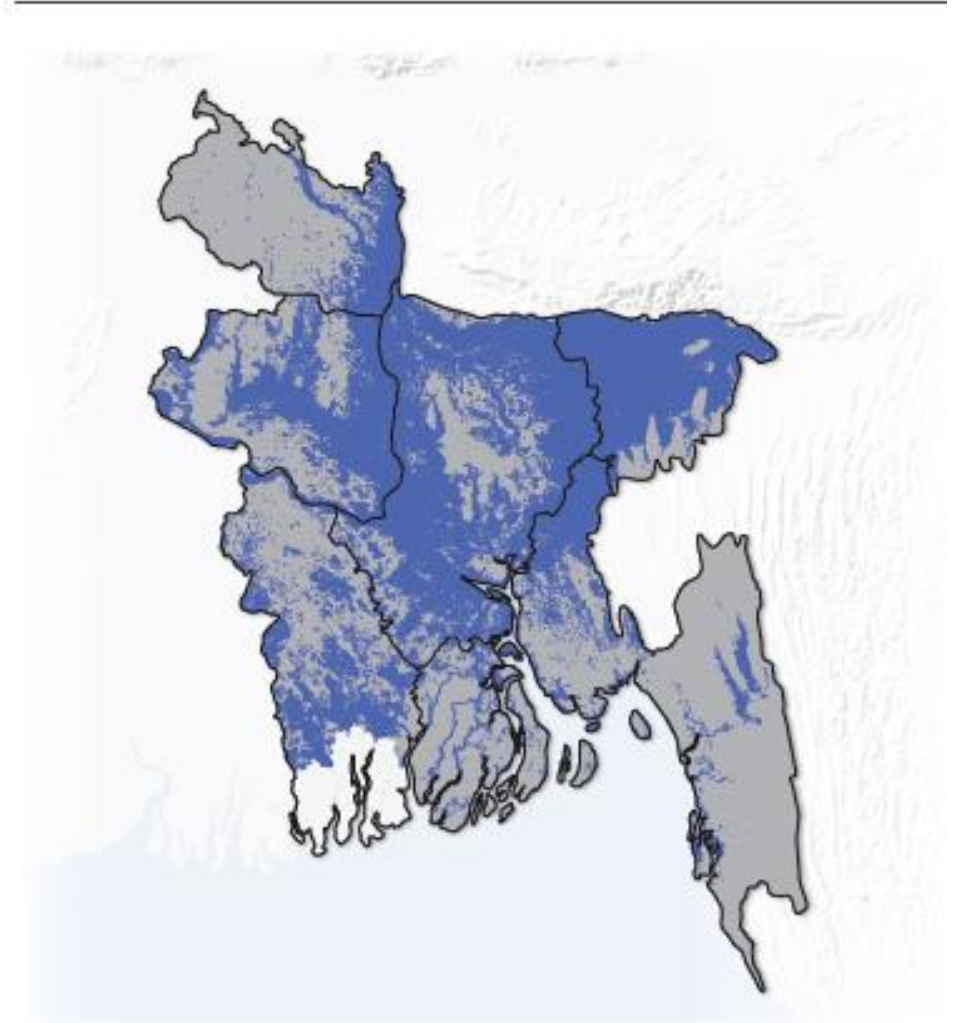
- Shocks
 - Natural, health, political, economic
- Long-term stressors
 - Climate change, population change, pollution
- Downstream effects/shocks
 - Shocks can be inter-related and have cumulative impact



Shocks and Stressors: Natural Hazards

- Bangladesh is located between the Himalayas and the Bay of Bengal
- Location and dense population contribute to vulnerability to a range of shocks, mostly natural
 - floods, cyclone, salinity intrusion, drought, flash floods
- Experienced 228 weather-related loss events (1994-2013)
- Ranked 6th-most affected country on the Climate Risk Index

FLOOD PRONE AREAS



Shocks: Health

- Water-related shocks increase water salinity and disrupt sewage & sanitation systems, contributing to “drinking water crisis” (Ahmed et al. 2013)
- Just 32% of urban residents have access to piped water
 - In Khulna City (2010), only 18% of residents had access to piped water
- As of 2001, 30-40 million Bangladeshis exposed to arsenic via tube wells (British Geological Survey 2001)

Shocks: Health

- Limited potable water contributes to illnesses: diarrhea, fever, high blood pressure, gastric & skin problems
- Increased ARI prevalence: leading cause of death among children in Bangladesh (due to limited potable water + limited sanitation)



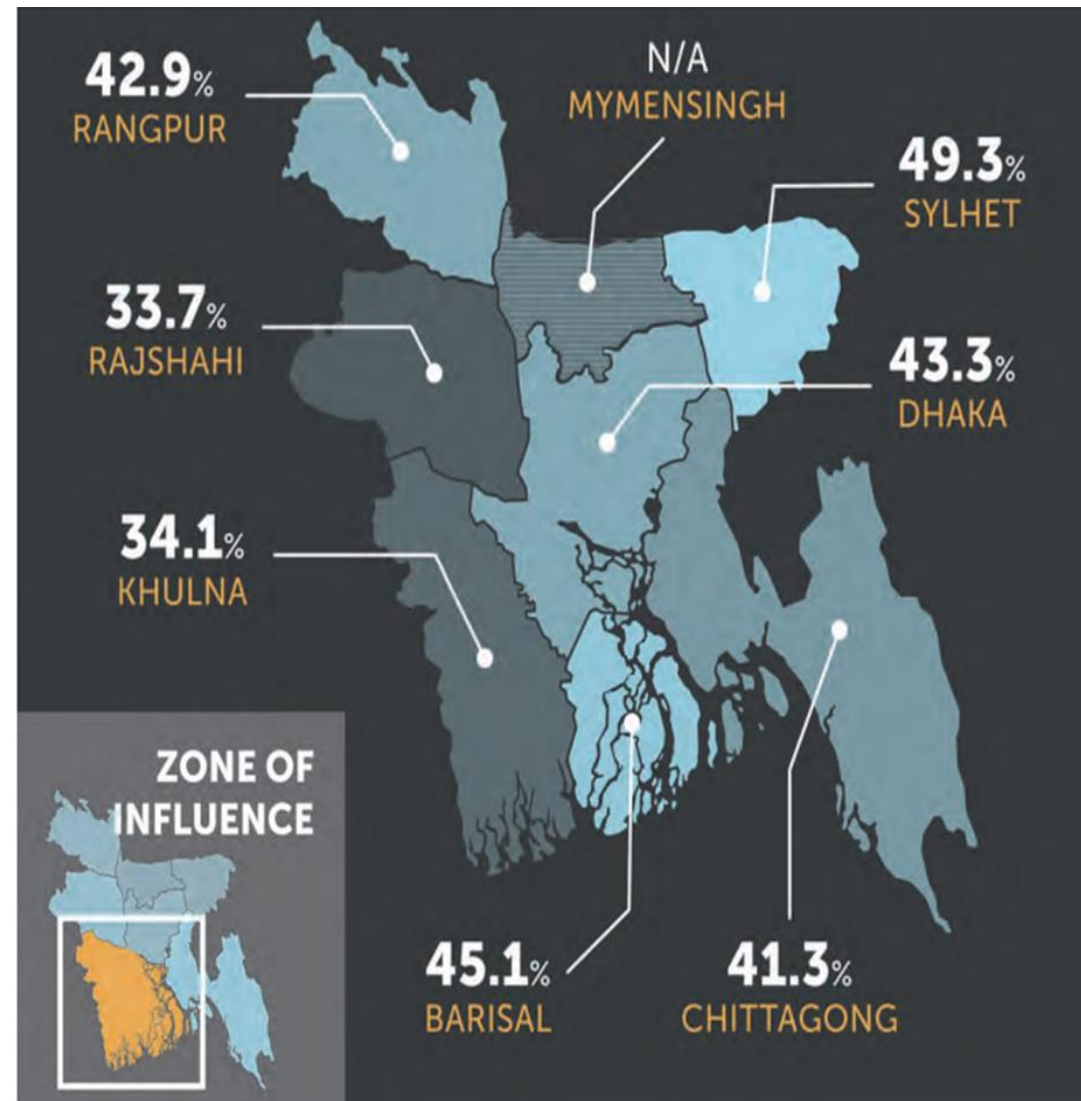
Photo: USAID. <https://results.usaid.gov/bangladesh/health/water-supply-and-sanitation#fy2015>

Shocks: Nutrition

- Child malnutrition and undernutrition among world's highest (Mahmud and Mbuya 2016)
- In 2014:
 - >36% of children U5 were stunted
 - 14% of children U5 were wasted
 - Includes wealthier HHs, more than just nutrition
 - Food intake, HH food security, poor maternal and childcare practices, disease, and limited access to safe water and sanitation

(Nat'l Inst. of Pop. Research & Training et al. 2016)

FtF ZOI and regional stunting levels. 2011

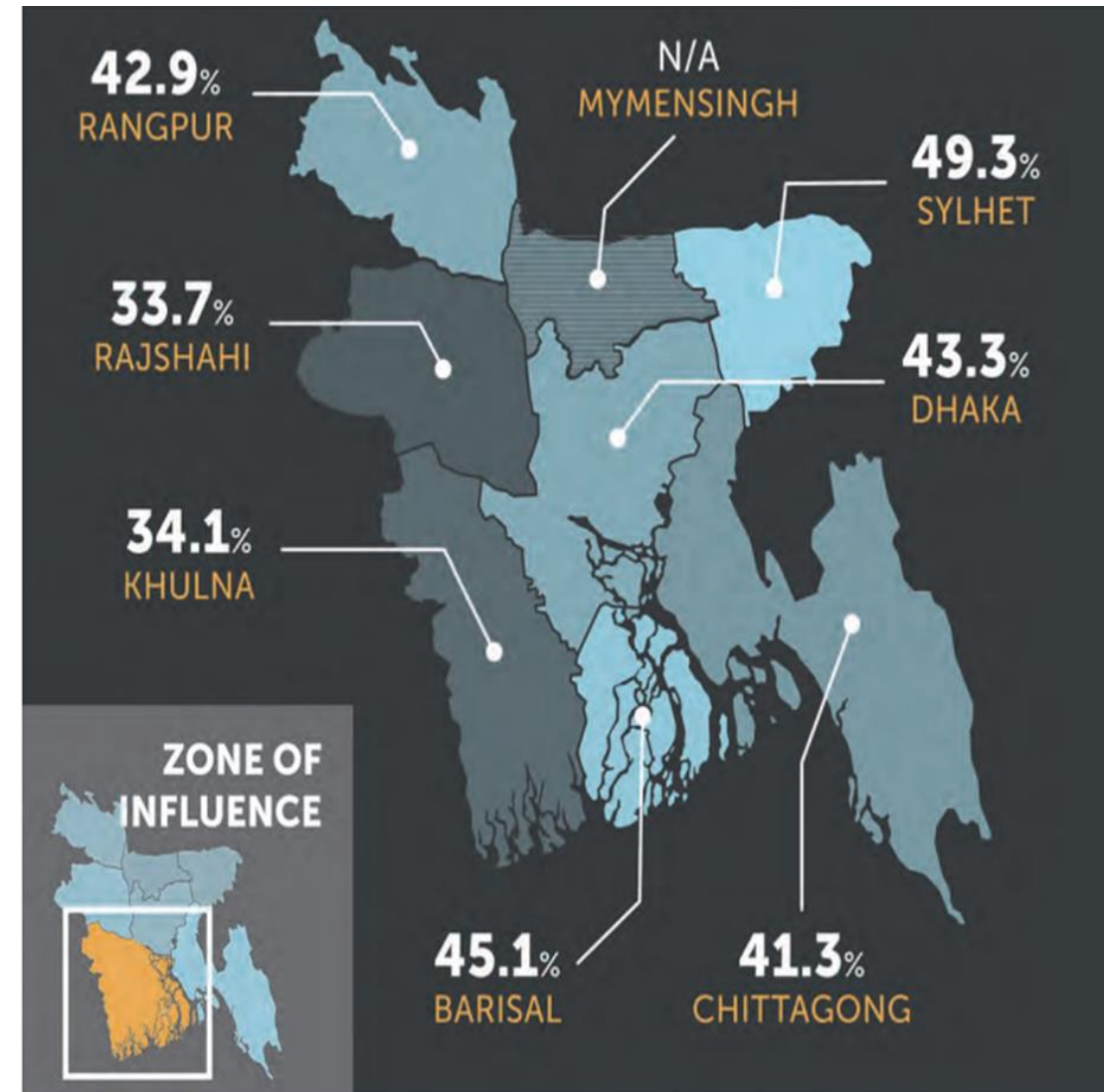


Map: Hamel, R. 2016. TRACKING PROMISES: Analyzing the Impact of Feed the Future Investments in Bangladesh. CSIS Report.

Shocks: Nutrition

- Evidence indicates that food and nutrition security outcomes have been improving over time in the FTF ZOI and vulnerable areas of interest (Ahmed et al. 2016)
- 3 USAID Title II projects: Nobo Jibon, PROSHAR and SHOUHARDO II

FTF ZOI and regional stunting levels. 2011



Map: Hamel, R. 2016. TRACKING PROMISES: Analyzing the Impact of Feed the Future Investments in Bangladesh. CSIS Report.

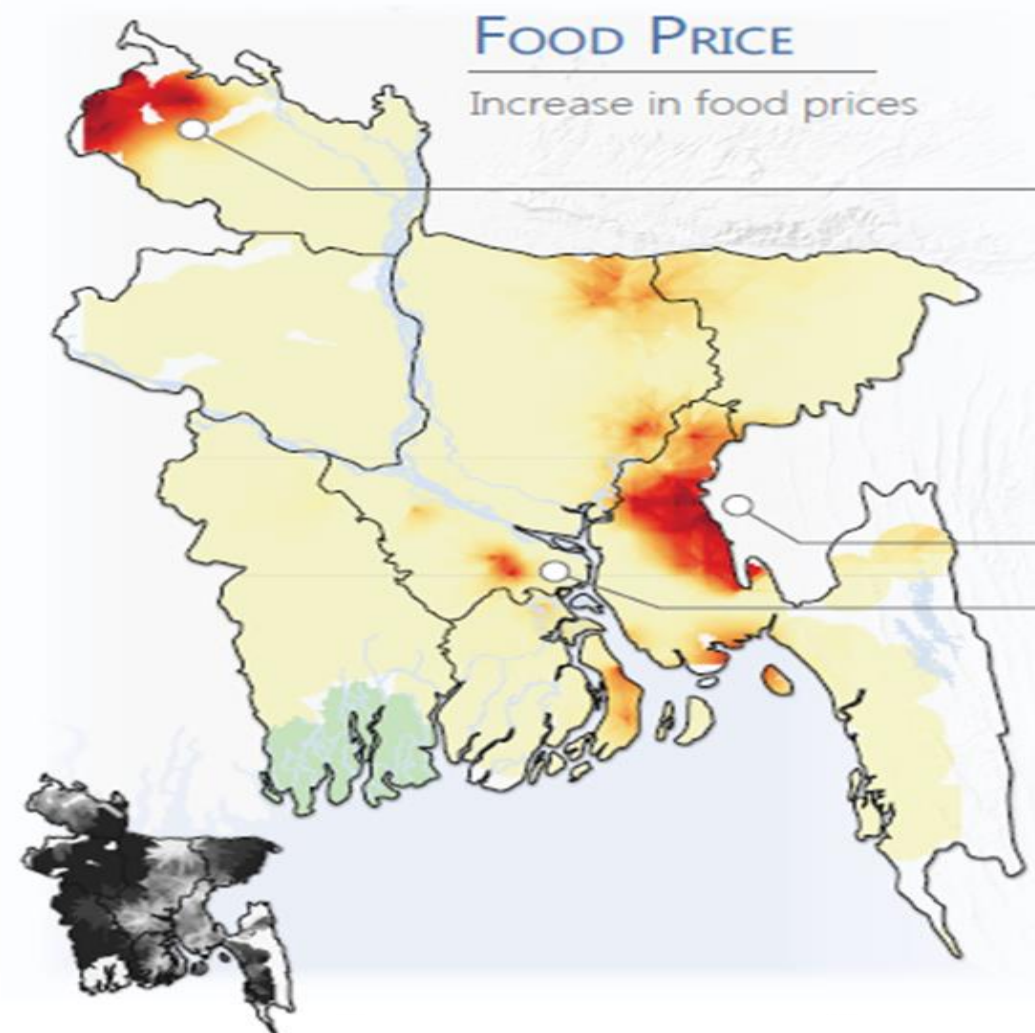
Shocks: Economic and Political

Economic shocks

- Food price shocks are concentrated in Chittagong, Rangpur, and Dhaka

Political shocks

- Violence and political uncertainty contribute to volatile context that has affected economic and civil stability
- Security risks after recent terrorist attacks could jeopardize international aid and investment



GeoCenter map. 2015.

Long-term Stressors: Climate Change

- Bangladesh is rated one of the most vulnerable countries to the effects of climate-change
 - Projected increase in rainfall (5-6%) and temperature (.5-2°C), melting glaciers, more intense/variable monsoons and severe weather (e.g., cyclones)
- Vulnerability: agriculture
 - Over 70% of land is used for agriculture
 - Rice is 80% of cropland and accounts for 66% of employed labor force
 - Predicted increased temps and storms could decrease rice production 8-17%

Long-term Stressors: Population Growth

- Population of 161 million in 2015 (World Bank 2016)
- 3rd most densely-populated country in the world
 - 1,237 people/km although density varies spatially
- Population growth rate: 1.2% → 202 million people by 2025 (United Nations Population Division 2015)



Long-term Stressors: Urban Migration

- Shock-induced asset loss pushes poor rural people to migrate to find food, shelter, work
- Urban population growth rate is high, 3.4%
- 70 million new urban residents expected by 2050
- Urban areas lack infrastructure, creates different types of risks



Long-term Stressors: Pollution

- Rapid urbanization + inadequate planning/infrastructure + industrialization + poor waste management → clogged drain channels → flooding/waterlogging; lack of clean water
- Air pollution is related to respiratory disease
 - outdoors (from vehicles) and indoors (cooking fires)
 - 120,000 child deaths/year



Discussion

In your program area, what are the most significant:

- Vulnerable groups
- Shocks and stressors



Well-being Outcomes

- Which outcomes can be positively influenced through resilience interventions?
- Which outcomes or conditions can be expected to influence resilience?
 - Food security
 - Poverty outcomes
 - Nutrition and health
 - Social, ecological, and economic systems

Well-being Outcomes: Food security

- Food security (FS) status is commonly understood as an important resilience outcome, and also contributes to resilience
- Programs have assessed relationships between resilience to shocks and FS indicators. *Examples:*
 1. WFP's Enhancing Resilience to Natural Disasters and the Effects of Climate Change (ER) in NW Bangladesh and southern coastal belt
 - Supported construction of rural infrastructure; provided emergency preparedness; life skills training
 - Finding: treatment HHs were less likely to engage in detrimental responses (reducing family expenses, taking loans, changing the type of food consumed, reducing food consumption)
 2. Nobo Jibon in Barisal Division
 - Aimed at strengthening the enabling environment for income generation, women's empowerment

Well-being Outcomes: Poverty

- In Satkhira district (Khulna Division), poorer HHs were less prepared to respond to shock than less-poor HHs (Akter and Malick 2013)
- Poor HHs have fewer assets and have fewer response options
 - more likely to live in structurally unsound homes and live in shock-prone areas



Well-being Outcomes: Nutrition/Health

- Resilience is considered linked to nutrition & health outcomes
- PROSHAR has focused on antenatal care, maternal and infant feeding practices, and child health care related to immunization and treatment of diarrhea and ARI



Photo: Shafiqul Alam Kiron/Save the Children

Well-being Outcomes: Systems

Social, ecological, and economic systems

- Systems-level outcomes affect individual, HH, and community-level outcomes. *For example:*
 - Infrastructure for flood control, electricity, and roads affect HH food security
 - Adequate emergency shelter: people who went to cyclone shelters during Cyclone Aila but were not allowed entry due to a lack of space were more likely to incur death or injury (Akter and Mallick 2013)



Well-being Outcomes: Systems

Social, ecological, and economic systems

- Economic systems
 - Microcredit may help recovery from shocks
shock-exposed HHs don't necessarily
take loans (Akter and Mallick 2013)
 - Remittances help spread risk and improve
living standards but may be used for
consumer goods not assets for livelihoods;
can exacerbate income inequality and
dependence (Sikder 2012)



Resilience Capacities

- Findings from studies regarding absorptive, adaptive, and transformative capacity:
 - New analysis of PROSHAR and SHOUHARDO II data
 - Literature

PROSHAR

- Implemented in the FTF ZOI
 - Khulna Division in Batighata, Lohagara and Sarankhola *upazilas*
 - Used endline data collected Jan-Feb 2015
 - N=2,218 households
 - Data limited to absorptive capacity



PROSHAR: Findings

- Exposure to disasters (shocks) in the previous 12 months had a negative impact on HH food security
- **Absorptive capacity** is correlated with more months of adequate food provisioning and positive HH hunger scale outcomes.
- HHs with higher **absorptive capacity** are more likely to have adequate food and less likely to go hungry.



Absorptive capacity: Needs

- Absorptive capacity: the ability to minimize exposure to shocks and recover quickly
- Greater inclusion of poorer HHs in disaster preparedness activities needed (Akter and Mallick 2013)
 - The proportion of HHs that had received disaster preparedness training in Barisal has increased but remains low (12%)

Factors needing to be strengthened

- Structurally sound homes and emergency structures
- Access to emergency supplies and relief aid
- Post-cyclone loans
- Access to sanitation, clean water, and electricity after cyclones
 - HH access greatly reduced after Cyclone Aila

Absorptive capacity: Investments

Disaster preparedness and mitigation

- Embankments, household and livestock safeguards, storage, irrigation, and drainage canals (WFP 2013)
- Early Warning Systems should be reviewed and updated regularly
 - Should incorporate modern & traditional mechanisms
- Emergency shelters must have sufficient geographic coverage, capacity, and facilities for all (young, old, disabled)

Adaptive capacity: Needs

- Adaptive capacity: the ability to make informed choices about alternative livelihood strategies based on changing conditions.
- People who have access to information (e.g., climate trends, work availability) may be able to make better decisions about their future and therefore increase their resilience.



Adaptive capacity: Needs

Factors needing to be strengthened:

- People have limited access to ag training and weather/climate info
 - Although ag is critical to livelihoods and FS in Barisal, only 22% of HHs had received training by the end of Nobo Jibon (TANGO 2015)
- Improved communication after a disaster, esp. regarding jobs
 - Survey respondents felt that if good communication between the unions and Islampur Upazila headquarters existed after extreme flooding events, it would be easier to find temp work (Younus and Harvey 2013)
- Improved savings and access to commercial loans
 - Increased access to commercial loans allows investments that can help improve livelihood production (e.g., mechanized irrigation) (Ahmed et al. 2016)

Adaptive capacity: Investments

Agriculture and agro-aquaculture

- Support smallholder farmers to:
 - Invest in and maintain physical assets
 - Adopt agricultural technologies shown to increase farmer income
 - mechanized irrigation has been shown to increase HH diet diversity (Ahmed et al. 2016)
- Equipment & technologies should be:
 - Affordable, ecologically sustainable
 - Crops should be adapted to local markets



Adaptive capacity: Investments

Livelihood Diversification: expand and intensify non-farm income

- Sustained poverty escapes are characterized by a range of income sources, e.g., wage labor and microenterprise (Scott and Diwakar 2015)
- Higher share of non-farm income helps prevent HHs from backsliding into poverty; increased non-farm income was also associated with increased farm income and HH-level diet diversity (Ahmed et al. 2016)



Adaptive capacity: Investments

Livelihood Diversification: expand and intensify non-farm income

- Remittances important; international migration entails risks
- Risks can be reduced by:
 - Informing people about the salary needed to make the trip economically viable
 - Strengthening connections between rural areas and growing export industries (e.g., garment sector) (Scott and Diwakar 2015)



Adaptive capacity: Investments

Microcredit

- Need finance mechanisms such as:
 - Contingent repayment system where loan obligations are suspended/cancelled to allow HHs to recover from shocks
 - Soft loans with flexible repayment periods, training, and linkages with markets
 - helps HHs make adaptive investments after basic food security needs are satisfied and aspirations change



Adaptive capacity: Investments

Health

- Health and nutrition outcomes are influenced by a variety of factors and should be approached from multiple angles:
 - Improving access of the population to safe drinking water, sanitation, electricity, female education, child nutrition, and strengthening risk management capacity
 - Developing the supply and demand for health insurance, including insurance subsidies, are possible areas for advocacy and intervention.



Photo: Shafiqul Alam Kiron/Save the Children

Transformative capacity: Needs

Factors needing to be strengthened:

- Access to climate information
 - World Bank recently funded development of regional system
- Access to health services
 - Low per capita spending in health (US\$16), low # of doctors; doctor preference for non-flood-prone regions; women health care professionals often stop after marriage (BIGD 2014; Toufique & Islam 2014)
- Local gov't capacity to manage and protect natural resources
 - Khulna Division case study indicates that local gov't institutions and NGOs lack capacity to create or implement natural resource management plans, such as for wetlands

Transformative capacity: Needs

Factors needing to be strengthened:

- Women's empowerment
 - Bangladesh scored the lowest regionally and globally on the Women's Empowerment in Agriculture Index (WEAI)
 - FTF ZOI programs have improved WEIA scores
 - In 2015, 50% of women were empowered (Ahmed et al. 2016)
- Access to market and services
 - Market access → access to inputs and financial services, helping to improve adaptive and absorptive capacities through diversification of assets and income-generation activities (Frankenberger et al. 2013; Frankenberger et al. 2012)

Transformative capacity: Needs

Factors needing to be strengthened:

- Governance and accountability
 - Representative, responsive, transparent and accountable governance provides HHs with access to resources, skills, technology that enable them to anticipate, prepare for, respond to, and recover from shocks
 - SHOUHARDO II findings offer strong evidence of village governance as a key factor supporting resilience
 - Bridging and linking social capital are critical BUT
 - Khulna Division case study found local leaders delivered favors to friends and family who paid bribes, leading to inequitable distribution of relief & services

Transformative capacity: Investments

Women's empowerment

- Women's empowerment linked to improved resilience outcomes
- Higher WEAI scores in the FTF ZOI are associated with higher farm income and higher HH-level diet quality (Ahmed et al. 2016)
- Women's empowerment was a significant factor in helping SHOUHARDO II households recover from the 2014 floods (Smith and Frankenberger 2016)



Photo: USAID. Women voters line up to vote in 2008 national elections.

Transformative capacity: Investments

Infrastructure

- Roads, markets, drinking water, health services can enhance HH capacity to cope with natural disaster shocks (Toufique and Islam 2014)
- Public spending on sanitation, drinking water, and health rank among lowest in the world
- Access to electricity and telecommunications have been linked to poverty outcomes in FTF ZOI (Ahmed et al. 2016)



Transformative capacity: Investments

Safety nets

- Formal safety nets needed for vulnerable groups unable to participate in interventions
 - Labor-constrained HHs, elderly, disabled, children, orphans
- Landless and extremely poor may be better served by “economic pushes”
 - Graduation models that combine asset transfers with stipends, training, participant monitoring and mentoring, and savings program
 - BRAC’s Challenging the Frontiers of Poverty Reduction - Targeting the Ultra-Poor (CFPR-TUP)
 - DFID-funded extreme poverty programs: Chars Livelihoods Programme (CLP) and Shiree
- Informal safety nets helped HHs recover from floods in SHOUHARDO II

Transformative capacity: Investments

Market linkages

- Increasing ag- and aquaculture productivity is critical
- Improving knowledge and skills related to marketing and pre-marketing activities are also key
- This includes improving the availability of and access to quality ag inputs, value-addition, quality improvement & control, packaging & storage



Transformative capacity: Investments

National capacity in climate change and disaster resilience

- Support development of regional climate models
 - can inform climate adaptation strategies and agricultural and economic policies
 - accurate monsoon/weather predictions needed to inform climate-sensitive livelihoods
- Strengthen in-country capacity to analyze/generate data

Discussion

Based on your experience, what do you think are key investment areas?



Thank you!



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