

Climate Change and Forestry Linkages: Emerging Issues, Field Experiences and Response Strategies

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Summary of presentation

- Forest is one of the best carbon sink but due to deforestation, it emits almost 15% of total carbon in the world
- Bangladesh has now about 11% of land under tree cover but it was much more in the past.
- Bangladesh has lost almost 39% of tree covered areas since 1930. Trees in forests have reduced while increased outside forests indicating that there is mass awareness about tree planting. Chittagong Hill Tracts has lost more than 80% of trees during 2000-2014. The deforestation rate is unacceptable.
- Woodfuel collection and burning is one of the main reasons for deforestation and degradation. There are more than 8000 traditional brick kiln in the country
- Measure should be taken to promote improved cooking stoves

- Traditional brick kilns should be renovated
- To reduce pressure on forests, forest dependent climate vulnerable people must be supported with alternative livelihood.
- Previous experience revealed that with livelihood support income of forest dependent people can be increased by more than 50% within three years and it contributes to reducing forest dependence by 57%.
- Natural forests must be conserved for sustained supply of water in Chittagong Hill Tracts following their traditional approach. It will also create resilience against climate change.
- Emphasis should be given over conservation rather than plantation.

Role of Forest

Importance:

- Photosynthesis binds CO_2 and stores it in leaves, branches, trunks, roots and soils.
- CO_2 stored in forest ecosystems is calculated in **4,500** gigatons.
 - > World Remaining Oil Stocks.
 - > Amount of Carbon in the Atmosphere.



Deforestation:

- Release the Sequestered CO_2 .
- Produce 15% of CO_2 emission.
- Lost of 13 million hectares/year.



Forests and climate change

- Forests are carbon sink. It absorbs CO₂ from the atmosphere and preserve it into biomass, soils and tree products
- Deforestation contributes to carbon emission
- Reducing forest loss can have multiple benefits for ecosystems and people such as
 - cutting greenhouse gas emissions,
 - sequestering carbon,
 - providing other ecosystems services, and maintaining functions of forests to withstanding climate change.

Air Pollution

- According to Global Air, 2018 – in Bangladesh 81% population are exposed to air pollution from solid fuel burning
- Every year 37,000 people die due to respiratory diseases as per WHO
- Bangladesh has 8000 traditional brick kiln
- Govt. has distributed 20 lakh Improved Cooking Stoves while NGOs are also supporting households in reducing use of fuelwood through providing ICS

Impact of climate change in Bangladesh

- Flood/flash flood
- Cyclone and storm surges
- Salinity intrusion
- Extreme temperature and drought
- Impact on agriculture – salinity and drought
- Fisheries - salinity

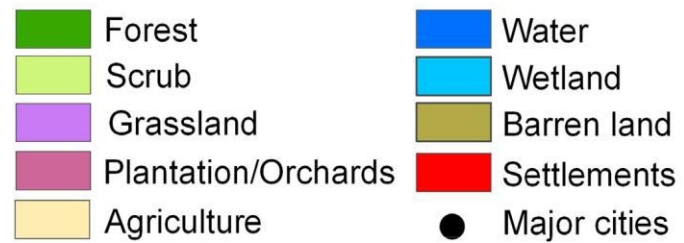
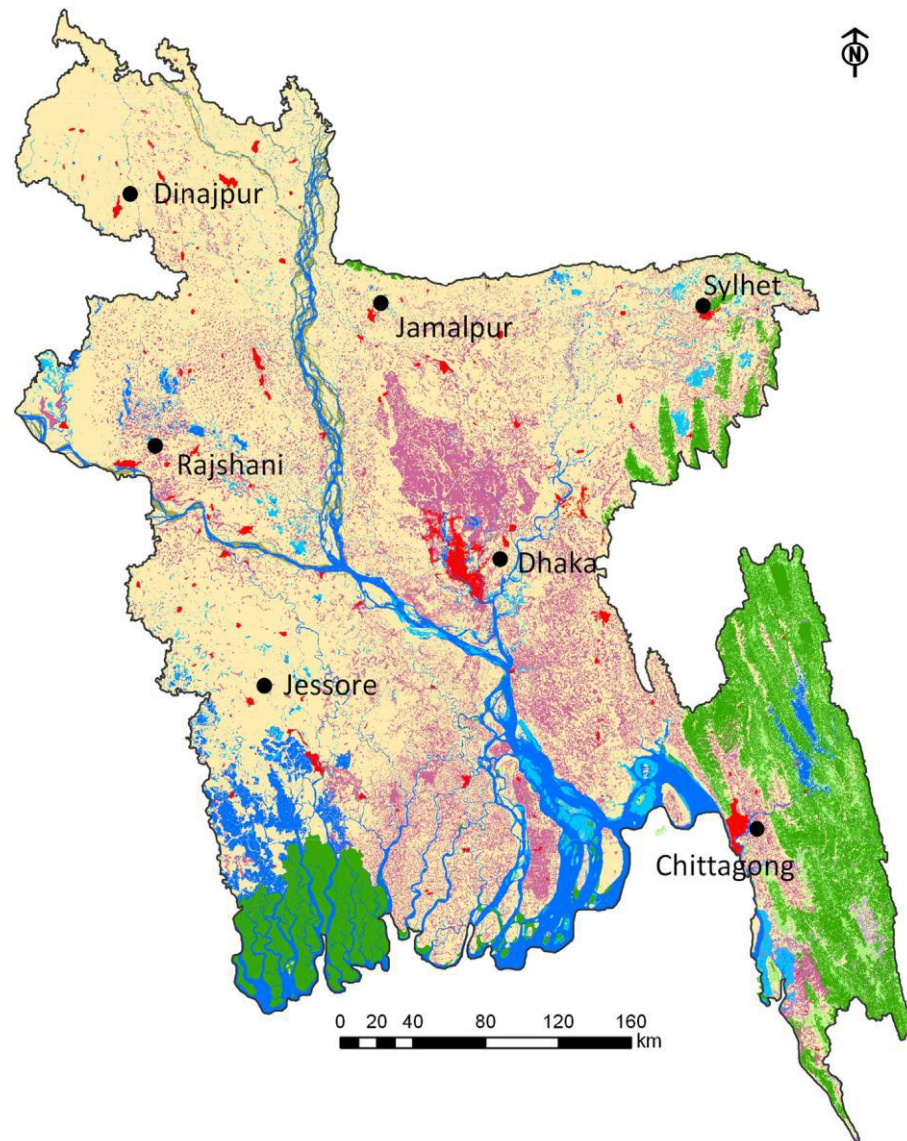
- They are affected (directly or indirectly) by Coastal Floods / Tidal Surges, River-bank Erosion, Salinity, Tropical Cyclones etc.
- With the rise of Sea-level up to one meter only, Bangladesh could lose up to 15% of its land area under the Sea water and around 30 million people living in the coastal areas of Bangladesh could become Refugees because of Climate Change impacts.

Impact on forests and biodiversity

- “Sundarbans” a World Heritage, is the largest Mangrove Forest in the world, comprising 577,000 ha of land area
- It's very rich in flora and fauna.
- Climate Change impacts will have negative effects on the Ecosystem of the Forest resources in Bangladesh while the Sundarbans is likely to suffer the most.
- Climate change may affect geographical distribution, species composition and productivity of forests

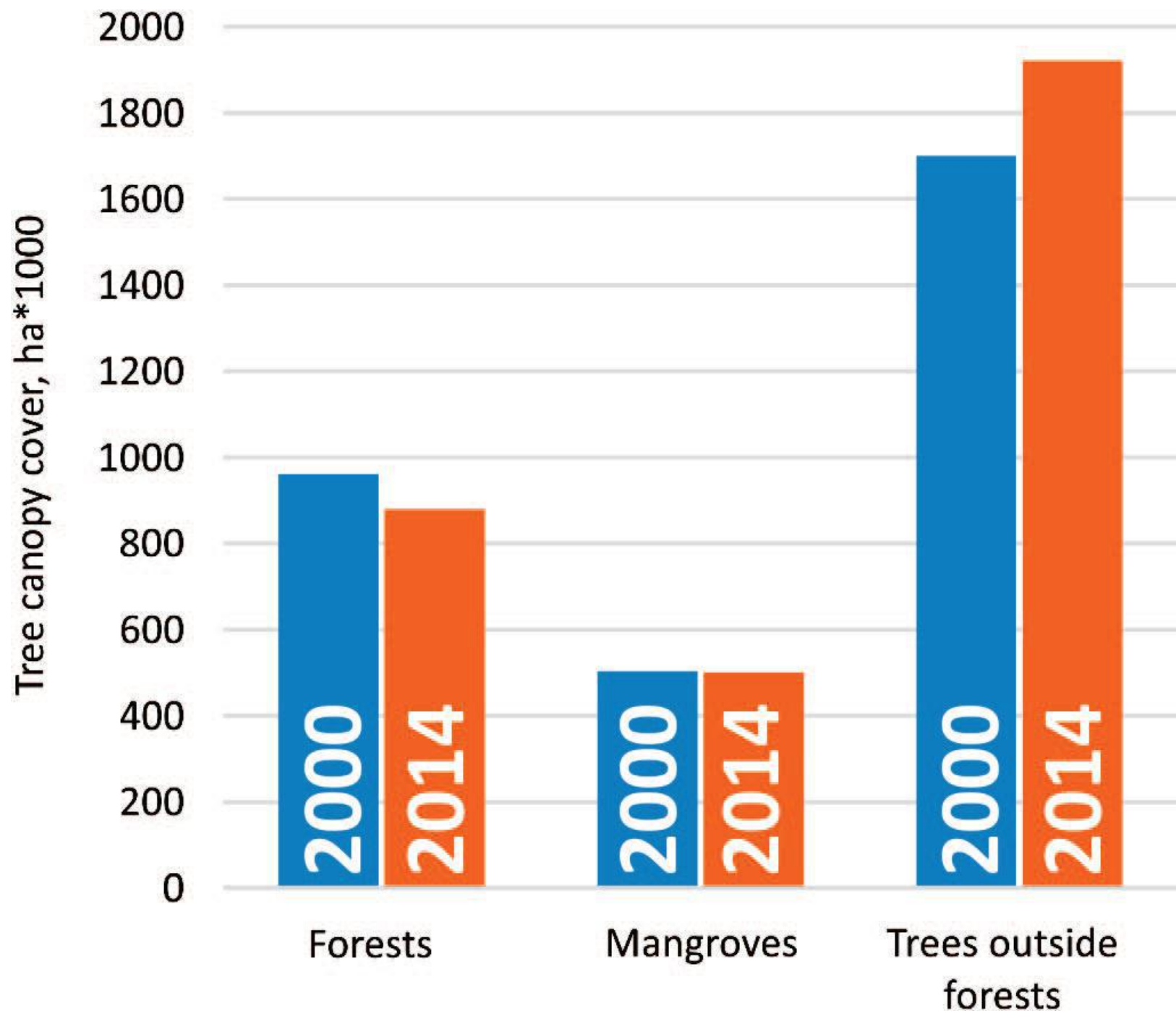
How can we reduce impact of climate change

- Adaptation measure
- Afforestation and reforestation
- Reduced use of wood fuel
- Reducing emission from deforestation and land degradation



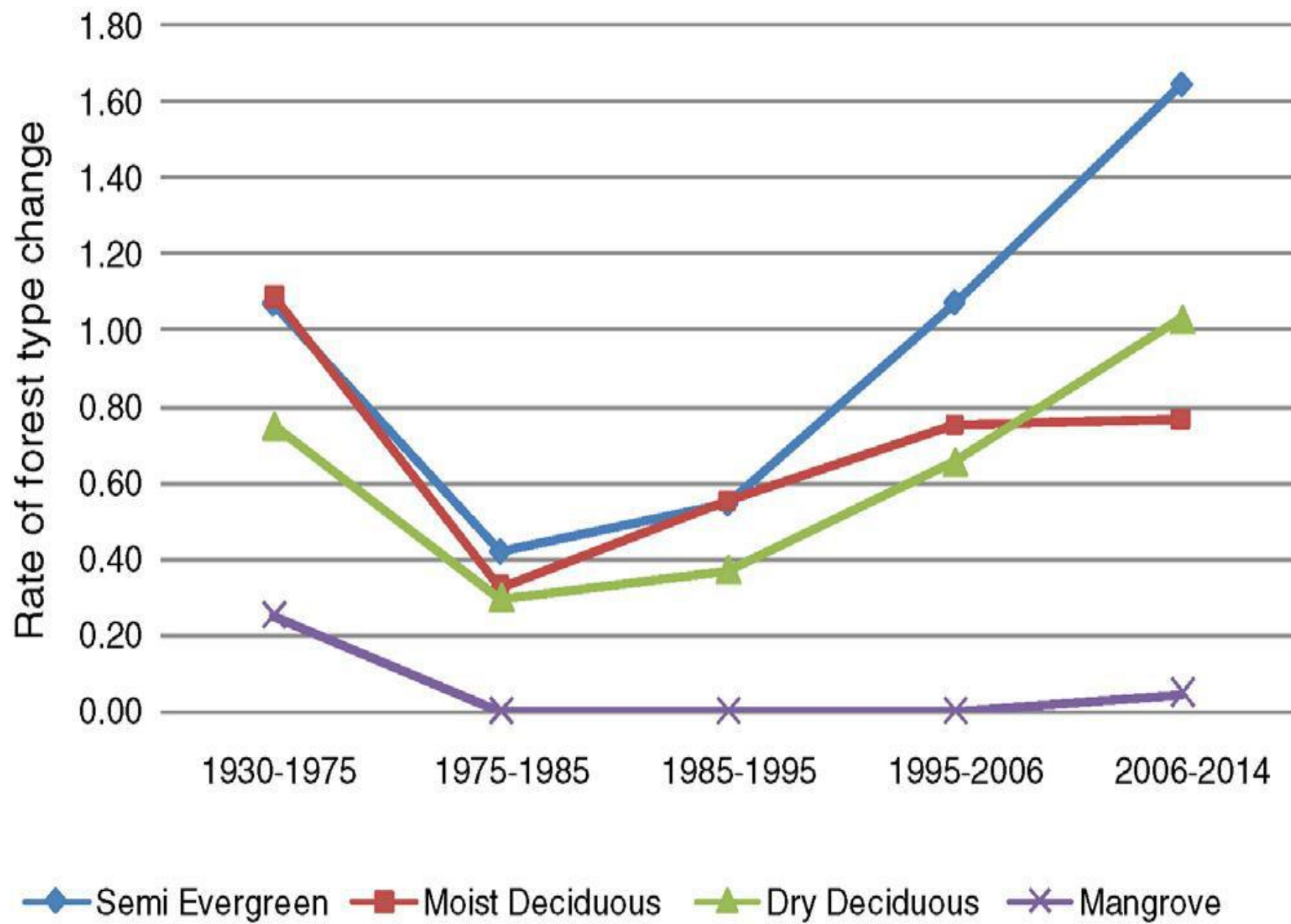
Tree cover change

- During 2000, tree covered area was 3.16 m ha
- 54% outside forests
- In 14 years, 2014 – total area increased by 135,700 ha
- Forest area reduced by 83,600 ha
- Tree outside forest is increased by 219,300 ha



Another study by Dr. Reddy

- Forest cover is undergoing significant negative change in area and quality.
- Forests in Bangladesh has decreased by 39% from 1930 to 2014
- Annual rate of gross deforestation is 0.77% during 2006–2014.
- Semi-evergreen forests decreased by 56.4%
- Moist [deciduous forests](#) by 51.5%,
- Dry deciduous forests by 43.1% and
- [Mangroves](#) by 6.5%.



- Annual gross rate of deforestation between 1930 and 1975 is 0.74%.
- 1995–2006 is 0.53%
- The highest net annual rate of deforestation was 0.75% during 2006–2014
- The lowest net rate was 0.26% during 1985–1995.
- Annual rate of gross deforestation in India was 0.07% during 1995–2005 and 0.05% during 2005–2013
- It indicates that effectiveness of conservation was much better in India





Livelihood support and forest conservation experience

AIGA	No. of Borrower	% HH
Cow and goat rearing	1964	27.0
Rice cultivation (in leased land)	1772	24.4
Small Business/ Trade	994	13.7
Vegetable cultivation/agroforestry	746	10.3
Fishing (purchase of boat/net)	583	8.0
Rickshaw/Rickshaw van/Auto rickshaw	276	3.8
Poultry	124	1.7
Fish culture in pond	117	1.6
Tailoring	73	1.0
Others (Nursery, Handicrafts, Crab)	625	8.6
Total	7274	100.0

STUDY OF IMPACTS OF LIVELIHOOD SUPPORT ON FOREST DEPENDENCE

Within 4 years, income of poor household could be increased by 51%

Average value (BDT) of forest resources collected per household

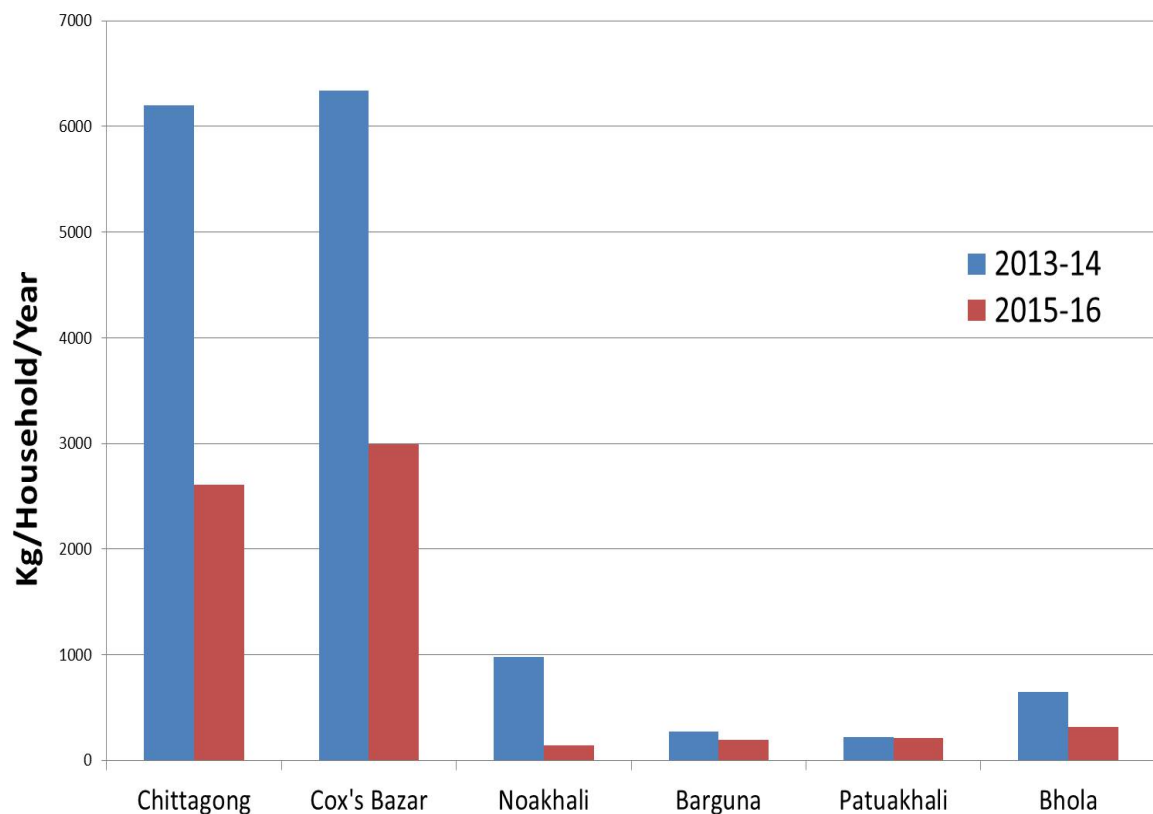
Name of District	2013-14	2015-16	% Reduction
Cox's Bazar	24563	11,300	54.00
Chittagong	33467	13,995	58.18
Noakhali	5416	1,725	68.15
Barguna	3602	1,266	64.85
Patuakhali	2642	1,192	54.88
Bhola	4250	1,768	58.39
Overall	20,268	8,696	57.10

Target: At least 30% reduction in illegal/unsustainable forest harvest

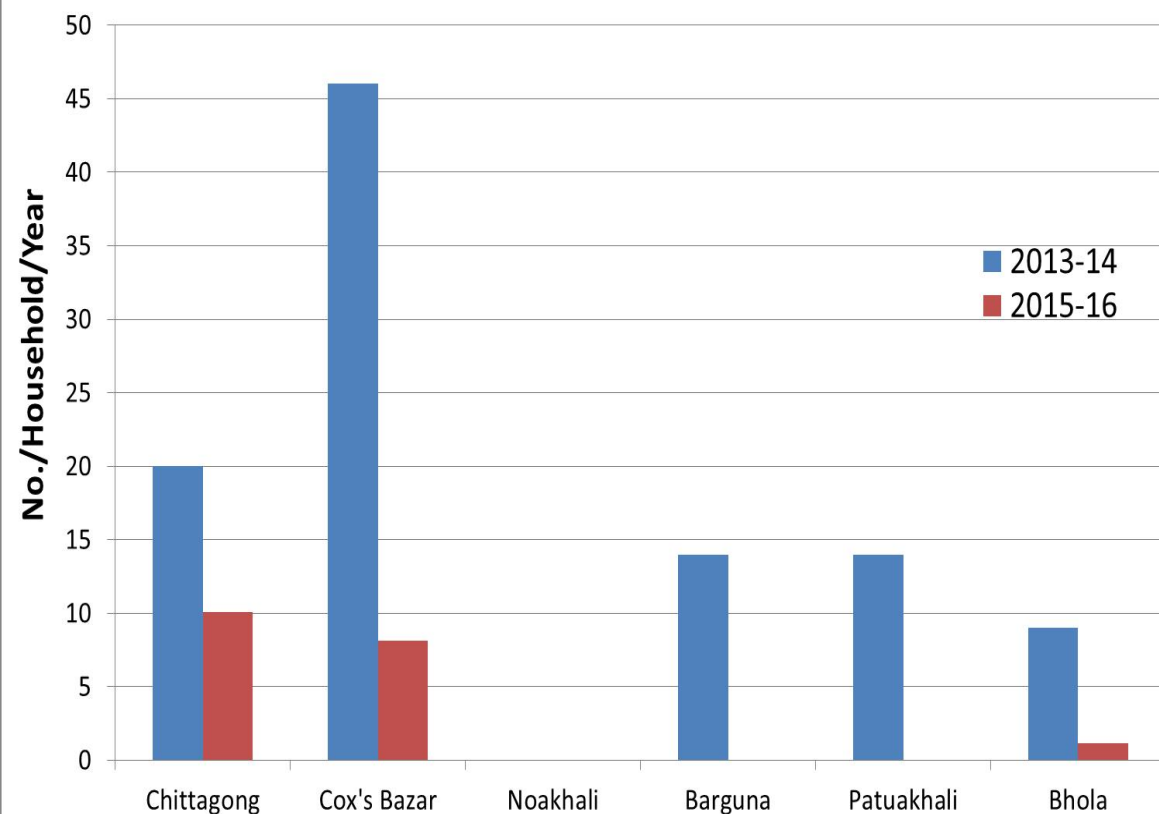
Forest Resource Collection by FDG Members

(In 19 Monitoring Sites)

Fuel wood



Pole/Small Timber















প্রাকৃতিক বন থেকে প্রাপ্ত চুইয়ে পরা পানি বাঁধ দিয়ে বনের ভিতরেই সংগ্রহ



সেই পানি পাইপলাইনের মাধ্যমে বন থেকে কমিউনিটির পাশে চৌবাচ্চায় স্থানান্তর করে, তিন ধাপে পরিশোধিত হয়



জীবাণুমুক্ত সুপেয় পানি জিএফএসের মাধ্যমে তুলা ছড়ির পাহাড়ি জনগোষ্ঠীর দ্বারপ্রান্তে পৌঁছে যাচ্ছে