EXECUTIVE SUMMARY

Increasing Commercialization of Agricultural Land and Contract Farming in Bangladesh: An Alternative Appraisal

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A. BACKGROUND AND OBJECTIVES OF THE STUDY

Scholarly research on **commercialization of agriculture** (CoA) in Bangladesh is pretty few. It is often argued that except some minor and discrete attempts, no such enlightened study on this much debated and sensitive issue has been conducted up till now. Reasons for the lacuna in this area are two-fold. Firstly, there are many wrongly conceived notions about agriculture along with all-arching negligence towards it at state level, and at the same time, a serious lacking on the part of the experts and policy makers to rationally conceptualize and deal with this comprehensive issue. Secondly, and more noticeable in this regard, both policy makers and politicians of the country, treated the phenomenon of agricultural commercialization simply as 'an unmixed blessing'. In line with this critical psycho-social-cultural and politico-economic construct, the study has explored manifestations of agricultural commercialization and its livelihood impact on rural households.

The specific objectives of the research are as follows:

1. To assess the extent of loss of agricultural land and water bodies per year due to expansion of commercial activities, commercial cultivation and unplanned non-agricultural use of land by Government as well as Non-Government and private companies, agencies like housing complex, tobacco cultivation and shrimp farming;
2. To appraise the short-term effect and likely long-term impacts of CoA in our economy and livelihoods of the agriculture-dependent population in general and of the rural poor including children, women, marginalized farmers, fisher folk and indigenous people in particular;
3. To measure the short, mid and long term impacts of commercialization and contract farming (CF) on the food production and the food security situation of the working people, middle class, low income groups and poor communities including women of both rural and urban setting;
4. To find out the impact of increasing commercialization on poor and marginalized communities' (including women) access to, ownership of and retention over land and other productive resources in the rural areas of Bangladesh;
5. To identify the negative impacts of both short and long term, if any, of indiscriminate commercial use of land on climate change consequences and disaster preventions etc.;
6. To suggest measures to be taken by the government and other actors and necessity for policy/legal changes in view of the short and long term impacts.

B. RESEARCH METHODOLOGY AND SCOPE OF THE STUDY

Both quantitative and qualitative methods were deployed in the study, such as household survey, focus group discussions, key informants' interview, case studies and literature review. Household survey has been conducted in 11 districts, namely Barisal, Cox's Bazaar, Habiganj, Kushtia, Manikganj, Natore, Narayanganj, Netrokona, Rajshahi, Rangamati, and Satkhira. A total of 990 households were surveyed in 66 villages.

A Composite Index constructed on CoA

A **composite commercialization index** was developed to measure High, Medium and Low commercialized districts. Extent of CoA varies across the districts under the household survey. It seems that a district may be in the top position on the basis of a single indicator, while it may be in the bottom when some other indicator is considered. For operational purposes, a composite index has been developed and the survey districts were categorized according to High, Medium and Low CoA panel. The index conforms to the primary hypothesis that agricultural commercialization has not taken place in the same pace along the districts. Hence, its benefits and concernment pose serious spatial implications for both the ground reality and the policy making. Following Table shows the indicators and cut-off points used to construct the composite index.

CoA Indicators and cut-off thresholds

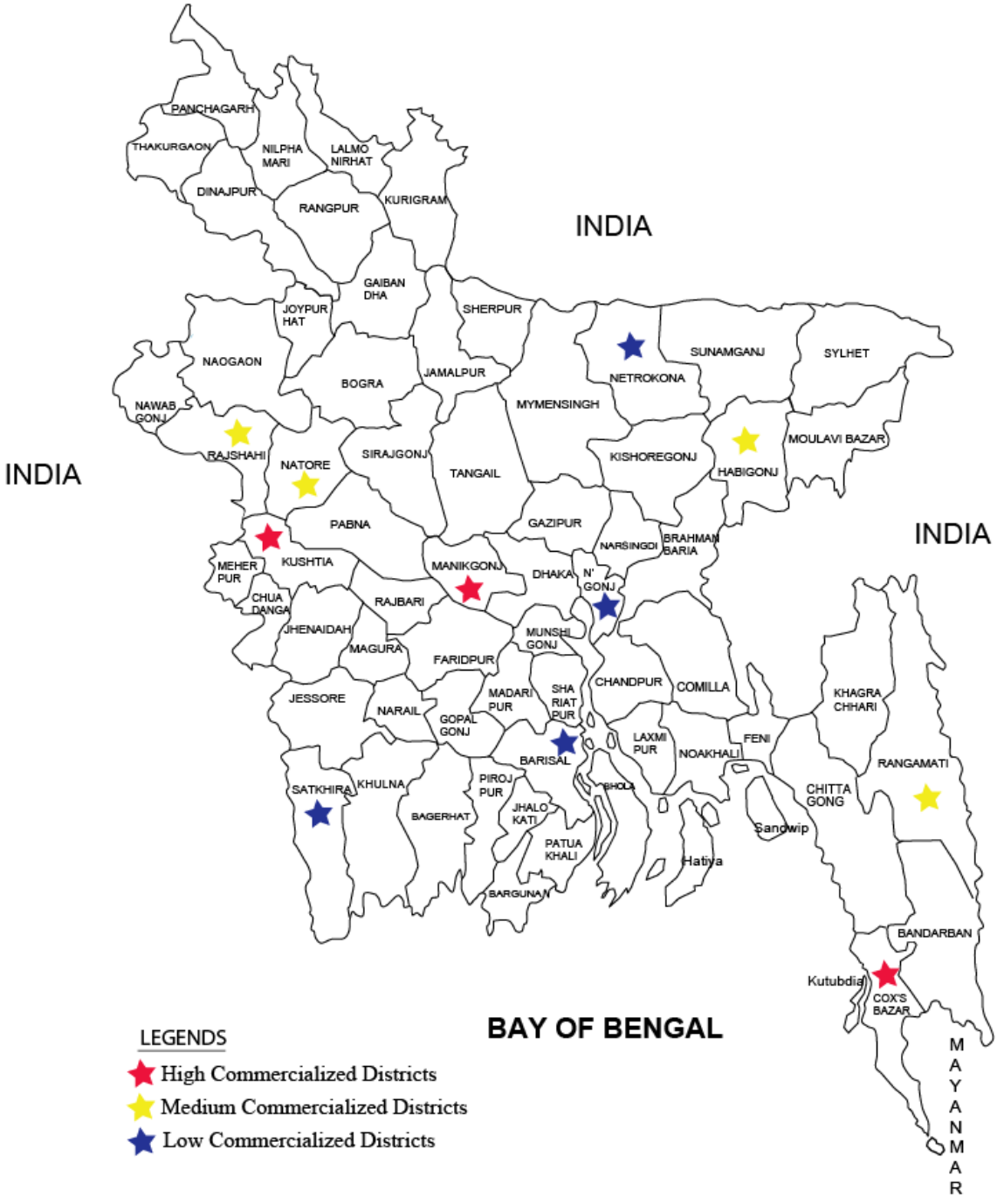
Indicators	Cut-off points		
	Low	Medium	High
1. Percentage of households used land for agricultural purposes (in decimal)	< 100	101-200	>200
2. Percentage of households used land for non-agricultural purposes (in decimal)	< 10	10-20	>20
3. Percentage of households increased crop land use	<30%	30% -50%	>50%
4. Percentage of households engaged in non-share cropping tenancy arrangement	< 20%	20% -35%	> 35%
5. Percentage of households engaged in cash contract lease-in	< 5%	5% -15%	>15%
6. Percentage of households engaged in farming more than two-crop land	< 10%	10% -20%	> 20%
7. Percentage of households engaged in commercial cultivation	< 50%	50% -75%	>75%
8. Percentage of households engaged in contract farming	< 5%	5% - 10%	>10%
9. Percentage of households engaged in Commercial Farm Activities (CFA)	< 50%	50% - 75%	>75%
10. Percentage of households engaged in Rural Non-Farm (RNF) activities	< 30%	30% - 50%	> 50%
Aggregate Cut-off points	<19%	19% - 30.5%	>30.5%

The following Table shows positions of the survey districts in the composite index by the extent of CoA

Position of the survey districts according to the composite index

CoA Panel	Districts	Composite index value (%)
High (≥80%): 3 districts	Cox's Bazar	83.33
	Kushtia	80.00
	Manikganj	80.00
Medium (60% - 79%): 4 districts	Rajshahi	76.67
	Natore	66.67
	Rangamati	66.67
	Habiganj	60.00
Low (≤59%): 4 districts	Satkhira	56.67
	Barisal	56.67
	Narayanganj	50.00
	Netrokona	46.67

Survey Districts for Primary Data Collection



The study attempted to explore all the study objectives by making both primary and secondary analyses. It mainly focused on the output side of agriculture with only primary attention to the most strategic input, i.e., agricultural land. In spite of the fact that the present study is limited to the rural periphery, it leaves aside other vital aspects like nature, extent, significant reasons behind agricultural commercialization and the inevitable consequences that touch the broader sphere of the rural economy. Exogenous variables (like remittance, credit, other out-source money and commodity supplies) and consequences (like unemployment and other socio-economic and environmental hazards caused and suffered by the migrants uprooted due to commercialization of agriculture) remain beyond the scope of this study. However, studies on commercial shrimp cultivation have concluded such cultivation as, "Economically unjust, socially impoverishing, and ecologically suicidal" (Barkat 2010).

C. KEY RESEARCH FINDINGS

C.1. Loss of Agricultural Land and Water Bodies

In quest of more market participation and profit, commercialization of agriculture and agricultural land intensified transfer of agricultural land and water body to non-agriculture uses. The study assessed loss of agricultural land and water bodies per year (year wise during the last 11 years)[1] due to expansion of commercial activities, commercial cultivation, contract farming, tobacco cultivation, and alike.

C.1.1 Agricultural Land Loss

Average amount of agricultural land lost/transformed or transferred for non-agricultural purposes per surveyed household increased from 10.0 decimal in 2003 to 10.4 decimal in 2013. Therefore, in the last 11 years, the total amount of agricultural land transferred to non-agricultural uses in the rural Bangladesh was (10.4 decimal X 2,55,35,877 hhs)[2] or 26,55,73,120 decimal or 80,33,586 bigha or 26,55,731 acre or 10,75,194 hectare[3].

> The average annual agricultural land transfer during 2003 to 2013, would be 2,41,43,010 decimal= 7,30,326 bigha= 2,41,430 acre = 97,744 hectare.

C.1.2 Water body Loss

Average amount of water body lost/transformed or transferred for non-agricultural purposes per surveyed household increased from 0.3 decimal in 2003 to 0.5 decimal in 2013. Therefore, in the last 11 years, the total amount of water body transferred to non-agricultural uses in the rural Bangladesh would be (0.5 decimal X 2,55,35,877 hh) decimal or 1,27,67,938 decimal or 3,86,230 bigha or 1,27,679 acre or 51,692 hectare.

> Average Annual amount of water body transfer during 2003 - 2013, comes to 11,60,721 decimal= 35,111 bigha= 11,607 acre = 4,699 hectare.

[1] A total of 11 years between 2003 and 2013 (inclusive of 2003)
[2] The total number of rural households (hh) was 2,55,35,877 in 2011 (Source: Bangladesh Population and Hosuing Census 2011)
[3] In showing the amount of land and water bodies lost, figures have been rounded.

C.1.3 Loss of Agricultural Land and Water body by Types

Agriculture land and water body in the rural area were mainly transferred to build homestead. Shop, specially groceries, tea-stalls, sales points etc., is another commercial establishment where agricultural land was considerably transferred. Other non-agricultural uses of the land under water bodies included education and health infrastructures etc.

Category wise/Purpose wise loss of agricultural land and water body for non-agricultural uses/non-agriculture purposes								
Purpose	**Agricultural Land Lost (2003-2013)**		**Water body lost (2003-2013)**		**Total Amount of Agricultural land and water body lost (2003-2013)**		**Total Annual Average**	
	11 years	Annual	11 years	Annual	Amount	%	Amount	%
Homestead	21,96,08,542 decimal = 66,43,158 bigha = 21,96,085 acre = 8,89,103 hectare	1,99,64,412 decimal = 6,03,923 bigha = 1,99,644 acre = 80827 hectare	51,07,175 decimal= 1,54,492.06 bigha = 51,071 acre = 20,676 hectare	4,64,288 decimal= 14,044 bigha = 4642 acre = 1879 hectare	22,47,15,717 decimal =67,97,650 bigha =22,47,157 acre = 9,09,780 hectare	80.0	2,04,28,700 decimal =67,97,650 bigha =2,04,287 acre = 82,707 hectare	80.0
Shop (grocery, tea stall etc.)	51,07,175 decimal= 1,54,492 bigha= 51,071 acre= 20,676 hectare	4,64,288 decimal= 14,026 bigha= 4642 acre= 1879 hectare	----	----	51,07,175 decimal= 1,54,492 bigha= 51,071 acre= 20,676 hectare	2.6	4,64,288 decimal = 14,026 bigha= 4642 acre= 1879 hectare	2.6
Others	4,08,57,403 decimal= 12,35,936 bigha= 4,08,574 acre= 1,65,414 hectare	37,14,309 decimal= 1,12,357 bigha= 37,143 acre= 15,037 hectare	76,60,763 decimal= 2,31,738 bigha= 76,607 acre= 31,015 hectare	6,96,433 decimal= 21,066 bigha= 6964 acre= 2819 hectare	4,85,18,166 decimal= 14,67,674 bigha= 4,85,181 acre= 1,96,429 hectare	17.4	44,10,742 decimal = 1,33,424 bigha= 44,107 acre= 17,857 hectare	17.4
				TOTAL	27,83,41,058 decimal= 14,67,674 bigha= 4,85,181 acre= 1,96,429 hectare	100	2,53,03,732 decimal = 7,65,437 bigha= 2,53,037 acre= 1,02,444 hectare	100

Note: In showing the amount of land and water bodies lost, figures have been rounded.

C.1.4 Loss of Agricultural Land due to Commercial Cultivation and Contract Farming

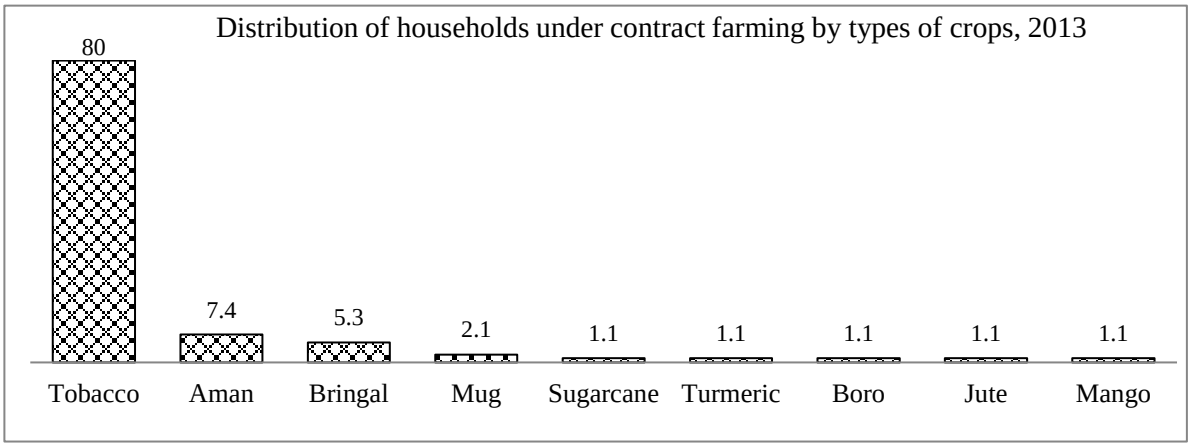
Contract farming is the highest form of commercial cultivation. All sorts of contract farming are treated as commercial cultivation but all sorts of commercial cultivations may not be contract farming. Commercial cultivations are usually meant to create surplus production for sale on motive of production maximization. Hence, crop lands used as more as possible, for multiple cropping in a year, are considered commercial cultivation. Following Table shows that agricultural land loss due to commercial cultivation in two-crop land is two-fold larger than that in three-crop land.

Agricultural land loss due to commercial cultivation		
Type of Land	11 years (2003-2013) Loss	Annual Loss
Three-crop land	71,50,04,556 decimal= 2,16,28,887 bigha= 71,50,045 acre= 28,94,755 hectare	6,50,00,414 decimal = 19,66,262 bigha= 6,50,004 acre = 2,63,159 hectare
Four-crop land	6,12,86,104 decimal= 18,53,904 bigha= 6,12,861 acre=2,48,121 hectare	55,71,464 decimal= 1,68,536 bigha= 55,714 acre = 22,556 hectare

Note: In showing the amount of land and water bodies lost, figures have been rounded.

Agricultural land loss due to Tobacco Cultivation as Contract Farming

A 10.7 per cent households or 27,32,338 (0.107 X 2,55,35,877) rural households were engaged in contract farming during the last 11 years. A 80 per cent of those households or 21,85,871 households were engaged in tobacco cultivation in 2013. The other 20 per cent or 5,46,467 contract-farming households were engaged in non-tobacco cultivation.



Tobacco farming households increased average cultivated area from 125.2 decimal in 2003 to 151.4 decimal in 2013. This implies that an estimated total of (151.4 decimal X 21,85,871 tobacco cultivating hhs) 33,09,40,869 decimal or 33,09,408 acre or 13,39,841 hectares of land has been used for tobacco cultivation during the last 11 years. These are the land lost on account of tobacco cultivation, because in earlier time these lands were being used to cultivate food crops for household consumption and/or for the market. And this has a implication for both food security and ecological balance (degradation in soil fertility, deforestation, etc).

Annual loss of agricultural land due to tobacco cultivation in 2013, was 33,09,40,869 decimal= 1,00,10,961.3 bigha = 33,09,408.69 acre = 13,39,841 hectare.

C.1.5 Loss of Agricultural Land due to Shrimp Farming

A vast majority of the villagers of Satkhira (more than 80%), reported their involvement in shrimp farming. The same was reported, in the lesser extent (10%) by the villagers of Cox's Bazar. In Sathkhira, almost all the Shrimp farming households reported that previously those lands were being used for crop production. Out of the land used for shrimp cultivation were under prawn farming, 25% under lobster farming and 5% under mixed use. The Box below depicts how shrimp farming grasps agricultural land.

FGD findings on Land loss due to Shrimp Farming
Satkhira (Saymnagar): Crop land was transferred to prawn farming during the period. The villagers claimed that after the cultivation of prawn, some paddy fields turned into nearly sterile, with no more paddy production. ***Cox's Bazar (Teknaf):*** The crop land which was used earlier for Aman paddy, recently used for shrimp farming, resulted in lower paddy production during the Aman period – around 15% of less production of Aman is estimated by the villagers. Earlier the poor could lease in land from the rich households who later on stopped leasing and started shrimp farming.

On an average, 225 decimal of agricultural land of the villages under survey were excavated for soil trading during 2003 to 2013. A total of 117,263 cubic feet soil was traded, only from household-owned land. Common farmers, in many instances, under compulsion, had to sell soils. Brick field owner was among the buyers who bought soil for their brick fields.

Brickfield: A Regular Case of Commercial Conversion of Agricultural Land
Manikganj (Doulatpur): Area of the brickfield was around 66 acre, covering the village along with two other adjacent villages. In the beginning, the area was 1.2 acre. Entire land under the brickfield was agricultural land before start of the brickfield. A portion of the total land was the own land of the entrepreneurs. They leased-in the surrounding lands at a rent double or tripple the market rent. ***Narayanganj (Fatullah):*** The brick field of the village covers about 33 acres of agricultural land. Earlier most of the land was khas and the common people used those issuing DCR. But they were given bulk amount of money to buy the use right and convinced with the assurance that the brickfield would generate employment for them. ***Rajshahi (Godagari):*** A brickfield which was started on 1 acre of land two years ago now expanded to 2 acres. The land was bought from a small farmer at market price who earlier produced food crop on that land. ***Natore (Sadar):*** The brickfield was established on 2 acres of land and now expanded to 4 acres. The piece of land was sold to the brickfield owner as he offered much higher price than the existing market price.

C.2. Livelihood Impacts of CoA

In course of agricultural commercialization, the livelihood opportunities of the poor and marginalized rural households are constrained due to their inaccessibility to traditional resources as well unequal access to new opportunities. Thus inequality remains both at the origin and at the end of poor livelihood of the marginalized households.

- Nearly one-fifth (19.9%) households have lost their crop land. More than one-fifth households (21.7%) mentioned loss in farm production, high price of agricultural input, shrunk profit margin than earlier and non-possibility of production of more than one crop as reasons for declining households' land use under cropping.

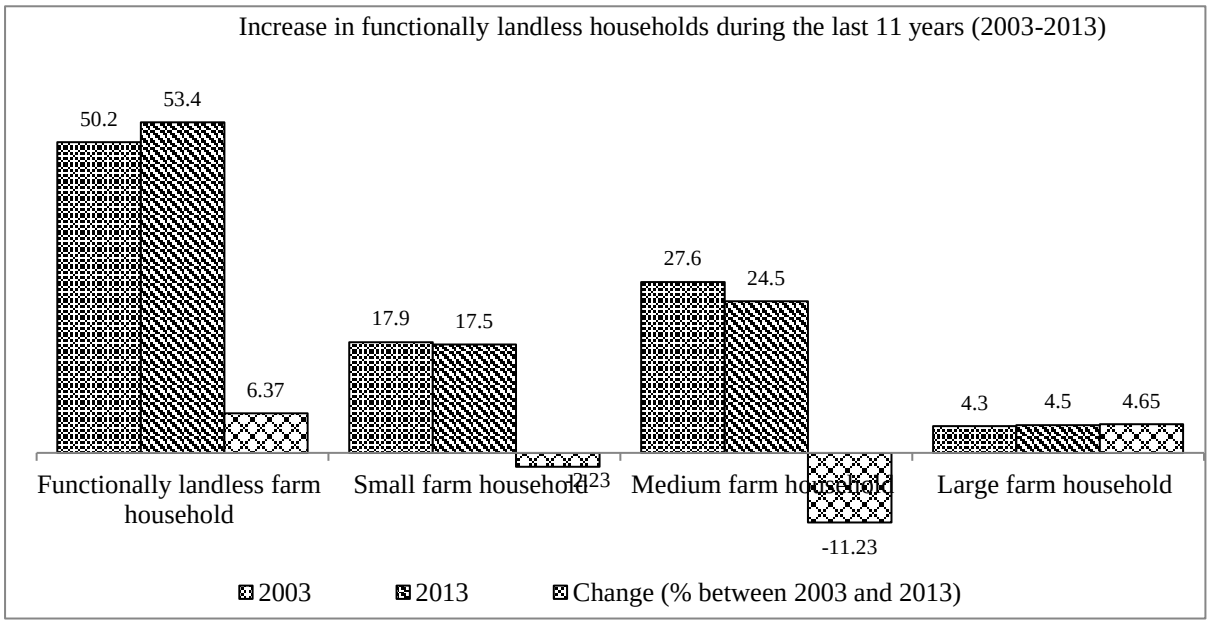
- The highest average amount of loss of cultivable land (3.75 acre) and water body (1.63 acre) per household was found in Narayanganj and Manikganj respectively; in both the districts, the growing prevalence of brickfield has led to indiscriminate use of cultivable land and water body. Households of Satkhira, Barisal and Habiganj experienced a decline in the use of average amount of agricultural land.

Access to natural water body, khas as well, has been limited for marginalized people over time, which has exerted catastrophic livelihood impact. Canals and rivers were predominately used by the small farmers and fishers even a decade ago. But recently, these have been occupied by large farmers, brick field people, fish trader and middle income people engaged in trade and commerce.

Contract Farming (CF), has been beneficial for a certain group of farmers with growing yield and secured price for all the produce in the short run. But, in the medium run, all the CF households have to face health hazards and waning soil fertility.

- 98.3 per cent of the households under CF claimed that they suffered financial loss (to a maximum extent of upto 500,000) during the last 10 years.
- An average household caught into debt due to natural calamity-suffered agricultural loss, under High, Medium and Low commercialization panel were 41 per cent, 29 per cent and 61.2 per cent respectively.

Ultimate impact of livelihood constriction leads to vulnerability of the marginalized rural households in the form of landlessness, indebtedness and poverty of various faces. Among many types of poverty – the income poverty, food poverty, consumption poverty, poverty of under and malnutrition, and inequality-augmented poverty are directly associated with land poverty of the rural households. Land is still an important means of production in the rural reality. Ownership of land increases household income directly through utilization of the land or renting out that; and indirectly by facilitating access to other productive resources. Land poverty, among the rural households, has increased during the last 10 years, when the rural agriculture was getting commercialized speedily than ever before. Functionally landless households – owning land up to 0.49 acre – have increased by 0.64 per cent per year, from 50.2 per cent in 2003 to 53.4 per cent in 2013.



Around 40 per cent of the households of the districts of High commercialized panel faced more vulnerable situation during the last 11 years, when they became increasingly engaged with CoA activities. This implies that in many ways CoA has contributed to the increased helplessness and vulnerability. Most of the households mentioned health poverty as reason behind the increasing vulnerability of the households. Approximately 15 per cent of the households reported that their members faced with frequent diseases due to engagement in activities under CoA. In the study areas, more than 5 per cent of the households argued that adulteration, an inevitable outcome of commercial food production, is directly responsible for their vulnerability. Rural public health system is yet to fulfill the demand of the households at a satisfactory level. Hence, they have to go for private spending in the face of frequent diseases, caused significantly by CoA activities, which push some of them into poverty trap. Thus, livelihood impacts of agricultural commercialization are manifested in the form of poverty, vulnerability, health hazards inequality for the marginalized groups of rural households.

C.3. Food Production and Food Security

CoA sometimes aggravates the situation of current loss in production, irrespective of subsectors of agriculture. It also bears potential negative implications for the future production as well. More alarming, an extensive application of (GR) technologies is causing continuous decline in soil fertility. If the CoA continues in the current manner, then, in near future, greater application of this technology will further aggravate the situation of declining soil fertility, among other negative impacts.

- About 48 per cent of the households suffered from loss of crops like tobacco, wheat, jute, mustard, sugarcane, vegetables and Boro paddy which are mainly cultivated for commercial purpose in the natural calamities of the last 11 years.
- In terms of average amount of household commercial crop loss, highest loss occurred in the households of Kushtia (114, 352.1 BDT) during the last 11 years.

Commercialization of agriculture creates some anxieties and uncertainties regarding food production and ways of livelihood, which result in food insecurity for the poor farm households.

- In Satkhira, 1.1 per cent households were found to be without food for a day even in 2013.
- Kushtia and Manikganj, highly commercialized districts, hosted 2.2 per cent and 3 per cent households respectively, who had access to only one meal in 2013. Rajshahi, Satkhira, Barisal and Netrokona were the districts, where even in 2013 few households could not afford more than one meal at least for a day.

Half of the households sternly suffered from inflation, especially from food price hike. In the face of soaring price, around 20% households claimed that they had to decrease their food consumption. Another 25% households had to compromise with balanced diet by removing protein and vitamin items from their meals with low quality food intake.

C.4. Access to Productive Resources

The inhibitions about access to natural agricultural resources, and market based access both are encountered by the rural marginalized households. The land sales market in the rural area allows a limited scope for those households due to their financial constraint in purchasing land and makes them mostly dependent on the rental market. The rental market is also getting uncomfortable for them day by day with the growing practices of contract and cash renting. Cash contract poses ominous threat for the credit-constrained farm households. The study finds that renting opportunities cannot favor the marginalized households to continue crop farming. Two-fifths of the households have decreased the amount of rent-in land due to lower profit margin, high price of farm input, especially labor and land. More than 5 per cent households, who rented in 2003, did not rent in 2013 due to high rent of crop land.

- In Narayanganj, in 2003, river was mainly used by the fishermen. However, after ten years (in 2013), they lost their position as prime user in competition with the brick field owner. In Natore, middle income people barred the farmer to get access into the river. In Satkhira, fishermen were also found behind middle income people in using nearby canal. Access of fishermen to khas water body was also constrained by the farmers in Kushtia, Barisal and Habiganj. In Netrokona, beel (usually well accessed by the poor and marginalized people) was in Top 3 natural resources accessed by the common villagers in 2003 which was out of Top-3 list in 2013.
- Land of more than three-fourth female household members were used by their husband, son or brother, whereas, in most of the cases, the women did not have any control over the decision to use the land or share the yield.
- In the quasi formal financial institutions (like NGOs, cooperatives), extent of participation of women and marginalized people has been comparatively squeezed (reduced share in accessing credit) over time.
- FGD findings revealed that indigenous households in Rajshahi became the prey of land grabbing by the local influential Bangalees to a large extent. Their access to khas land and natural water bodies are constrained to an alarming pace. The hill tract indigenous households of Rangamati also faced daunting barriers in accessing land and water bodies by the authority.

C.5. Climate Change Consequences

CoA has more or less, direct or indirect association with the traditional natural calamities while climate change as an output mostly contributed by the mechanized production of the industrialized world. Methane gas, one of the crucial instigators of depleting ozone layer, is

produced when chemical fertilizer is used in the crop production. As more chemical fertilizer is used in the crop production under CoA, more methane gas is produced, thus CoA contributes frighteningly to the climate change phenomenon.

Focus group discussion (FGD) with the farmers captured impact of climate change on their household agricultural production which portrays a dismal picture for the present and more for the future. Some of the findings are as below-

FGD findings on the impact of Climate Change (CC) on agricultural production		
District	CC perceived by the villagers	Impact
Netrokona	Frequency of floods and storm increased. Water comes early in Haor.	Half ripen paddy is to harvest, due to early water, which causes lower yield.
Manikganj	Extreme and untimely temperature, rainfall and cold.	Cannot start cultivation timely. Lower yield.
Narayanganj		
Cox's Bazar	Temperature much higher than earlier causing frequent drought and storm.	Crop failure. Lower yield.
Rangamati		
Rajshahi	Season change – not matching with month. Rain in winter while rainless monsoon.	Forecasting problem. Farmers fail to anticipate sometimes what and when to produce.
Natore		
Satkhira	Sidr, Aila, Salinity among others.	Lower yield of paddy.
Kushtia	Untimely seasonal changes (variations).	Crop season changed with lower yield.

D. KEY POLICY RECOMMENDATIONS

Commercialization of Agriculture or Agricultural land (CoA), with the dynamics of change in its nature and diverse impact, is now a reality in rural Bangladesh. This primarily tends to create a negative catastrophic impact on the life, livelihood and ultimately, on resource endowment, and food security of the rural households, thus, leading them to inequality and various forms of poverty. In order to minimize the adversities of the CoA, following recommendations are put forward:

1. Tobacco cultivation should be heavily discouraged using appropriate stringent fiscal policies (e.g. heavy taxation) and at the same time crop production should be encouraged in those lands (by providing adequate incentives). In this respect following steps should be immediately considered--
    a. High tax should be imposed on tobacco companies;
    b. Facilities provided by the tobacco companies (like advance credit and input support) should be prohibited;
    c. Scope of subsidized fertilizer and irrigation should be removed from tobacco cultivation;
    d. Government's proactive incentives mechanism for other crops (in lieu of tobacco) should be ensured;
    e. Agricultural extension workers, who are usually alleged to work to promote tobacco cultivation, need to be effectively monitored so that they encourage farmer not to cultivate tobacco;
    f. Tobacco cultivation in khas land, forest areas should be stopped through enacting appropriate policy and law.

g. In the name of export diversification, tobacco cultivation should not be encouraged.

2. Shrimp cultivation should be seriously controlled so that it does not eat up crop land. In doing so, appropriate incentive and disincentive mechanism should be instituted to ensure food security, reduce soil depletion and improve poor and marginalized people's living standard.
3. Unplanned land use including grabbing of land should be stopped. In accomplishing that an appropriate Land Use Law (not just Land Use Policy) should be worked out, enacted and enforced to save man-made catastrophe emanating from the greed of the rent-seekers and their grand alliance with relevant governance agencies and anti-people politics.
4. Degradation of land quality in the form of declining soil fertility and water contamination is more harmful than the alternative use of agricultural land and water bodies through inter and intra-conversions. In this regard following measures can be taken.
    a. Use of chemical fertilizer and other green revolution inputs is still recommended more than required doses. Farmers need to understand that too much use of fertilizers and pesticides could be counterproductive. To raise their awareness, campaign about the optimal use of inputs should be made by the concerned agencies.
    b. To minimize the extensive use of ground water, for avoiding arsenic contamination and other human and natural disasters, the rational use of surface water in the Boro period needs to be encouraged. For that purpose, the present river and water management system should be reformed with 'open river approach', instead of existing cordon approach, which will accommodate the monsoon over flow of water for the dry season.
    c. Farmers, in order to maintain soil fertility, need to be encouraged for conducting rotation of crops, maintaining leisure period of the crop land, going for regular soil test etc.
    d. Farmers need to be aware to save the water of the adjacent marshland from chemical contamination of green revolution inputs.
5. A decrease in income constraints and increase in expenditure of the marginalized community in the process of CoA should be addressed properly by the following public fiscal programs:
    a. Social Safety Net programmes in the rural area should be broadened both in terms of coverage and amount.
    b. Steps should be taken so that marginalized people remain out of tax net.
    c. To reduce income inequality due to non-farm activities, institutional arrangements need to be on board so that the poor and marginalized households get an access to education, health, credit, and extension services.
6. Food production uncertainty may be addressed through warranted second green revolution but food insecurity concerns will still remain in the development agenda for a longer period of time. In this respect, following issues can be considered at the policy level.
    a. Both monetized (purchasing from market) and non-monetized (availing from public food distribution program) access to food by the marginalized

community should be ensured through continuous income and employment support.

b. Food safety, the ultimate stage of food security, has been seriously jeopardized; it should strictly be addressed (with zero tolerance) by the government legislative and law enforcement agencies.

c. Concerned ministries should have come forward in devising a coordinated strategy for pro-poor agro-food system, providing required services and monitoring the improvements.

7. Following measures can be taken to maintain poor and marginalized communities' (including women) ownership of, access to, and retention over land and other productive resources in the rural areas.

    a. Process of land holding concentration among the handful rural households should be controlled by progressive wealth tax.

    b. Grabbing of all types of agricultural land should be stopped by disempowering them through delinking their connection with incumbent politics and government.

8. Tenancy arrangements, including growing tendency of cash contract and other unfavorable conditions, are widely open to reforms. In the absence of drastic land reforms, such tenure reforms must aim to ensure that the contractual arrangement increases productivity and favors the tenants.

9. In the process of CoA, the commercial farmers are yet to be supported by the adequate physical and market (institutional) infrastructure. In this respect, following actions can be taken into consideration;

    a. Annual Development Program should focus on heavy investment in building infrastructure for storage and marketing.

    b. In cooperation with various market forces attempts could be made to increase the export share of the commercial crops in the international market.

10. In the face of growing inequality among the rural households, efficient and target oriented public spending should be ensured to develop human capital of poor and marginalized households.

11. Both pro-poor income support and price support policies need to be considered to recover the marginalized people from inflationary pressures.

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