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**Policy constraints for implementation of the proposed programs for  
investment in agriculture, food security and nutrition  
in Bangladesh**

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## **1 Background of the Paper**

The Bangladesh Country Investment Plan (henceforth CIP) was prepared in mid-2010 with a view to mobilize resources to complement national budget, especially access external resources through the Global Agriculture and Food Security Program. The CIP “provides for a coherent set of priority investment programs to improve food security and nutrition in an integrated way” (FPMU, 2010, p.2) and the proposed programs have been derived from the National Food Policy 2006 and its Plan of Action (PoA) 2008-2015 (FPMU, 2008) and involved wide consultations with key ministries, private sector, NGOs and development partners. It is stated in the CIP that it “ builds on the very solid existing policies, strategies and plans in support of food security” (p.4) , it recognizes that a number of existing policies may be controversial but the CIP “does not in itself address these policy issues: it focuses on investment and builds on existing policies. However, a number of investments under the CIP will contribute to the policy debate, egg. by investing in information, analyses and exploring various implementation options, so that policy dialogue is not ideological but based on technical analysis and feasibility studies. The CIP would also lead to policy development and reforms” (p. 7). Further, the CIP was conceived as a “living document to be regularly revised as a result of (i) further consultations with stakeholders; (ii) changing circumstances; (iii) feedback from monitoring and evaluation activities” (FPMU, 2010, p.3).

In line with the above, the NFP 2006 and the PoA 2008-2015 and some of the other relevant policy documents that culminated or fed into the NFP and PoA were reviewed and a selected number of public, private and NGO sector actors were consulted/interviewed to assess the extent to which the existing policies and strategies were (i) up to date, consistent and synergistic with the three dimensions of food security (availability, access and nutrition or utilization) and (ii) facilitating or limiting the participation of the private and NGO sectors in the proposed CIP programs alongside the public sector for achievement of the CIP objectives with respect to availability dimension of food security. The outcome of the review is presented in section 2 and that of the consultations is summarized in section 3.

## 2 Review of Food Security Policies

### 2.1 A summary of past review of policies

In order to avoid the possibility of ‘reinventing the wheel’, a brief summary of past reviews of agriculture and food policies is presented first. FAO (2006) conducted a review and synthesis of agricultural policies in Bangladesh existing up to 2005 and NFPCSP (2007) conducted a review of food security related policies in Bangladesh with a particular focus on the build up from formulation to plan of action of the NFP 2006. The documents reviewed by the two studies are listed in Table 1

Table 1. Policy documents reviewed by FAO (2006) and NFPCSP (2007)

SI No	Policy documents reviewed	FAO (2006)	NFPCSP (2007)
1	National Agriculture Policy 1999	√	√
2	New Agricultural Extension Policy 1996	√	√
3	DAE Strategic Plan 1999-2002	√	√
4	DAE Agricultural Extension Manual 1999	√	
5	National Seed Policy 1993, and Seed Rules 1998	√	√
6	Plan of Action on National Agricultural Policy 2003	√	√
7	NAP Actionable Policy Brief 2004	√	
8	Action Plan for Implementation of Actionable Policy Brief 2006		√
9	National Jute Policy 2002	√	
10	National Livestock Policy 1992		√
11	National Livestock Policy and Action Plan 2005	√	
12	Livestock Sub-sector Roadmap for Implementing PRSP Policy Recommendations 2006-2015		√
13	National Fishery Policy 1998	√	
14	Fisheries Sub-sector Roadmap for Implementing PRSP Policy Recommendations 2006-2015		√
15	National Forestry Policy 1994	√	
16	National Land Use Policy 2005	√	√
17	National Water Policy 1998 (2000 in NFPCSP)	√	√
18	Environmental Policy 1992	√	√
19	National Integrated Pest Management Policy 2002		√
20	Comprehensive Food Security Policy for Bangladesh 2000		√
21	National Food Policy 2004	√	
21	National Food Policy 2006		√
23	National Rural Development Policy 2001	√	√
24	National Cooperative Policy 2001		√
25	PRSP- ch- Agriculture and Rural Development 2005	√	√
26	Integrated Agricultural Development Plan, 2003	√	
27	Fisheries Sector Review and Future Development, 2003	√	

28	Fisheries Sector Review and 10 Years (2002-2012) Production Projection, Bangladesh Agricultural Research Council, 2001	√	
29	Review of Livestock sub-sector and 10 Years (2001-2010) Production Projection	√	
30	Review of the Recommendations of National Seminars and Workshops on Fisheries (1994-1999), Bangladesh Fisheries Research Institute and Ministry of Fisheries and Livestock, 2001.	√	
31	National Food and Nutrition policy 1997 and Plan of Action 1997		√
32	National Strategy for Infant and Young Child Feeding 2006		√
33	Bangladesh Pure Food act 1964 and Pure Food Rules 1967		√
34	Essential Commodity Act 1964		√
35	Bangladesh Fish protection and conservation Act 1950, amended in 1965		√
36	Bangladesh Standards and Testing Institution Ordinance 2003		√
37	Bangladesh Biosafety Guidelines 2000		√
38	Bangladesh Quality Support Program 2006		√
39	National Health Policy 2000		√
40	National women Development Policy 1997 and 2004		√
41	National policy for Arsenic Mitigation 2004		√
42	Proceedings of the International Workshop on agro-processing techniques of fruits and vegetables for income generation, BARI/IDB, 2005		√
43	Industrial Policy 2005		√
44	Policy Strategies for the Development of SMEs 2005		√

Source: FAO (2006) and NFPCSP (2007)

The FAO (2006) review had a narrower scope as it covered only agriculture related policies hence mostly addressed the food availability dimension of food security. Although Food Policy 2004, a precursor to the NFP 2006, was reviewed, the focus remained food production and supply issues encompassing crop, livestock and fisheries. On the other hand, the NFPCSP (2007) reviewed the NFP 2006 and the PoA, so covered all policies addressing all three dimensions of food security.

The objective of the FAO (2006) review was to provide support to the Ministry of Agriculture in implementing the Actionable Policy Brief 2004 (MOA, 2004), the need for which arose when the Plan of Action 2003 (MOA, 2003) for implementation of the National Agricultural Policy 1999 (MOA, 1999) was found to be not implementable. The study reviewed 18 policy documents and 5 other papers broadly classified under three categories – crops, non-crops, cross cutting. The review took the form of making an inventory of brief summaries of the policy documents followed by a synthesis highlighting synergies, contradictions and deficiencies of the documents. The review concluded the following :

a) The large number of policy documents was generally compatible in terms of their general goals of reducing poverty rapidly, increasing productivity and profitability of farming, creating income and employment opportunities, especially for rural women. These goals were consistent with the MDGs and the strategies and policy priorities of agriculture and rural development policy matrix suggested in the PRSP.

b) Most of the problems in policy formulation and implementation arose because of the overlaps of the ministerial domains that were not clearly defined and demarcated.

c) The policy documents had some drawbacks or deficiencies e.g. they were prepared on the basis of notional ideas without any serious analysis due to lack of reliable data and analytical capacity within the ministries; some of the key policy documents like NAP, ABP and Food Policy gave inadequate attention to understanding the links between agriculture, food market development and producers' incentives, the role of the private sector and commercialization of agriculture, and unbalanced treatment of crop vs other aspects of agriculture.

The NFPCSP (2007) study reviewed 38 documents including nearly all the 18 reviewed by FAO (2006). All 38 documents were also reviewed for preparation of the NFP 2006 and the Plan of Action 2008-15. The objective of the NFPCSP review was primarily to provide input to the Plan of Action by making “an assessment of how the strategies outlined in the NFP address the four key dimensions of food security (availability, physical and social access, economic access and nutrition/utilization), whilst *unveiling* its linkages with other food-security relevant policy frameworks from the viewpoint of policy consistency” (p.3). The review produced a 90 page matrix of NFP strategic linkages with other food policy related policy frameworks, and also analyzed each dimension of food security and related NFP strategies and actions for internal consistency within the Plan of Action and external consistency with other policy frameworks such as PRSP policy matrices, rural development policy, disaster management policy, health and nutrition policy etc.

The review concluded that a wide set of issues were deemed to be of particular relevance for developing the NFP Plan of Action, especially in terms of ensuring its consistency with priorities enshrined in existing policy frameworks and sectoral action plans, as well as its adequacy in addressing emerging issues. Further it was found that linkages between the NFP and the PRSP were quite extensive, so alignment between the NFP PoA and the PRSP policy matrices and related monitoring frameworks was advisable. The review identified overlapping mandate and problems of coordination among various ministries and agencies as a major handicap for plan implementation. The

review also made recommendations for more discussions and consensus building on a number of issues for greater policy consistency between the NFP plan of Action and the PRSP and other policy documents. These issues are food security and external trade policies, policies on land management, policies on disaster management, agricultural mechanization, social safety nets, agricultural insurance, and capacity for food security monitoring and policy impact analysis. Moreover, 57 specific minor recommendations for more clarification or elaboration of existing issues or for introduction of new topics have been made.

The fact that both the reviews found large degree of consistency in terms of objectives, strategies and action plans between the various policy documents, especially between NFP 2006, the PoA and the PRSP and other policy and sectoral action plans, was not surprising. This was so because, the NFP 2006 and the PoA were culminations of the filtered cumulative aggregation of issues derived from a large number of policy documents prepared by various ministries and agencies related to the three dimensions of food security since the mid 1990s. However, there are in fact a number points where there is lack of clarity and inconsistency between the NFP and the PoA and some of the sectoral policy documents. There was room for better clarification and presentation of these issues to align them better with the proposed strategies and action plans in the CIP. These are brief discussed below.

## **2.2 Further review of policy documents**

### **2.2.1 Food policy objectives and context**

In the conceptual framework of the NFP, it is stated that “food security can be broadly defined as existing when all people at all times have availability of access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active, healthy and productive life” (FPMU, 2008, p114). It is further stated that the NFP “was developed in light of the recently adopted Poverty Reduction Strategy paper and also in a broader perspective according to the definition of food security as adopted in the World Food Summit” (FPMU, 2008, p.113).<sup>1</sup> The goal of the National Food Policy 2006 was stated as :

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1. The 1996 World Food Summit (FAO, 2008a) stated that “Food security, at the individual, household, national, regional and global levels (is achieved) when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their needs and food preferences for an active and healthy life”. This definition was refined in the State of Food Security in 2001 (FAO, 2008b) as : “Food security (is) a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe

“to ensure a dependable food security system for all people of the country at all times” and the objectives were stated as (FPMU, 2008, p.114) :

1. to ensure adequate and stable supply of safe and nutritious food;
2. to enhance purchasing power of the people for increased food accessibility; and
3. to ensure adequate nutrition for all (especially women and children)

Thus the objectives captured the three dimensions of food security – availability, access and nutrition- as implied in the World Food Summit definition. However, in the NFP and other policy documents quite a bit of contradiction and confusion exist about the way various measures of food security have been defined, the way the word ‘food’ and the term ‘food security’ have been used, and the way agriculture and production system have been defined for developing strategy and action plan. We will take these conceptual issues in turn because they have implications for the programs and actions proposed in the NFP PoA as well as in the CIP.

### **2.2.1.1 Measures and indicators of food security**

In theory, different measures of food security address different aspects of the definition of food security and they are necessary to develop the full picture and interventions to improve food security. Alternative measures of food security exist e.g. food availability, food access, dietary status, nutritional status, food utilization, health status, and each measure has strengths and weaknesses and the measures have interrelationships of various degrees. Empirical measurement of food security indicators for a given context usually depends on the types of data sources available and their pros and cons. But the types of indicators that can be measured usually guide policy instruments or interventions (strategy, programs, actions) to be chosen to address food security issues. This is so because without empirical basis, appropriate strategy and action can’t be designed. Some instrument may be directly focused

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and nutritious food that meets their dietary needs and food preferences for an active and healthy life”. In this revision, reference to levels at which food security is defined was removed and social access was added along with physical and economic access. However, NFP 2006 adopted the earlier definition, so that will remain the point of reference for discussion in this paper.

on food security and some focused primarily on other aspects of the economy but with distributional and other effects that impact food security.

In the NFP, the goal of food policy is to ensure food security for all but programs and actions related to each of the three food policy objectives appear to be focused on a subset of the population. The programs and actions to ensure availability are focused primarily on food producers with support through research, extension and market actors. The programs and actions to ensure access to food are targeted to food insecure segment of the population and those related to nutrition are focused on malnourished segment of the population, especially pregnant women and children. But for operational purposes, how these subpopulations are actually defined and targeted remains unclear. In the preamble and the conceptual framework of the NFP and in the narrative on the food security context for the PoA 2008-15, and in various policy documents that fed into the NFP formulation, a wide array of measures or indicators have been mentioned, in some cases with quantitative dimension, in other cases simply as a narrative. An inventory of the terms/concepts is presented below without the quantitative dimensions where mentioned for conceptual comparison:

- <\$1/day income based poverty, cost of basic needs based poverty, direct calorie intake based undernourishment focused poverty
- poverty incidence, upper poverty line, lower poverty line, extreme poverty
- poor, hardcore poor, ultra poor, absolute poor, extreme poor, chronically poor
- adequate diet, minimum basket of food items, safe and nutritious food
- hunger, undernourished, vulnerable
- serious undernutrition among ultra poor, acute food insecurity among low income people, 'open hunger' due to inadequate food intake, 'hidden hunger' due to micronutrient deficient diet among a large percentage of the population
- child malnutrition, macro- and micro-nutrient deficiency, low birth weight, maternal undernutrition
- chronically food insecure, transitory food insecure due to natural calamities and shocks, periodic/seasonal transitory food insecure in localized areas, transitory food insecure due to price instability/shocks

The kind of problem or confusion the multiplicity of concepts may create for proper identification of the food insecure segment of the population may be illustrated by the following statement: “Despite ...progress in economic growth, pervasive **poverty** and **undernutrition** persist. The most disturbing **consequence of widespread poverty** is that **over 40 percent** of the country’s 140 million people **cannot afford an adequate diet**. Furthermore, one-fifth of the population **is ultra poor** and remains **seriously underfed due to inadequate purchasing power**. Chronically food insecure and highly vulnerable, these people remain largely without assets (other than their own labor power) to cushion lean-season hunger or the crushing blows of illness, flooding, and other calamities” (IFPRI, 2005, emphasis added).

Given the diversity of the concepts and measures narrated, several questions arise : Which measure(s) represent which dimension of food security? For a given dimension, which measures have similar or comparable meaning? Which of these are mutually exclusive measures and which are overlapping? For which measures quantitative evidence exist or can be generated from existing data? Clarifications on these questions are essential for implementation of the proposed programs and actions because without proper classification of the population in general and the target subpopulations in particular, by using a small number of clearly defined measures or indicators, formulation of proper intervention instruments and their implementation become difficult and inefficient. For example, it is recognized that currently operational safety net programs suffer from mistargeting – wrong inclusion and exclusion of potential beneficiaries- leading to leakage and inefficient use of limited resources (Ahmed et al., 2010).

Choice of appropriate food security measures or indicators and generation of data for their empirical measurement should be considered as an essential activity for attaining food security objectives. In the NFP and NFP PoA, no such program activity has been included. Potentially this could be included under Food Policy Research, Analysis and Coordination - a crosscutting topic in the NFP- but has not been done. Some activities proposed under Program 11 (Informing and orienting food and nutrition policies through capacity strengthening and research) in the CIP fall in this category. However, those activities will address a subset of the possible measures of food security such as dietary status, nutritional status, dietary norms and food standards. These types of data mainly serve as reference points and are generated less frequently at some intervals. On the other hand, some of the other

measures such as income, poverty, food consumption level etc need to be collected more frequently as they are needed regularly for classification of target populations. National surveys like Household Income and Expenditure Survey, Population Census, Agricultural Census, Food Consumption and Nutrition Survey generate such data but currently they are conducted for different purposes with few common goals and parameters. There is room for making these surveys more complementary to each other and to make them more easily accessible to the research community for in-depth analysis from different angles. Investing in this activity for more coordinated and integrated data collection and analysis will generate public good information so it is likely to bring high payoff through more objective targeting and monitoring of food insecure segments of the population.

### **2.2.1.2 Defining food and agriculture**

In the definition of food security adopted in the NFP, reference has been made to ‘nutritious food’, i.e., the term ‘food’ has been used in its widest sense, but throughout the NFP and other documents, food has been frequently equated with food grain and food security with food grain security, and they have been used interchangeably. In the same way, crop (especially cereal crop) production has been equated with agriculture. In the Agriculture Policy 1999 (MOA, 1999), it was first stated that “crop production, animal husbandry, fisheries, forestry etc are integral components of agriculture” but then argued that “since crop sector plays the major role in Bangladesh agriculture and gets the top most importance in various agriculture related programs of the government, this policy document for the development of the crop sector is, therefore, titled as the National Agriculture Policy. ...The primary goal of the National Agriculture Policy is to modernize and diversify the crop sector, in other words the entire agricultural system, through initiation and implementation of well organized and well coordinated development plan” (MOA, 1999, p.1-2). This equation of ‘crop = agriculture = entire agricultural system’ is fundamentally conceptually wrong and unrepresentative of the agricultural production systems and practices prevailing in the country. The NFP and the PoA are also not free from this error because in the NFP, all types of food – cereals, non-cereals, non-crop food- have been discussed under the strategies for increasing availability of food, but the confusion between agriculture and crop and between food grain and food in its wider sense remain. The non-cereal crops (vegetables,

oilseeds, pulses and fruits) and non-crop agriculture (poultry, livestock, fisheries) aspects have been treated and discussed in such a way as though they are not part of agriculture.

Integrated smallholder mixed farming involving crop, livestock, fishery, homestead forestry or agroforestry has been the dominant mode of production in the country though crop, and cereals within crop, activities dominate. It has been recognized in the PoA that the introduction of high yielding rice over the last four decades brought significant success in food grain production at the cost of significantly reduced production of a number of other crops such as pulses, oil seeds and fruits so import dependence of these crops is now over 70% (FPMU, 2007). The negative consequences on livestock and fisheries are not mentioned in the NFP or the PoA but the Fisheries Policy document mentioned some. Thus, the promotion of irrigated mono-crop rice has weakened the integrated smallholder mixed farming system to a great extent but its basic features and foundations still remain firmly intact. A particular farm householder may not produce all the enterprises but generally most farms produce a portfolio of crops and livestock enterprises which compete for farm resources – land, labor and capital- but also have complementary relationships that are economically and ecologically beneficial.

Promotion of crop diversification as a strategy in the National Agriculture Policy and diversification into noncereal crops as well as non-crop agriculture as strategies in the NFP and PoA are basically indirect recognition of the distortion and imbalance created in the agricultural production system by past policies. So a strong recognition of the integrated nature and value of the smallholder mixed farming system is essential for designing research and development strategy and investment plans for achievement of longterm food security in the country. This is not to suggest that specialization, commercialization and increasing scale of production should be discouraged. These will occur but the nature and speed of that evolution will depend on the past trends and current realities about the dynamics of production structure (see below).

Due to the scarcity of land and exhaustion of high potential areas for high yielding crop expansion, research to overcome challenges posed by low potential areas with flood, drought and salinity induced stresses have been proposed in the NFP, PoA and the CIP along with

research to reduce yield gap and exploit other potential still unexploited in the high potential areas. Research to promote crop diversification is also proposed. Success in cereal production in stress conditions may come only slowly and production in such areas will remain more risky than in the high potential areas. So it is important to keep in mind that without significant further improvement in cereal crop productivity in the high potential areas, diversification into noncereal crops and livestock may not advance as expected due to land scarcity, or if market conditions do favor diversification, that may occur at the expense of reduced cereal acreage and production – a reversal of the early stage of green revolution situation when HYV rice replaced non-cereal crops. The NFP and PoA brought all agricultural activities inside the objective-strategy-action matrix but on the ground different aspects of agriculture are handled by different ministries and agencies without much real coordination. But administrative or even programmatic coordination at the top may achieve very little. Research and development need to address agriculture as a system and work in harmony keeping many eyes open at the same time on the integrated system rather than at any specific enterprise.

#### **2.2.1.3        Structure of agricultural production**

In the preamble of the NFP, it is stated that “given the subsistence nature of the rural economy, food insecurity is directly related to basic food production, increase in population and decrease in cultivated land. With the current level of poverty, these factors create a complex environment for national food security” (FPMU, 2008, p.113). On the other hand, the PoA in narrating the food security context stated that due to demographic pressure and urbanization, cultivated land area has declined, landholdings are small and scattered, and food grains continue, to a large extent, to be cultivated for subsistence. Small and marginal farmers represent 80% of all farmers and only a limited percentage of crops circulate through the commercial channels (FPMU, 2008, p.5). If this characterization of smallholder farming fully represent the reality on the ground, then most of the strategies and action plans proposed for enhancing food availability for achievement of food security may have little prospect of success at the desired extent. In reality, the system is not as static as portrayed. There is some dynamism in the system, and its nature needs to be characterized properly and appreciated for designing realistic, appropriate strategies and action plans. This can be

examined in terms changes in the ownership of land and livestock, and in terms of the extent of market participation. Both issues have important implications for food security status of households.

Land and livestock are the two basic assets of farm households. Land is the basic input for agricultural activities, and both land and livestock are necessary for crop production in our situation. The structure of ownership and use of land and livestock has a lot to do with the food security status of rural households. Changes in the structure of land and livestock ownership between 1996 and 2005 are presented briefly below.

Between 1996 and 2005, farm land area in the country decreased by about 57, 000 acres or 0.3% due to urbanization, infrastructure construction and rural house building etc while number of farm households increased by about 0.29 million or 25% mainly due to establishment of new families by younger household members (Table 2). Establishment of new families usually led to break up of farm holdings due to inheritance. This is evident from the fact that both land area and number of farms in the small and marginal farm category increased by nearly 40% while both number of farms and land area in medium and large farm categories decreased substantially. Moreover, number of farms renting in land increased slightly from 38 to 40% or by 5% but area of land under renting increased from 23% in 1996 to 38% in 2005 or by 65%.

Table 2. Changes in land ownership pattern by land size between 1996 and 2005

Land size, acres	1996		2005		% Change	
	Farms 000	Area 000 acres	Farms 000	Area 000 acres	Farms	Area
0.05-2.50	9422	7086	12992	9777	39	38
2.50-7.50	2078	7537	1536	5897	-26	-22
>7.50	298	3125	171	2020	-43	-35
All	11798	17749	14700	17692	25	-0.3
% rented in	38	23	40	38	5	65

Source: Agriculture Census 1996 and Agriculture Sample Survey 2005, BBS

Traditionally large absentee land owners rent out land to small land owners to enable them to operate a reasonably economic size to use their labor and animal power resources. But the recent surge in the area under renting may have a new dimension. Since many farms are

breaking down into smaller units, and this may happen across all size categories due to inheritance, it is possible that some of the smaller farms become so small after subdivision that it become uneconomic to operate them due to lack of animal power or other constraints. Some such land holders prefer to be wage workers and even migrate seasonally to urban areas so rent out the tiny plot to others for cultivation. Therefore, both large and small land owners may supply land in the rental market.

In terms of land concentration measured by proportion of farms and land area under different size categories, it appears that share of small and marginal farms increased from 80 to 88%, that of medium farms decreased from 18 to 10% and share of large farms remained unchanged at 2% (Table 3). But share of land area held by small and marginal farms increased from 40 to 55%, and shares of both medium and large farms decreased substantially indicating that land concentration in larger holdings is not a visible trend. However, some of the corporate land holdings or estates, large landlords (*jotdars*) and blocks of land acquired by real estate companies in peri-urban areas are of fairly large units though they may represent a tiny share of total land area in the country. Most likely those have not been properly captured by the data gathered by BBS.

Table 3. Changes in relative shares of farms and land area by

Land size, acres	1996		2005		% Change	
	Farms %	Area %	Farms %	Area %	Farms %	Area %
0.05-2.50	80	40	88	55	10	38
2.50-7.50	18	42	10	33	-45	-21
>7.50	2	18	2	12	0	-33
All	100	100	100	100		

Source: Agriculture Census 1996 and Agriculture Sample Survey 2005, BBS

In case of livestock, between the two years, cattle and buffalo population increased by 12% compared to 14% for goat and sheep in spite of the fact that farm land area decreased slightly (Table 4). But overall, number of animals for both species increased by 30-40% in case of small and marginal farms while the number of both types of animals under medium and large farm categories decreased respectively by 33 and over 50%. In terms of relative shares of both species of animals by land size, the shares of small and marginal farm category

increased substantially and that of the other two categories of farms decreased substantially (Table 5). Overall marginal and small farms have a larger share of livestock compared to their share of land (Table 5 and 3) indicating that land ownership is more skewed than livestock ownership.

Table 4. Changes in livestock ownership pattern by land size between 1996 and 2005

Land size, acres	1996		2005		% Change	
	Cattle+ buffaloes mil head	Goat+ Sheep mil head	Cattle+ Buffaloes mil head	Goat+ Sheep mil head	Cattle+ buffaloes	Goat+ sheep
0.05-2.50	13.96	11.07	19.60	14.39	40	30
2.50-7.50	6.59	2.90	4.47	1.92	-32	-33
>7.50	1.74	0.64	0.86	0.28	-51	-56
All	22.29	14.61	24.93	16.59	12	14

Source: Agriculture Census 1996 and Agriculture Sample Survey 2005, BBS

Table 5. Changes in relative shares of livestock by species and land size between 1996 and 2005

Land size, acres	1996		2005		% Change	
	Cattle+ buffaloes %	Goat+ Sheep %	Cattle+ Buffaloes %	Goat+ Sheep %	Cattle+ Buffaloes	Goat+ Sheep
0.05-2.50	63	76	79	87	25	14
2.50-7.50	29	20	18	12	-38	-40
>7.50	8	4	3	1	-62	-75
All	100	100	100	100		

Source: Agriculture Census 1996 and Agriculture Sample Survey 2005, BBS

Taking land and livestock together, it appears that average size of land holding decreased from 1.50 acres to 1.20 acres or by 20% but average herd size of cattle and buffalo and flock size of goat and sheep decreased slightly (Table 6). Herd and flock sizes decreased in spite of increase in the size of populations of these animals because the increase in the number of farm households was much larger than the increase in the number of animals. However, by farm size category, average land size increased slightly in case of medium and large sizes and remained unchanged in case of small and marginal size but average animal holding remained almost unchanged in case of smallholding but decreased in case of medium and large holding. Cattle density per acre remained fairly unchanged at about 2 heads for small and marginal farms, about 0.8 in case of medium farms and 0.4 for large farms. This seems

surprising because larger holdings have more feeds, especially crop residues, to raise more animals while smallholdings face serious problem with feeds and primarily depend on scavenging. Cattle farming is still a component of mixed farming, and specialized cattle farming, especially dairy, is not yet a major activity nationally though in a few pockets in the country, where market opportunities have been created by dairy processors, some farms have dairy as a major enterprise.

Table 6. Changes in average land and livestock ownership per farm household by land size between 1996 and 2005

Land size, acres	Land, acres		Cattle+ Buffaloes, head*		Goat+Sheep, Head*	
	1996	2005	1996	2005	1996	2005
0.05-2.50	0.75	0.75	1.5	1.5	1.2	1.1
2.50-7.50	3.63	3.84	3.2	2.9	1.4	1.3
>7.50	10.49	11.81	5.8	5.0	2.1	1.6
All	1.50	1.20	1.9	1.7	1.2	1.1

\*Average herd and flock sizes could be a bit larger if only owners of animals were used as denominators.

Source: Agriculture Census 1996 and Agriculture Sample Survey 2005, BBS

Thus a number of trends and imperatives emerge from the dynamics of land and livestock ownership. First, many large and medium farms, even small farms, are subdividing into yet smaller ones (perhaps fragmentation is also increasing) and more people are staying with small scale farming as a source of livelihood due to demographic pressure and lack of alternative employment opportunities. Some small holdings may become so small that land based production may no longer be enough for their food security. Continued fragmentation may then likely to swell the rank of food insecure population in the rural areas. Second, although shares of large and medium farms in the farming population are decreasing, there is a slight trend of scaling up of land holding among the remaining medium and large farms though this is not yet a sign of major consolidation or concentration for larger scale farming among the traditional farming households. A small corporate large scale farming sector may be emerging but is not yet a dominant phenomenon. Third, there has been large increase in the area under renting which appears to be interrelated with increase in the number of small farms. And share tenants operating small farms may also fall back into the food insecure category unless they can generate adequate output and income from the rented land and other

sources. Fourth, cattle farming is still a part of the mixed farm business even among larger farms, herd and flock sizes are very small due to feed scarcity and even larger holdings are not yet expanding the size of their cattle enterprise except that in a few pockets with good milk market access, dairy is becoming a major activity within the mixed farm.

Given these trends, it can be reasonably assumed that for some more time to come, farm units will remain fairly small and fragmented and they will largely remain as integrated mixed farms as rural-urban migration and other pull factors will not be large enough to effect a net decline in rural and farming population. Such a phenomenon, as happened in the advanced countries, may be late in coming in our situation. There is thus a possibility of increased number of food insecure farm households unless there are alternative income sources for them. So modernization and commercialization of our agriculture including diversification into noncereal crops, fisheries and livestock for achievement of food security must proceed on the basis of this emerging structure of production. However, it needs to be emphasized that establishment of large farms and promotion of subsidized tractors or mechanical equipment (as proposed in the NAP, see MOA, 1999) or promotion of exotic breeds of dairy cows especially to larger scale farms (as proposed in the National Livestock Policy 2007, see MOFL, 2007) are neither necessary nor desirable for commercialization and modernization in the current state of our agriculture. We have to find other options appropriate for our conditions, especially how to organize smallholders in production and marketing activities to derive the benefits of larger scale may be the more immediate real challenge (see later).

However, before we discuss the market behavior of smallholders, it is necessary to give attention to the land tenure issue, which needs to be addressed squarely as a priority. In the 1970s, the reason for existence of share renting and its efficiency and equity effects were hot subjects for research and debate. Major land reform, especially redistribution of approximately 2 million ha of khas land, remained an elusive objective in spite of recommendations by various studies and committees, especially the Land Reforms Committee of 1982 and the promulgation of the share croppers' ordinance in 1984 (GOB, 1984). Land tenure appears to have disappeared as an issue from research and policy debate and it does not even appear once in the NFP, the PoA or any of the other policy documents that fed into the NFP as an issue affecting food security. Even the Land Use Policy of 2005

says nothing about land tenure and land reform but deals with use of land for different purposes and related problems. However, it can be reasonably hypothesized that the reasons for the recent surge in the proportion of land under renting are not perhaps the same as those that drove the land rental market in the 1960s and 1970s. Forces in play in the land rental market today and their implications for the suitability of a number of strategies and action plans for enhancing food production and food supply deserves urgent attention.

Smallholders have little access to institutional credit. Micro-credit providers consider them above their threshold; specialized agricultural lenders consider them below their threshold of economically viable size for credit worthiness. Sharecroppers are in an even worse situation. But all smallholders including sharecroppers being so large in number deserve access to credit to be able to contribute to the achievement of food security for themselves and for many others for whom they produce food. The Bangladesh Bank has recently created a \$75million fund for credit to be disbursed exclusively to sharecroppers, which is being piloted by BRAC. While this may be a positive step for the benefit of the sharecroppers, implementation of the provisions of the share croppers' ordinance is likely to be an even more effective tool to assist sharecroppers for enhancing the productivity of improved technology and benefit from it. The ordinance is for the mutual benefit of both land owners and tenants, so it should not be seen as a tool to protect only sharecroppers' interests. Any such approach will make implementation difficult and defeat its purpose. A pilot conducted by CARE Bangladesh in greater Rajshahi area on a participatory process for implementation of the ordinance generated good practical experience, which can be scaled up (Jabbar et al., 2010). Land tenure, land reform, implementation of sharecroppers' ordinance and credit should be included as priorities in the program of activities in the CIP.

#### **2.2.1.4 Market orientation of smallholders**

The description of smallholder farms in the NFP as subsistence oriented lacking market orientation also needs clarification. This characteristic of smallholder farming might have been true in the pre-1970 period but not any more. A review of the evolution of marketed surplus of paddy since the early 1960s showed that participation in the rice market both in terms of proportion of farms and volume of output increased substantially among all

categories of farms (Jabbar, 2009). Rice marketing behavior of a sample of over 2000 households for 2003-04 are summarized in Table 7. Smallholders sell even when they have net deficit and are net buyers on an yearly basis. More importantly, majority of smallholders sell within the first month of harvest implying that these are distress sales due to obligations of one kind or another including repayment of credit.

Table 7 Market participation and marketed surplus of paddy in 2003/04

Farm characteristics	% farms	% net output	% output surplus/ deficit (-)	% farms sold	% of output sold	% of sale within the first month
<b>Farm size (hectare)</b>						
Landless	38.6	0.2	-95	-	-	-
Up to 0.40	31.0	18.2	-42	36	15	65
0.41 – 1.00	20.7	36.3	32	67	28	59
1.01 – 2.00	8.0	28.9	50	89	56	40
Over 2.00	1.9	16.5	77	94	78	27
<b>Economic status+</b>						
Ultra poor	9.3	0.8	-90	-	-	-
Poor	28.7	10.2	-61	38	24	61
Small/vulnerable	47.3	51.2	0.6	58	33	49
Rich	14.7	37.8	47	76	61	34
All farms	100.0	100.0	4	52	41	42

- not available

+ Definitions of these terms or groups are not available in the text.

Source: Bayes and Hossain (2007), p.279 and 283.

Based on BBS Household Expenditure Survey data for 2005, consumer purchasing records indicated that nearly 70% of rice, 85% of flour, 95% of pulses, nearly 100% of oils and fat, 85% each of protein foods and vegetables and over 60% of dairy products were purchased from the market (Asaduzzaman et al., 2010). For domestically supplied products, high ratio of market purchases imply high degree of market participation by producers including smallholders, and high ratio of market purchases of imported products such as pulses, oils etc imply market potential for domestic producers provided they can produce competitively.

Currently government intervention in the food grain market has four key functions: (1) to supply foodgrains to various food-based safety nets; (2) to provide price incentives to Bangladeshi farmers for increased production through domestic procurement of rice and

wheat; (3) to maintain a security stock of food grains to meet emergencies; and (4) to stabilize market prices in order to prevent excessive price rise.

Various policy instruments are being applied to achieve these objectives with varying degrees of success ( see Ahmed et al., 2010 for a review). However, there is much debate about the appropriateness and efficacy of some of the instruments for achieving long term food security such as input subsidy for production vs output price support, trade policy vs targeted safety net, safety nets vs direct income generation activities, one kind of safety net vs another, supporting producer vs supporting consumer, distribution of benefits to large vs small producers etc. For example, it may be difficult to maintain a balance between providing price support to producers while buying food for distribution under safety net programs. In order to minimize budgetary obligations, the tendency may be to keep support price at levels which may not provide necessary incentive. On the other hand, safety nets may also create long term adverse effects on incentives among consumers to find income opportunities by creating a sense of dependence on government handouts (Dawe, 2010). In fact poverty and safety nets may adversely affect growth not only by increasing dependence on handouts but by dampening economic demand for food in the market thereby dampening incentives for producers to increase production. For example, nearly 40% of the people in the urban and rural areas are poor but about 27% are covered by various safety net programs through distribution of 6.9 million tons of food grain costing about 2.8% of GDP (Ahmed et al, 2010). This large volume of food grain does not constitute private economic demand in the market so create very little, if at all, multiplier effects in the economy. Recognizing that some safety net programs should be in place to address emergencies, it can be debated if a large share of current expenditure on safety nets and other public food grain management activities may be rather spent on direct income generation activities with potential for larger multiplier effects on income growth and achievement of food security.

Marketing problems for perishable products like vegetables, dairy products etc and for highly import dependent products like pulses, oils, sugar and fruits are quite different than those for food grain. In the dairy market, in which about 30% of consumption comes from import and about 15% of domestic production is handled by the formal processing sector, the most important policy instrument is variable tax and tariff to stabilize price. But analysis has

shown that tax and tariff has not been a very effective instrument to protect consumer interests or provide incentives to producers because of imperfection in the dairy market dominated by importers and dairy processors. In fact, the ground rules for variable tariff application are to adjust tariff rates regularly according to world market fluctuation in prices using well-specified criteria rather than discretion or fixed rate for longer period. This has not been followed in Bangladesh, hence its poor outcome (for details, see Jabbar, 2010). There are few, if any, direct government intervention in the vegetable market. For all perishable products, remunerative and stable market access, especially by smallholder producers, is hindered by market imperfection, high transactions costs, high price and income elasticity of demand and large year to year supply-demand imbalances due to lack of information on demand and supply.

So market participation by smallholders on its own does not guarantee food security. Smallholders may remain food insecure and lead subsistence level of living with or without market participation. Wharton Jr (1962) distinguished three different meanings of subsistence. Subsistence production – production only for home consumption; subsistence consumption – level of consumption equivalent to minimum biophysical needs; subsistence income – a level of income that allows subsistence level of living. Thus a farmer may participate in the market yet enjoy only subsistence level income or consumption or even suffer from food insecurity conditions.

For a long time, efforts to meet the challenge of achieving food security has been focused on the production domain through research, extension, input distribution, In the same tradition, the NFP PoA has brought the subsectors of agriculture together in the objective-strategy-action matrix but most of the proposed strategies and actions are focused on increasing production through research, extension, technology and input distribution, credit supply and to some extent output price support. In addition to food grain market interventions mentioned earlier, some actions in the arena of market and trade have been proposed such as building roads and other infrastructure but the pathway through which those actions are expected to contribute to food security remain fuzzy or unclear. Especially how these infrastructures will help smallholder marketing of perishable products remains unclear. For smallholders low volume of output, low volume of marketable surplus and high transactions cost are initial

barriers or disincentives to enter market. Roads may reduce transport cost but not the entire range of transactions costs due to imperfection in the market and small volume of output of heterogeneous quality and standard. Therefore, the role of market as a tool or avenue to ensure food security for food insecure producers and consumers needs to be addressed in innovative ways.

In fact, the primary challenges today for achievement of food security for all are two fold: (i) to target not just large and medium farms for input, technology and service delivery for market oriented production but the vast majority of smallholders in order to ensure their remunerative market participation; (ii) to develop a consumer demand and output market led strategy to transform the production sector; wherein home consumption may remain a priority especially for basic food commodities among small and marginal farmers, production for the market is a major objective of farm business so that the production sector will be driven by demand for inputs, technologies and services mainly to properly respond to market demand. Innovations in marketing and market institutions- organizations, rules, norms and practices- to provide incentives to smallholders to come together to derive the benefits of larger scale should be considered an important strategy. Public and private sectors have to discuss and agree on their relative roles, strengths and weaknesses and define their niches for competition and complementarity in this venture or adventure. For example, in India, about 50% of broiler is produced under contract farming arrangements, in some states over 75% is produced under contracts. This has solved many problems related to small scale production, quality and safety standards and disease risk. In case of dairy, India has become the largest producer of milk not by establishing large farms but by establishing dairy cooperatives which helped to supply inputs and services on the one hand and procure milk for processing and marketing on the other. Corporate dairy came into the picture more recently. In Bangladesh, contracting in poultry is at a rudimentary stage and shows good promise for expansion and dairy cooperatives are not performing well due to management inefficiency and political interference (for a detailed discussion on these see Jabbar et al., 2007; Jabbar, 2010). How to make these innovations work better and expand further needs examination and experimentation.

In the NFP, NAP and the CIP, inter-ministerial and interagency coordination has been mentioned as a challenge for implementation of nearly all the programs. Meaningful coordination is not easy to accomplish and some degree of coordination at the top may have little impact on functionally segregated activities at the bottom of the agencies and on the farm households on whose efforts success in food availability will depend. The role assigned to the market as above may be ineffective for the achievement of food security goals and objectives if in reality at the operational level, supporting agencies and their activities remain separate, isolated, disjointed under different ministries and agencies.

### **3 Perspectives of Stakeholders on Policy Constraints for Implementation of the CIP Programs: Feedback from Consultations**

Any decision making unit – a family, a community, a firm or organization, a government- usually contains members or stakeholders with a variety of non-equivalent perspectives on issues that concern them due to differences in the nature of stakes they hold in an issue as well as their socio-cultural attributes in relation to age, gender, religion, education, knowledge and disciplinary and cultural background, wealth status, etc. So any problem or complex reality within a system at any scale can be viewed or interpreted from a variety of non-equivalent perspectives. For example, share renting as an issue can be seen differently by the land owner, the tenant, the credit and input market agent and the government. So whose perspectives are considered and how they are incorporated in the research, policy making and development process will determine the nature of outcome of any policy or action. For example, without incorporating poor people's perspectives in research, policy and development agenda, poverty alleviation efforts are unlikely to be fully effective. The objective of stakeholder participatory approaches to decision making is to reconcile the various perspectives by the stakeholders themselves for maximizing the welfare of the society at large (Rosenfield, 1992; Smit et al., 1998; Jabbar et al., 2005).

The foundation of the CIP is the NFP PoA which was prepared through inclusive consultation involving 11 ministries, civil society, NGOs, the private sector and Bangladesh development partners. Although CIP is primarily a public sector investment plan for achievement of food security, it incorporates the ideas and opinions of other stakeholders and also envisages their complementary engagement and investment in the proposed program activities. So in the revision of program priorities and budget, the perspectives of selected stakeholders are again solicited. Selected representatives of the relevant public, private and NGO sectors, and the policy research community were interviewed for their opinions on the relevant programs about their scope and appropriateness, policy constraints for participation of various stakeholders, especially the private sector.

## **Program 1: Integrated research and extension to develop and propagate sustainable responses to climate change**

There is general agreement among stakeholders on the following:

- New research should be focused on addressing production problems in flood, drought, salinity induced stress conditions while at the same time trying to reduce yields gap and push yield frontier further up in high potential areas.
- On-farm adaptive tests and extension service need to be expanded and overhauled for improving efficiency in service delivery in conjunction with the private sector.

Suggested problems of implementation of these and activities proposed in the CIP include the following:

- This program is primarily focused on the crop sector and research and development issues in the livestock and fisheries sector are discussed under Program 5 (Livestock) and Program 6 (Fisheries). Thus conceptually this program suffers from the “agriculture = crop” syndrome (recall that this has been extensively discussed earlier in the policy review section). The reality is that in a given ecosystem - flood, drought or salt affected areas- problems of crop, livestock and fisheries are interrelated and complex having complementary as well as competitive relationships. So they need to be addressed in an integrated manner within a holistic systems framework for efficient use of limited resources and for achievement of success. The NARS is currently organized along commodity and disciplinary lines with little, if at all, cross-commodity, cross-institute and cross-discipline collaboration. So research approaches and functional mechanism have to be significantly changed to address complex problems of the low potential areas as well as the emerging problems of the high potential areas.
- The capacity of the research system in terms of scientific manpower and research facilities is highly inadequate to address the challenges ahead. The system is incapable of attracting and retaining best brains due to a number of interrelated problems. First, the NARS institutions are neither fully autonomous nor fully government institutions so their governance is basically dominated by the bureaucracy in a way that results in an unfavorable work environment for exercising freedom of

thought and judgment – fundamental requirements for science. Second, the institutions are managed with ad hoc service rules and procedures which are inappropriate for proper recruitment and promotion; there is virtually no room for inter-institutional mobility of staff which further restricts opportunities for cross-institutional learning through transfer and promotion even when there may be vacancies in some institutions; salary and benefit packages are not attractive to attract merit and there is no basis for rewarding merit and performance. Under such circumstances, allocation of more funds alone is unlikely to be very fruitful.

- The link between research, extension, education, policy and industry is poor to say the least. Several problems in this domain deserve attention.
  - First, even though there is a long term vision and plan for the research system, and this is being updated at this moment, in practice research agenda and priority is hardly based on farmer needs and demands rather it is often guided more by background and capacities of the scientists.
  - Second, the NARS has released many technologies (see Table 8) but few have actually been disseminated except in case of rice varieties. Older rice varieties have been replaced by newer ones and continued releases enabled tripling of rice production since independence. But in case of BARI and BJRI generated varieties and technologies, the picture is unclear though it can be reasonably assumed that some of the technologies have been disseminated with positive results. However, comprehensive information is not available on which varieties and technologies have been actually disseminated and how much, which have been replaced by better and newer ones, which have never been disseminated and why. For example, few of the machinery and equipment designed by BRRI and BARI have been manufactured by the industry- public or private – while tax and tariff relief has been given on imported machineries for promoting mechanization (see National Agricultural Policy 1999). It is important to know the reason for non-dissemination and non-multiplication of NARS generated technologies so that if required or justified, resources may be allocated for further adaptive tests in partnership with the private sector and extension service and subsequent dissemination. It may be mentioned here that funds under the Krishi Gobeshona Foundation were

originally meant for both NARS and private sector adaptive research but lately some allocation rules have been made that limits private sector access to such funds.

Table 8. Crop varieties and other technologies released by BRRI, BARI, and BJRI

Name of crop type/variety/ technology released by institution	Number released	Name of crop type/technology released by institution	Number released
<b>BRRI</b>		<b>BARI</b>	
Boro	13	Non-rice cereals	39
Aus	8	Tubers	52
Aman	25	Pulses	27
Boro+Aus	10	Vegetables	78
Boro+ Aus+Aman	1	Fruits	52
<b>Total modern varieties</b>	<b>57</b>	Flower	9
Of which : Inbred	53	Spices	19
Hybrid	4	<b>Total crop varieties</b>	<b>333</b>
Machinery/equipment	20	Machinery/equipment	23
		Post harvest technology	27
		Biotechnology	12
		Seed technology	4
<b>BJRI</b>		Other technologies	315
New jute varieties	12	<b>Total</b>	<b>712</b>

Sources: [www.brri.gov.bd](http://www.brri.gov.bd); [www.bari.gov.bd](http://www.bari.gov.bd); [www.bjri.gov.bd](http://www.bjri.gov.bd)

- Third, higher agricultural education and research has a problem of a different nature. Being autonomous, housed in a different ministry, the universities have poor links with NARS and extension system, so education is mostly theoretical rather than demand driven, research is more academic focused on methodology teaching without attention given to the end use research outputs. So few of the knowledge generated by the university research systems has been converted to farmer usable technologies and products. In fact, some of the newly established universities have serious shortage of quality staff and research facilities to undertake meaningful research even though they should have been able to address regional research problems being located in different parts of the country with different ecosystems and production potentials.

- Fourth, in the absence of core research fund provided on a sustained manner to the NARS and the universities, project based research often drive the research agenda. Such opportunistic funding and research linkages with donors and partners have sometimes distorted priorities. Inadequate past investment in some areas of new science in all fields of agriculture – biotechnology, genetic engineering, bioinformatics, environmental sciences- may be partly explained by the tendency to neglect the national research plan and to depend on casual project based funding for research.

These problems of the research system need to be squarely addressed if newly allocated resources are expected to bear fruit.

- The new extension policy was supposed to deliver demand driven service in an integrated way and move away from project based promotion of multiple approaches in different parts of the country to a program based approach. In reality it did not happen except nominal reallocation of projects to newly formed Wings or themes. Moreover, in case of livestock there is hardly any extension as the livestock service is primarily disease treatment oriented with some effort for dissemination of artificial insemination. Fishery extension is also poorly organized. Scaling up of Farmer Field School as an approach to extension has been proposed in the CIP but its effectiveness in the Bangladesh context has not yet been fully evaluated especially for the delivery of multienterprise oriented integrated extension. Since corporate private sector is increasingly getting involved in various activities like seed distribution, AI distribution, vegetable and fruit marketing, it is essential that public and private sector collaborate adequately in the delivery of extension services especially when private sector disseminate public sector generated technologies. Therefore, integrated research needs to be complemented by integrated system oriented extension. How to achieve that with the current organizational structure for extension service under line ministries is a challenge.

## **Program 2: Improved water management and infrastructure for irrigation purposes**

There is general consensus that pressure on ground water use should be reduced by more judicious use of surface water but opportunities for significantly improving efficiency in ground water use should be exploited through innovative economic incentive and organizational structures. Subsidies on fuel and electricity for lifting underground water that induce over extraction and inefficient use should be reduced or replaced by water pricing mechanism where rent is determined based on level of use.

Some of the implementation problems include:

- Overlapping mandate of Water Board and BADC and sense of competition between them in using certain water sources. And Lack of empirical information on the extent of water that can be extracted from a given source for irrigation without affecting the demand for navigation, fisheries etc.
- Flood control, haor development programs etc have been implemented in the past with a view to expand crop production with serious consequences on the ecosystem. Over extraction of ground water has also created negative effects in some areas. It is unclear if in designing surface based irrigation strategies, potential negative consequences on the ecosystem are being assessed a priori and corrective measures planned so that problems experienced from past interventions are not repeated.

## **Program 3: Supply and sustainable use of agricultural inputs**

Because of equating crop with agriculture, only seeds and fertilizers have been considered under this program. Inputs for livestock and fisheries have been discussed under programs related to livestock and fisheries. This in itself is a policy constraint for developing integrated strategy and interventions as discussed earlier.

Substantial differences in perspectives were observed between the public and private sector in case of seeds, especially in relation to public and private sector shares in the seed market, and in relation to the relative roles of the two sectors for supplying quality seeds. The corporate private sector operators appeared to be of the opinion that the National Seed Policy

envisaged that BADC would gradually withdraw from production of certified seeds, instead concentrate on production of foundation and breeder seeds for registered seed growers while private sector would be mainly responsible for production and distribution of certified seeds. But the government has lately moved away from that position and has started re-investing in BADC's seed production capacity and subsidized distribution. Subsidy is implied because BADC does not include overhead cost in costing. Such a policy has started crowding out private sector operators from the market as they can't match BADC's capacity and can't compete with the BADC's prices.

Some private sector operators also feel that the provision for supply of Truthfully Labeled Seed (TLS) in the seed policy is being misused by unscrupulous traders, thereby depriving farmers' access to quality seeds. This provision is also disadvantageous for the corporate seed sector as poor quality seeds are sold as TLS at low prices which mislead farmers and keep them away from buying quality seeds. The private sector is also critical about the government's position on hybrid rice seeds as some of the varieties found well performing in field test are not being certified yet for release, thereby hindering their commercial production.

Some policy experts also agree with some of the above arguments of the private sector and feel that government should concentrate on production of foundation and breeder seeds, and engage in quality control of certified seeds supplied by the private sector and phase out TLS.

On the other hand, the public sector operators argue that the government has not gone back from the seed policy objective, which is to ensure supply of quality seeds at reasonable price. After BADC reduced its seed operations, except for boro rice, wheat and maize, in which a small share remained with BADC, private sector has taken over nearly the entire seed market. BADC has decided to expand capacity primarily in aman, boro and to some extent in hybrid rice seed production so there is wide scope for the private sector in the seed market for these and other crops. The need for capacity enhancement of BADC in rice seed production arose as the private sector capacity has not increased to the extent expected, and private sector depends significantly on imported hybrid seeds, so there is significant unmet demand for quality seeds produced domestically. Though seed trade was liberalized, it was also expected

that private sector would create capacity in seeds research and also undertake adaptive research on public sector generated seeds, which has not really materialized to the extent expected. Therefore, the government is trying to remain an alternative supplier to meet unmet demand as quality seeds are fundamental for investment in other inputs for productivity improvement for achievement of food security.

On price and subsidy, the argument is that record of seed price fluctuation over the past years indicated vulnerability of farmers to seed supply and related price fluctuations thus enhancing risks. BADC's objective is to help to keep prices within the reach of producers by supplying seeds not at subsidized price but at price that gives no or low profit margin. BADC's fixed investments for seed production have passed their productive life (in accounting sense) long ago, so share of fixed cost in total cost per unit output, which is large in terms of volume, is minimal. On the other hand, private sector investment is relatively new and most probably they are amortized at a high rate for quick pay back, and given relatively small volume per business firm, cost per unit output may become higher than for BADC seeds. But this is an accounting and management issue, where public and private sectors use different parameters for their own reasons. But BADC's price policy has enabled to keep seed prices within reasonable limits. The fact that private sector firms have been able to sell large volume of seeds at their prices demonstrate that there is unmet demand in the seed market and negate the argument that BADC's price policy is crowding out private sector seed investors.

On the role of TLS, the public sector view is that this group of seed suppliers exists because there is unmet demand for seeds which BADC and the corporate private sector can't meet. But these are small businesses operating mostly in their own localities or market domains so they have to be trustworthy to farmer buyers for longterm survival. It can be reasonably assumed that they can't fool farmers twice. Yet human nature is such that malpractices in TLS exist, but it can't be removed by policing with available small number of quality control staff of the relevant government agencies. Instead, they are expected to disappear from the market or at least loose importance if public and corporate private sectors together can supply adequate quality seeds to meet demand. Some seed scientists and policy analysts agree with some of these arguments put forward by the public sector.

The above controversies or differences between private and public sector perspectives on the seed market are apparently prompted by two factors : (a) lack of accurate data on the size and structure of the seed markets for different crops, (b) lack of sufficient clarity on the objectives and strategies of the national seed policy.

First, accurate data on the size of the seed market and its structure for different crops could not be obtained from any source. Some data obtained from the BADC on its share of the seed market for some years and projections for several years are summarized in Table 9. BADC apparently did not have any documented information on market shares of other suppliers. On the other hand, unpublished information shared by a number of corporate seed companies enabled to make an approximate estimate of market shares of different suppliers for 2007-08, which is summarized in Table 10. Since they do not refer to the same time period, the two sources are not directly comparable. The private sector estimates are for a year earlier than the first year of BADC data, so these two years are the closest to compare. And it is apparent that the BADC and the private sector differ significantly in terms of estimated total requirements as well as share of the public sector, especially in case of HYV rice seeds for all three seasons. The private sector estimates of BADC's market shares appear to be much higher than BADC's own estimates. However, BADC's projections for seed market shares of different crops do confirm the government's intention to increase market shares, especially for HYVs.

Second, the public sector policies on seeds are stated in the National Seed Policy 1993, the Seeds (Amendment ) Act 1997, The Seed Rules 1998, The Seeds Ordinance 1977 with amendments made in 1997 and 2005, the National Agricultural Policy 1999, the National Food Policy 2006 and NFP PoA 2007. The objectives and strategies for the seed sector are not narrated in these policy documents exactly in the same manner or language though the main thrust or message seems to be similar. And that is that the government would facilitate a balanced development of public and private sector roles in the production and distribution of quality seeds. What it actually means and how it would be achieved is not uniformly stated in the various documents mentioned above, hence the room for different interpretation and controversy.

Table 9. Actual and projected shares of BADC supplied seeds of various crops, 2008-09 to 2014-15

Crop	Acreage 000 ha	Agronomic requirement M tons	Actual share of BADC (%)		Projected share of BADC (%)			
			2008-09	2009-10	2011-12	2012-13	2012-14	2014-15
Aus HYV	600	15,000	5.7	5.2	9	9	9	9
Aman HYV	3615	90,375	18.8	19.6	35	40	45	50
Boro HYV	3750	93,750	39.0	47.4	67	68	70	73
Hybrid	1000	15,000	0.3	0.5	13	23	33	33
Total rice	8965	214,125	25.4	29.4	46	49	53	56
Wheat	425	63,750	31.3	36.8	44	45	47	49
Maize	180	6,250	1.3	0.6	16	24	32	35
Seed Potato	425	600,000	2.2	2.3	4	4	5	6
Pulses	658	23,148	3.6	2.9	7	9	11	11
Oilseeds	736	17,578	5.2	4.1	8	11	13	13
Jute	450	4,000	22.9	30.8	40	43	46	50
Vegetables	750	2,822	2.1	3.0	4	5	5	5
Spices	478	155,463	0.2	0.3	1	1	1	1

a. Market shares for the first two years are actual, the remaining years are projections. The projections are based on a different set of estimated acreage and total requirements

Source: [www.badc.gov.bd/seeds](http://www.badc.gov.bd/seeds) and also unpublished data (personal communication)

On fertilizers, there are also differences in perspectives of various stakeholders and policy analysts about the rationale for subsidy, about different subsidy rates for different types of fertilizers, alternative to subsidy for efficient use and equity, the need for quality control in fertilizer production and distributions chains. For example, some argue that subsidy leads to inefficient use of fertilizers and also encourages adulteration, others argue that varying subsidy rates are required to encourage balanced use and quality control is a different problem that needs to be handled separately. Current government capacity is also inadequate

for quality control measures. Some of these debates and problems are already recognized in the CIP.

Table 10. Private sector estimates of market shares of different seeds by different suppliers in 2007-08

Crop	Total demand, mt	Approximate share of the market (%)				
		Public sector	Corporate private sector	Small companies/traders	Farmers	Total
Aus local	9,500	0	0	0	100	100
Aus HYV	19,350	25	0	0	75	100
Aus Total	28,850					
Aman Local	35,000	3	0	0	97	100
Aman HYV	93,500	40	0	10	50	100
Amon Total	128,500	na	na	na	na	100
Boro HYV*	116,750	55	10	15	20	100
Boro Hybrid	10,500	1	99	0	0	100
Boro Total	127,250	na	na	na	na	100
Maize*	3,000	8	63	32	0	100
Wheat	72,000	26	0	0	74	100
Pulses	22,000	2	0	0	98	100
Mustard	14,000	28	0	0	72	100
Vegetable (Local)	2,550	5	6	25	64	100
Vegetable (Hybrid)	150	0	50	50	0	100

\* Imported content of Boro hybrid 8500 mt or 45%, maize 2800 mt or 48 %

Source: Constructed based on personal communication with a number of corporate seed companies. An individual company may slightly differ from this approximation but

#### Program 4: Fishery development program

For open water fisheries, the main problem is current system of short term leasing of water bodies to private sector that encourage over extraction. Some alternative institutional arrangements for sustainable management of common properties have been tested but not scaled up due to lack of policy commitment. More innovations in management are required

For culture fishery, the main problems are lack of incentives for investment in the fish seed/fingerling industry; lack of adequate quality extension service, and isolation of fishery

extension from rest of agriculture, and limited access to credit for all kinds of aquaculture activities. Establishment of special aquaculture zone will also facilitate investment.

### **Program 5: Livestock development program**

The Bangladesh Livestock Policy 2007 contains objectives and strategies for the sector. The most important policy problem for the livestock sector seems to be that objectives and strategies have been mixed up, and most of the strategies proposed for achievement of various objectives are superficial, unrealistic, unscientific and not based on realistic assessment of the livestock production system, its evolution in the past and potential pathways of development. There is no recognition of the fact that livestock is a component of smallholder mixed farming system and its development has to be planned within that context.

For dairy, government policy is to promote crossbreeding to increase yield and dairy cooperatives like Milk Vita for market access alongside encouraging development of private dairy processing and also use tax and tariff as an instrument to stabilize milk prices for protecting consumers and for providing incentives to producers. On the other hand, some private dairy processors generally consider Milk Vita as an inefficient organization and government support and subsidy to Milk Vita as a hindrance for development of the dairy industry, and they seek tax and tariff policy to support domestic dairy.

In the Livestock Policy, the breeding strategy includes (a) AI for genetic improvement of indigenous cattle using exotic semen of selected breeds, (b) plan of action targeted to three types of farms (high, medium and low level of input and management) over three time periods – up to 5 years, 6-10 years and 11 yrs and beyond. This scheme is not based on strong scientific evidence and experiences elsewhere and will face the same fate as all other breed development efforts faced in the past. Dairy processors – both cooperative and private sector operators, are also following the basic breeding approach outlined in the livestock policy document in the absence of better alternatives. On the other hand, some dairy development project operators and dairy policy analysts have shown that though some increase in milk output will come out of these efforts, overall the breeding policy and strategy is not based on

strong scientific foundation, it will be unsustainable and will have serious long term negative consequences on the national livestock population. Since breed is the fundamental basis for development of the sector, the issue needs serious debate and resolution. Moreover, tariff is the main instrument used to stabilize price but the way it is used makes it ineffective as a tool for protecting consumers and for providing incentives to smallholder milk producers.

Some stakeholders consider feed constraint a serious handicap for the development of the livestock sector, especially dairy and argue for policy support to manufacture concentrate feeds. Policy analyst showed on the basis of dairy development experiences elsewhere that commercial feed use occurs after significant advances in the scale and commercialization of the dairy enterprise, and large scale commercial feed manufacture is premature under the current stage of dairy in Bangladesh. The solution to the problem of feed shortage has to be found in other ways from within the smallholder mixed farming systems.

For the commercial poultry sector, both public and private sectors recognize that the most important threat is becoming Avian Influenza and lack of a proven, sustainable mechanism for its management and control. Laboratory and diagnostic facilities are poor and inadequate, general veterinary service is not equipped to handle major incidences and public sector efforts alone will be inadequate to manage these problems. Vaccine production is also restricted, which needs attention. There is as yet no agreed and proven mechanism for public-private partnership for managing this disease and efforts need to be continued to find one. Contract farming is an effective organizational form to address some of these problems but practice of contract farming is still at a rudimentary stage in the country. Experience of one firm with self-finance insurance along with contract has also proved to be effective tool to address risks and this can be scaled up by others.

Other problems for the commercial poultry sector that policy can help is lack of skilled workers, lack of training facilities for technical and business management training for new entrants in the industry, use of prime crop land for establishment of poultry farms without considering long term consequences on the environment, absence of a comprehensive poultry policy, uncontrolled cross border trade, and official trade sometimes allocated to inexperienced traders.

Livestock research and extension suffer seriously from inadequate and quality manpower at all levels from management to front line workers. The only livestock research institute in the country is poorly staffed and those in place have a depressing work environment due to the absence of long over due promotions and other problems related to service conditions. The Department of Livestock Services has serious leadership problems – all its key senior management positions are vacant and are handled on a temporary basis by lower level staff, which constrains them in taking major policy decisions. Front line health service and extension staff is few in relation to the needs. With the expansion of commercial poultry and some commercial dairy, the need for such staff has been increasing rapidly with an additional problem where few public sector staff have to allocate time between serving real smallholders' needs (which has a public good characteristic) and commercial producers' needs (which has pure private good characteristic). Without significant increase in staff, this conflict of interest and tradeoff may not be resolved.

#### **Program 6: Access to markets, increased value added, increased non-farm income**

Private sector agro-processing operators feel that there is no organizational support system for promotion of agribusiness as in the case of industry and commerce. The Bangladesh Agro-processors Association was established in 1998 with 13 members, now its membership is 321 but it is not yet used as a forum by the government for discussion on the potentials and constraints of expanding this sector. They feel that small and fragmented holdings are the basic problems for commercialization of agriculture and corporatization is the ultimate solution, which requires various kinds of policy support. Some examples are removal of policy bias towards cereals, especially rice, and consideration of agro-processing especially dairy as a source of better nutrition, employment and economic growth; low interest credit, tax holidays for extended periods, export subsidy; assured power, gas and water supply, modern transport facilities, laboratory facilities for quality testing and standards; modern processing and packaging facilities, support for biotechnology and GM food; information on available processing technology, local and export market demand and prices; establishment of special agro-processing zone like export processing zone, and insurance under public-private partnership to reduce risks.

However, some stakeholders feel that of the identified priority investment areas in the CIP, there is no appreciation of the different strategies and actions needed in high vs low potential areas, between areas with good market access vs remote inaccessible areas, between types of commodities such as food grains vs perishable products. Without making these distinctions, public investment may be misplaced and private investment misled and not materialized.

Others argued that often production technologies are disseminated or promoted without knowledge and understanding of potential market and related problems. Market demand for high value perishable commodities is always segmented – need to recognize that not everyone is willing and able to pay for value added through processing and other actions. Many development projects implemented in remote areas – char lands, haor areas, other areas inaccessible by road or other means of communication - targeting poor households suffer from market access problems for project promoted products. So outcomes of such projects are rarely scalable. Moreover, infrastructure for improving market access may not be created as quickly as technology for production improvement can be disseminated. So there is need for such development projects to carefully examine potentials and constraints from all dimensions during the project design stage and move forward with what is feasible.

### **Crosscutting theme: Analytical capacity and data bases**

This review of policies and consultation with stakeholders has revealed three areas that require urgent and serious consideration for investment within the CIP framework.

First, a plethora of policy documents have been prepared over the last two decades, some sooner than others. But they are not all up to date and consistent. Some policy documents covered issues handled in other policy documents, e.g. national agricultural policy incorporated seeds, fertilizer, research, irrigation, environment, mechanization, land use and a host of other issues for which there are independent policy documents. But there is no cross reference and in some cases, the policy statements may differ between the base policy document and the one using it as a secondary issue. Also circumstances have changed in case of some policy documents and new policy decisions have already been taken and implemented while the provisions in the main policy remain in place. In order to overcome

such inconsistencies, it is strongly advisable to (a) update all the policy documents to bring them in line and make them consistent, (b) in doing so, first decide on a set of key policy documents to be prepared and subsume other related issues within those documents rather than writing a separate policy document on every single issue (c) where an issue from one policy document is quoted or referred to in another, cross reference should be made and in electronic versions this should be done through weblink.

Second, it is observed that national surveys like nutrition survey, income and expenditure survey, census and sample survey are conducted for specific purposes without giving adequate attention on their potential use. There is little exchange of ideas between agencies and the research community that are potential users of these data sets. Significant value added from these surveys can be obtained by planning and executing them better to make them complementary and by making them available to the wider research community without the extent of delay currently observed.

Third, it is observed that the state of electronic data bases of the various ministries and agencies is in a very poor state even if promotion of ‘digital Bangladesh’ and ‘right to access information’ are declared policies. The websites of some of the ministries and agencies contain very little information and what is available is also very dated. Objective information on success and experiences, even failures are essential to make progress. Lack of information generates opportunities for propaganda which then become a source of many misconceptions, misunderstandings, undue controversy and unhealthy debate. Transparency in information can easily solve many problems. So it is strongly advisable that deficiencies in the data bases of the ministries and agencies are urgently overcome by standardizing all government websites in terms of basic structure of information, and up to date data, providing sources and cross references and web links where required. Deficiencies in current data bases can be overcome through regular updating and consistency checks across websites.

All three activities deserve priority investment within the CIP framework which will generate high pay off.

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## **Appendix A**

### **Terms of reference for the consultancy**

The collaboration will provide the following services for Policy Analysis for the Bangladesh Country Investment Plan (CIP) for Agriculture, Food Security and Nutrition in Bangladesh, under the overall supervision and guidance of the IFPRI project manager.

#### **Activities**

- Undertake 12-15 interviews with private sector agricultural actors and related government officials. Attend related field trips representing IFPRI. Review key policy documents.
- Analysis and write up of interviews and policy document content for draft report, according to report outline provided.
- Complete revisions for final report

#### **Schedule of activities**

The collaborator will accomplish the above mentioned activities according to the following time schedule:

- February 15, 2011: Complete draft report analyzing interviews and policy document content for draft report, according to report outline provided
- February 20, 2011: Complete revisions and turn in final report

## **Appendix B**

### **Institutions/Persons Consulted and consultation meetings attended**

#### **25/1/2011 pm Meeting at Pran Tower, Gulshan (key persons present)**

Major General Amjad Khan Chowdhury (Retd) Chairman, Pran-RFL Group

Mr A Rouf Chowdhury, Chairman, Bangladesh Vegetable Oil Refiners' and  
Vanaspati Manufacturers' Association

Mr Khondaker Mozammel Huq, Managing Director, Enterprise Development  
Company Ltd and Chairman, Grameen Bank Governing Board

Dr Abul Quasem, Ex-Managing Director, Hortex Foundation

Dr Zaidi Satter and Dr Ahsan Mansur, Policy Research Institute

Plus USAID and FAO staff

#### **25/1/2011 am Meeting at FPMU**

Nurul Islam, Managing Director, Sylhet Foods, London + others

#### **27/1/2011 and 29/1/2011 Supreme Seed Company Ltd, Uttara**

Mr Mohammed Masum, Chairman

Mr Mokfor Uddin Akond, Managing Director

Mr Ramendra Chowdhury, Adviser

Mr Ibrahim Khalil, Adviser

Mr M A Razzak, Adviser

#### **27/1/2011 Pran-RFL Group, Gulshan**

Major General Amjad Khan Chowdhury (Rtd), Chairman

#### **28/1/2011 IRRI Bangladesh Office, Banani**

Dr M Z Abedin, IRRI Representative in Bangladesh

#### **29/1/2011 Lal Teer Seed Ltd**

Dr M A Razzaque, Executive Director

Mr Mahbub Anam, Managing Director

**31/1/2011 BRAC, Gulshan**

Dr Monoranjan Mondol, Program Head, Agriculture and Food Security

Dr M Serajul Islam, Program Head, Innovations

**1/2/2011 Bangladesh Agricultural Research Council and Krishi Gobeshona Foundation, Farm Gate**

Dr Wais Kabir, Executive Chairman, BARC

Dr Nurul Alam, Executive Chairman, KGF

Dr Nurul Islam Bhuiyan, Director, KGF

Dr M A Hamid, Program Director, KGF

**3/2/2011 Kazi Farms Group, Dhanmondi**

Mr Kazi Zahedul Hasan, Managing Director

Ms Shameem Ara, sub-Editor, Poultry Bangla

**3/2/2011 Department of Agricultural Extension, Khamar Bari, Farm Gate**

Mr Dulal Chandra Sarker, Director, Field Services Wing

**6/2/2011 Bangladesh Rice Research Institute, Gazipur (met at BARC)**

Dr M A Mannan, Director General

Dr M Khairul Basher, Director (Research)

**8/2/2011 am Department of Livestock Services, Farm Gate**

Dr Bhabesh Chandra Roy, Livestock Economist

Mr Modassar Billah, Assistant Director

**8/2/2011 pm Seed Wing, Ministry of Agriculture**

Mr Anwar Faruque, Additional Secretary and Director General

**8/2/2011 pm CARE Bangladesh, Kawran Bazar**

Mr Fahim Khan, Head, Char Livelihoods Program

Mr Selim Reza Hasan, Director, Program Development Unit

Dr Md Meherul Islam, Director, Program Quality Unit

Mr Nurul Amin Siddiquee, Coordinator, Dairy Value Chain Project

**9/2/2011      Bangladesh Livestock Research Institute, Savar**

Dr Khan Shahidul Huq, Director General

**10/2/2011      BRAC**

Dr Mahabub Hossain, CEO

**14/2/2011      Bangladesh Agricultural Development Corporation**

Dr S M Nazmul Islam, Additional Secretary and Chairman

**15/2/2011      Bangladesh Krishi Bank Head Quarters**

Mr Md Mukter Hussain, Managing Director

Mr Masud Ahmed Khan, General Manger, Planning and Operations

**17/2/2011      CIP working group meeting at the FAO Representation Office**

FAO and IFPRI team members involved in revision of the CIP attended to discuss progress

**24/2/2011 Consultation with the civil society at the FAO Representation Office**

About 40 participants attended representing key organizations like BRAC, CARE, Action Aid, Dhaka Ahsania Mission, Concern Worldwide, UBINIG, Bangladesh Center for Advanced Studies, International Development Enterprise, Krishak Federation, Hunger Free World attended in addition to FAO, IFPRI and FPMU

**28/2/2011      Food Planning and Monitoring Unit, Ministry of Food and Disaster Management**

Mr. Naser Farid, DG

**3/3/2011      Consultation on the Food Access theme**

Various ministries, government agencies and international development partners like UNICEF, WFP, Asian Development Bank, World Bank attended in addition to FAO, IFPRI and FPMU

**6/3/2011      Consultation with the private sector at the Metropolitan Chamber  
of Commerce and Industry, Dhaka**

About 100 participants representing the private sector as well as various agencies and development partners attended in addition to FAO, IFPRI and FPMU