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Disclaimer

This report is an output of the study conducted by Bangladesh Institute of Development Studies (BIDS) with the assistance of Swisscontact-Katalyst. The views and opinions expressed in this report are those of the author(s) and do not necessarily reflect the official policy or position of Swisscontact-Katalyst. Assumptions made within the analysis are also not reflective of the position of Swisscontact-Katalyst or its implementing and funding organisations.

Inclusive Market Development in the Agriculture Sector of Bangladesh: Challenges and Opportunities

Paper prepared as a part of A study by BIDS assisted by Swisscontact-Katalyst

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FOREWORD

On behalf of Katalyst, I would like to congratulate Bangladesh Institute of Development Studies (BIDS) on the successful completion of the study on *Inclusive Market Development in the Agriculture Sector of Bangladesh: Challenges and Opportunities*. This has been an excellent opportunity for us to partner with BIDS in supporting their endeavour to realise the potential of inclusive market development in Bangladesh.

Agribusiness for Trade Competitiveness Project (ATC-P), branded as Katalyst, is a market development project which aims to increase the income of poor men and women, thereby contributing to sustainable poverty reduction in Bangladesh. Phase 3 of Katalyst is co-funded by the Swiss Agency for Development and Cooperation (SDC), the UK government and the Danish International Development Agency (DANIDA). It is implemented by Swisscontact under the umbrella of the Ministry of Commerce, Government of Bangladesh.

In Phase 3, Katalyst has introduced a theme entitled 'capitalisation', under which it plans to intensify its activities to create awareness for a wider range of stakeholders of the overall concept of inclusive market development and influence them to further improve or streamline their practices related to inclusive development. As a part of its capitalisation strategy, Katalyst has supported BIDS to carry out a study to explore various concepts of Inclusive Market Development (IMD) and attempts made to apply them in the different agricultural subsectors of Bangladesh. This study uncovers the core principles of the IMD approach, its role in poverty reduction, and its application in three sectors, namely fisheries, vegetables and agricultural inputs (seed and fertiliser). In addition, it suggests ways to promote the IMD approach further in Bangladesh by making the policy environment more conducive for practice this model by the private sector.

As this report verifies, IMD has potential to promote the economic development of the country through the collaborative efforts of different stakeholders (both public and private), by establishing new norms, delivering well-targeted programmes, and providing support to accelerate the pace of change.

Together we can expect a new era in development which is more sustainable, resilient, and inclusive.

Markus Ehmann General Manager Katalyst

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The main focus of national Bangladesh is the achieving of sustainable growth and the alleviation of poverty. A common perception among general people that poverty alleviation is the responsibility of the government, with the role of the private sector's is largely perceived in terms of its involvement in locating a supply of labour, collecting raw materials from the poor (where appropriate) and operating a labour-intensive distribution process. Any activities it may conduct under the banner of 'corporate social responsibility' are also linked to some extent to poverty reduction. In recent years, social business has emerged as another avenue of private sector involvement in poverty reduction. While these private sector initiatives have been successful in creating employment for the poor and within that context, in expressing to a large extent the essence of inclusivity, they have at the same time revealed certain limitations in terms of making the poor self-reliant and able to progress fast and in a sustainable way. In response, for the last couple of years the inclusive market development approach (IMD) has been promoted by a number of international organisations and development partners. This approach goes beyond the above-mentioned traditional 'business as usual' models to ensure the poor are better integrated in the market so that they can attain sustainable economic development. The approach is mainly based on the notion of 'Making Markets Work for The Poor¹'.

This study explores various concepts of IMD and attempts to them associate with different

subsectors in agriculture so that a guideline could be developed for the introduction and encouragement of inclusive business in those sectors. This report covers the basic principles of the IMD approach and its role in poverty reduction and its application in three sectors (fisheries, vegetables and agricultural inputs, specifically seed and fertiliser). It also suggests ways to promote the IMD approach further in Bangladesh by making the policy environment more suitable for the private sector to practice this model. The study was based on secondary sources of information, discussions with stakeholders, focus group discussions, and key informant interviews. One part of the study has covered the development of a conceptual base for inclusive business which can be applied in various sectors, especially in agriculture. It has also explored a space for the IMD approach amid existing public sector initiatives for inclusive growth. It was noted that these initiatives have their virtues and limitations, and that for various reasons they are not serving the need of inclusive growth sufficiently. As a result, there is space for the market to work for inclusive business. That possibility has been explored for the three agriculture sectors named above, and the analysis has come up with a guideline for promoting IMD approach in these sectors. A summary of the suggestions made in the guideline is as follows:

¹*http://www.enterprise*-

development.org/implementing-psd/market-systems

Fisheries sector

Capture fisheries

• The main area in which government can intervene is that of empowering the poor, so that they can better participate in marketing fish.

• Government can also make the Jalmahal Policy² work for the really poor folk, who need financial support.

• Public water bodies appropriate for fish farming should be leased out to entrepreneurs who have the knowledge and capital to make the most of this resource.

• The government needs to provide training facilities and awareness raising of, among others, modern fishing techniques, use of nets, and the negative impacts of illegal gear, to mitigate against, for example, the impacts of environmental degradation and destruction of rare fish species

• Awareness needs to be raised of the negative impact of capturing fish by pumping water as this technique destroys tiny fish.

Culture fisheries

- Government could consider reproducing international techniques in user-friendly language and make them available through Upazila Information Centres.
- Quality of fish fries produced in privatelyowned hatcheries needs to be regulated and monitored so that it improves.

• Monitoring the quality of fish feed supplied by private companies is essential to prevent adulteration (a common phenomenon).

• Activities of industrial fish feed producers also need to be monitored to ensure the feed is of good quality. Private sector feed producers need sporadic training.

• The government fund currently used to provide cash incentives to fish exporters could be better utilised by providing low cost loans to fish farmers to assist them to adopt new production technology. This would have long lasting impacts on the sector as a whole.

• Hatchery owners and fish feed producers need to be made aware of sanitary and phytosanitary concerns in regard to quality fish fries and fish feed and their distribution.

• Contract farming could be encouraged to increase the productivity of fish farms.

• Private companies in collaboration with mobile phone operators can come up with easy applications to supply regular price information to fishermen.

• More training programmes for fish farmers and hatchery owners could be offered by the government, particularly on pond management.

• Marine-based aquaculture could save agricultural land which is currently being used for culture fisheries.

Vegetable sector

• A separate policy for the fruit, flower and vegetable sectors needs to be developed.

• Government can encourage private companies to establish standard cold storage and vegetable packaging industries at local level by providing policy support and developing an incentives structure.

²Jalmahals are large water bodies. In Bangladesh there are numerous government-owned *jalmahals* and a range of disputes concerning the right to fish in them The government Jalmahal Management Policy (2009) is aimed at providing poor fishermen with government-owned ponds to bring in socioeconomic development of the community.

• To obtain better prices vegetable producers could form cooperatives and sell their produce through an auction market, such as the CDP auction market in Khulna.

• Government should also ensure a cargo plane and proper scaling facilities, cool chain, and also scanning facilities separated from the passenger luggage for vegetable exporter.

Fertiliser sector

• Adequate warehousing facilities especially in the relatively remote areas are necessary for effective distribution of quality fertiliser.

• Government can provide a subsidy for organic fertiliser to reduce its price to below that of chemical fertiliser.

• To reduce shipment time and transportation cost, fertiliser supply to the dealers should be made, as far as possible, from the nearest buffer stocks.

• To ensure efficient and effective marketing of fertiliser, dealers' selection process needs to taken out of the hands of the elite and powerful.

• To stop the adulteration of fertiliser, the monitoring network, especially at the field level, needs strengthening.

Seed sector

• Government needs to create level playing field where the private sector will be strengthened in all possible ways to compete with the public sector.

• Quality Varietal Replacement Rate (VRR) or Varietal Turnover Rate (VTR) must be increased tremendously to empower poor farmers to use better quality seed.



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LIST OF ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
BADC	Bangladesh Agricultural Development Corporation
BARI	Bangladesh Agricultural Research Institute
BCIC	Bangladesh Chemical Industries Corporation
BCIP	Bangladesh Country Investment Plan
BFA	Bangladesh Fertilizer Association
BINA	Bangladesh Institute of Nuclear Agriculture
BJRI	Bangladesh Jute Research Institute
BRRI	Bangladesh Rice Research Institute
CDP	Coastal Development Partnership
CFW	Cash for Work
CSR	Corporate social responsibility
DAE	Department of Agricultural Extension
DAP	Di-ammonium Phosphate
DFSMC	District fertiliser and seed monitoring committee
DLS	Department of Livestock Services
DoF	Department of Fisheries
FAO	Food and Agriculture Organization
FCD/I	Flood Control, Drainage and Irrigation
FDI-2	Foreign Direct Investment
GoB	Government of Bangladesh
HIES	Household Income and Expenditure Survey
НҮV	High yielding variety
IMD	Inclusive market development
MDGs	Millennium Development Goals
МоА	Ministry of Agriculture
MoFDM	Ministry of Food and Disaster Management
МоР	Muriate of Potash
MT	Metric tonne
NAP	National Agricultural Policy
NASFAM	National Smallholder Farmers Association of Malawi
NFC	National Fertilizer Committee
NFDCC	National Fertilizer Distribution Coordination Committee
NFPPA	National Food Policy Plan of Action
NGO	Non-government organisation
NSAPR	National Strategy for Accelerated Poverty Reduction
NSP	National Seed Policy
PKSF	Palli Karma Shahayak Foundation
PSI	Private sector importers

SCA	Seed Certification Agency
SDGs	Sustainable development goals
SFYP	Sixth Five-Year Plan
SME	Small and medium enterprises
SRDI	Soil Resource Development Institute
SSP	Single super phosphate
TSP	Triple superphosphate
UAO	Upazila agriculture officer
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
UNO	Upazila nirbahi officer
USAID	United States Agency for International Development
VGD	Vulnerable group development
VGF	Vulnerable group feeding
VRR	Varietal replacement rate
VTR	Varietal turnover rate
WBCSD	World Business Council for Sustainable Development

Introduction

In Bangladesh, the main focus of national policies such as the Five-year Plan and Perspective Plan is to achieve sustainable growth and alleviate poverty. It is commonly perceived that poverty alleviation is the responsibility of the government. Poverty, especially extreme poverty, should be addressed by government measures, such as social safety net programmes. This conventional approach to poverty reduction also includes micro-entrepreneurship development mainly through the activities of various nongovernment organisations (NGOs). Although these programmes have been successful in reducing poverty to a certain level, these attempts have only partly managed to integrate poor producers with the market. As a result, they have now been able to become 'market agent' and move vertically up the ladder of economic development. In a market economy, development models which ensure better integration of the poor in the production network and supply chain can go a long way to alleviate poverty.

Private sector role in poverty reduction is mainly perceived in terms of their involvement in obtaining a supply of labour, collecting raw materials from poor (where applicable) and operating labour intensive distribution process. In addition, private sector activities under the banner of corporate social responsibility have also been linked to poverty reduction to some extent, alongside, in recent years, social business. While these private sector initiatives have been successful in creating employment for the poor, and in that connection in expressing the essence of inclusivity to a large

extent, they have limitations in terms of making poor self-reliant and able to progress quickly and in a sustainable way. For the last couple therefore, various international years organisations and development partners have started to promote the IMD approach. This approach goes beyond above-mentioned traditional 'business as usual' models, aiming to make poor producers more integrated in the market so that they can attain sustainable economic development. The approach is mainly based on the notion of making markets work for the poor. According to Di Bella et al. (2013), the private sector can go beyond traditional business practices and engage itself in sustainable development by adopting and implementing inclusive business models, creating inclusive value chains, adopting and supporting the widespread adoption of responsible business practices, implementing human rights principles in business operations including gender and child human rights frameworks, and improving accountability and transparency in business operations.

In a developing country like Bangladesh, the private sector is one of the leading agents in enhancing economic development. A significant portion of public investment should therefore be directed to build competitiveness of the private sector. Various national policies (including five-year plans, national social safetyprogrammes, and annual net budget documents) have emphasised the significance of the role of the private sector and the market in reducing poverty. According to the Sixth Five Year Plan (FY2011-2015) the Bangladesh government recognises the importance of the private sector and suggests that a 'key focus of the plans will therefore be on strategies, policies and institutions to help guide the private sector in helping Bangladesh achieve the goals set in Vision 2021'. The Seventh Five-Year Plan (2016-20) also mentions in its foreword that "The Government recognizes that in a market economy like Bangladesh, where the bulk of the economy is privately owned and managed, the role of planning is essentially indicative and strategic in nature, aimed at stimulating the private sector". These are testimonies to the government's increased interest in supporting the private sector for economic growth and utilize their initiatives more for poverty alleviation and sustainable development. Increasingly, the government also recognises the potential for inclusive business as a mechanism for achieving development objectives.

This study aims to explore and understand various concepts of IMD, and to associate those concepts with various subsectors in agriculture to enable the development of a guideline for introducing and encouraging inclusive business in these sectors. The analysis in this report covers the basic principles of the IMD approach and its role in poverty reduction, its application in three sectors (fisheries, vegetable and agricultural inputs, namely seed and fertiliser), and the possibilities of promoting the IMD approach further in Bangladesh by making the policy environment more suitable for the private sector to practice this model. The study concludes by proposing a guideline to assist with facilitating IMD in different agriculture sectors of the economy.



The study started with preliminary desk research to identify potential stakeholders government (institutions, ministries and departments). The whole idea of the study was then discussed with representatives of these stakeholders in an inception workshop. A working committee was formed to advise the study team on various aspects relevant to the study, including IMD concepts, which agriculture subsectors to be covered in order in terms of potential for the IMD approach, and the sharing of knowledge. The working committee included officials from the government Planning Commission, Ministry of Agriculture, Ministry of Commerce, Department of Agricultural Extension (DAE), Department of Livestock Services (DLS), Department of Fisheries (DoF), Ministry of Industries and representatives of business chambers. It was envisaged that discussions in committee meetings would build the capacity of its members. Representatives from Katalyst were also part of the working committee.

The working committee members were asked to suggest appropriate sectors to be covered by the study. The study team analysed the responses, and selected three sectors suitable for learning lessons and developing a guideline on introducing or expanding IMD practice. These sectors are i) fisheries, ii) vegetables, and ii) agricultural inputs (seed and fertiliser).

The study team then conducted short studies on the selected sectors to explore the possibilities of practicing IMD in those sectors. These short studies were based mainly on existing literature, secondary sources of data, and consultations with relevant stakeholders and experts. During the study process, the working committee met several times to discuss preliminary findings. Members of the committee also act as ambassadors, promoting the concept of IMD in their respective department, ministry or organisation.

A senior level facilitator participated in this study to facilitate linkage between working group activities and actions of the decisionmakers in the relevant ministries and departments in incorporating the IMD model in their policies and regulations.

The guideline developed on the basis of the findings of this study has been validated by different stakeholders of the sectors covered. Three separate validation workshops were organized in this purpose under the current study. The participants were encouraged to take initiatives to implement recommendations made in the guideline. At the same time, reports published in the daily newspapers.

CHAPTER 2: CONCEPT OF INCLUSIVE MARKET DEVELOPMENT (OR INCLUSIVE BUSINESS)

Concepts and Definitions

The concept of inclusive business was first referred to formally in the United Nations report Creating Value for All: Strategies for Doing Business with the Poor (2008) published by the Growing Inclusive Markets Initiative and guided by an advisory board consisting of leaders in the field, including the International Business Leaders Forum, the International Finance Corporation, key bilateral donors (USAID and AFD), the World Business Council for Sustainable Development, University of Michigan and Harvard Business School. The report suggested that an inclusive business model is capable of benefiting the poor by including them, in a sustainable manner, in a company's value chain - on the demand side as clients and consumers, and on the supply side as producers, entrepreneurs or employees. Inclusive thus business models build bridges between businesses and the poor for mutual benefit. For business, the benefits go beyond immediate profits and higher incomes: gains include a driving of innovation, the building of markets and a strengthening of supply chains. For the poor, benefits include access to essential goods and services, higher productivity, sustainable earnings and greater empowerment.

Even before this UNDP report, in 2006 the World Business Council for Sustainable Development had discussed inclusive business as that which seeks to contribute towards poverty alleviation by including lower income communities within its value chain, while at the same time not losing sight of the ultimate goal of business, namely, to generate profits.

According to UNDP's inclusive market development handbook (2010), the IMD approach is based on the notion that different interventions in different places and at different times are necessary in order to ensure the effectiveness of markets for the poor. This approach seeks to strengthen the whole market system

accordin to g need, and can include enterpris es, business relations hips, market structure s or the business environ ment. IMD can also be adopted in other develop ment realms, such as

According to UNDP's inclusive market development handbook (2010), the IMD approach is based on the notion that different interventions in different places and at different times are necessary in order to ensure the effectiveness of markets for the poor. leveraging the private sector to address gaps in educational services, to foster energy and environmental solutions, or as a strategy in crisis prevention and recovery situations. Regardless of the context, in order to arrive at

A number of international organisations (UNDP, ADB, UNIDO, World Business Council for Sustainable Development and others) have discussed inclusive business (Table 2-1). As yet however, there is no definitive definition of 'inclusive business'; most of these organisations consider it to be a process, where targeted groups (namely large entrepreneurs and the interventions which truly promote inclusion, the IMD approach promotes broad multistakeholder engagement throughout all stages of a project, from planning through to implementation to monitoring and evaluation.

poor, along with others involved in production and supply chains) are brought into the market in different roles. Large entrepreneurs, for example, are usually involved in the production, distribution and marketing segments, while the poor participate as producers and suppliers of raw materials and intermediate products, and suppliers of labour.

Organisations	Definition of inclusive business	Main components
World Business Council for Sustainable Development, 2006	An inclusive business seeks to contribute to poverty alleviation by including lower income communities within its value chain, while not losing sight of the ultimate goal of business, which is to generate profits.	 Inclusion of lower income community in value chain Makes profits
United Nations Development Programme,2010	Inclusive business models include the poor and other marginalised groups (e.g. women, youth and indigenous people) on the demand side as clients and customers, and on the supply side as employees, producers and business owners at various points in the value chain. These models build bridges between business and the poor for mutual benefit.	 Inclusion of poor and other marginalisedgroupsin the value chain, on the demand side as clients and customers and on the supply side as employees, producers and business owners
Asian Development Bank, 2014	Inclusive businesses are private sector investors specifically targeting this low income market with the double purpose of making reasonable profit (i.e. an internal rate of return of 8-20%) and creating tangible development impact through the provision of sustainable decent jobs and better income opportunities, as well as services which matter for thelives of the poor and those on a low income (less than USD3/day).	 Targets poor and those on a low income (less than USD3/day) Targets low income market Makesreasonable profit Creates decent jobs
World Business Council for Sustainable Development (WBCSD); SNV Netherlands Development Organization, 2011	Inclusive businesses are entrepreneurial initiatives that are economically profitable, and environmentally and socially responsible. Underpinned by a philosophy of creating mutual value, inclusive Businesses contribute to improving the quality of life of low income communities by integrating them in the business value chain: as suppliers of services and/or raw material, as distributors of goods and/or services	 Is economically profitable and environmentally and socially Integrates low income communities into the value chain as suppliers of services and/or raw materials, as distributors of goods and/or services and as consumers, by offering goods and services

Table 2-1: Operational definition of 'Inclusive Business'

	and as consumers, by offering goods and services to fulfill their essential needs at prices they can afford.		
Endeva-Enterprise Solutions for Development, 2010	Inclusive business integrates people living in poverty into the value chain as consumers or producers, thus making a positive contribution to the development of companies, the local population and the environment.	•	Integrates people living in poverty into the value chain as consumers or producers
International Business Leaders Forum, 2010 (Jackman& Breeze 2010)	Inclusive business models are designed to deliver mutual benefits for business and for the poor – generating sales and profit, while also creating jobs, providing access to new products and increasing incomes. Successful inclusive business initiatives may include the poor as clients and customers on the demand side, or as employees, producers and business owners on the supply side.	•	Generates sales and Creates jobs, providing access to new products, increasing Inclusion of the poor as clients and customers on the demand side, or as employees, producers and business owners on the supply side
National Smallholder Farmers Association of Malawi (NASFAM) (Makwenda 2010)	NASFAM understands inclusive business to refer to sustainable business practice that benefits the lower-income members of society. An inclusive business model involves close working partnerships with local suppliers and service providers so as to share value among the partners. Inclusive business rests on both generating revenue and producing beneficial social impact.	•	Develops close working partnerships with local suppliers and service providers so as to share value among the partners
Business Innovation Facility, 2011	The term 'inclusive business' refers to profitable core business activity that also tangibly expands opportunities for the poor and disadvantaged in developing countries. Such business models can engage the poor as employees, suppliers, distributors, consumers and/or innovators.	•	Develops profitable businesses Engages the poor as employees, suppliers, distributors, consumers and/or innovators

Source: Moazzem and Rayan (2014)

Inclusive business models are appropriate for development and implementation by a wide range of entities, from private corporations (large and small) to state-owned companies. Exceptions are co-operatives or not-for-profit organisations, because of their lack of profit motive. It is expected that inclusive businesses will possess the following characteristics:

• Human development impact. An inclusive business model should contribute to human

development by increasing the income of the poor, improving their access to basic goods and services (such as education, health, housing, water and sanitation, thus contributing to the Millennium Development Goals), and reaching excluded and disadvantaged groups (including women, youth, the disabled and ethnic minorities).

• Commercial viability. An inclusive business model can receive start-up funding from

different sources (including grants) but it must be designed to break even and become self-sustaining over time (profits can be re-invested into the business or distributed to shareholders).

• Environmental impact. As a minimum, an inclusive business model should ensure no

Conceptual differences between models close to IMD

In recent years, a number of concepts and models have been proposed in an effort to define different approaches to how business can work with its host society. These approaches, how they are defined, and what they are called, remain a matter of ongoing discussion. An analysis of the various conceptual and operational issues of these models is presented in table 2-2.

	CSR	Social enterprise	Inclusive business	Mainstream business
Definition	The social responsibility of business encompasses the economic, legal, ethical, and discretionary (later referred to as philanthropic) expectations which society has of organisations at a given point in time.	A commercial enterprise which mainly focuses on innovative solutions for the poor.	A profitable commercial enterprise where the business model balances profit-making with scaled social impact.	A company whose primary goal is to make profits
Financial viability	Not viable	Commercially viable	Fully commercially viable (profitable)	Profitable or highly profitable
Rate of return (net percent per year)	0	0-10	10-25	10-50
Growth potential (average percent per year over 5 years)	<2%	5%-10%	10%-25%	>15%
Main purpose of the business is social impact	Yes	Yes	Mixed (business + social)	No

Table 2-2: Differences between CSR, social enterprise, inclusive business and mainstream business

major negative environmental impacts; at best, it will contribute directly to environmental sustainability (by, among others, saving resources, reducing carbon emissions, conserving biodiversity).

Social impact area	Community/local	Local	Sector/country/sy stemic

Source: Asian Development Bank 2014; Carroll 1979.

Social enterprises/social businesses are those companies which pursue social objectives as part of their business model. Social enterprises apply business logic to, as a minimum; cover their costs (Gradl & Knobloch, Inclusive Business Guide, 2010, p.13). A structurally social business is a non-loss and non-dividend company. It is meant to be financially self-sustainable (although often they are not), and profits are reinvested in the business itself (or used to start other social businesses) with the aim of increasing social impact. The prime aim of a social business is thus not to maximise profits (although the generation of profits is desired), and business owners do not receive a dividend for many profits which might accrue. Unlike a non-profit entity, a social business is not dependent on donations or on private or public grants to survive and to operate, because (like any other business) it is self-sustainable. A social business is thus run as a not-for-profit enterprise, with the aim of achieving social rather than financial outcomes: finance is necessary only as a means of sustaining activities.

Corporate social responsibility (CSR) refers to the approach taken by some companies to make an active contribution to society and at the least to 'do no harm'. Many companies strive to integrate CSR activities into their core business, especially since 1990s. CSR policy functions as a built-in, self-regulating mechanism whereby a business monitors and ensures its active compliance with the spirit of the law, ethical standards, and international norms. In some models, a firm's implementation of CSR goes beyond compliance, and it engages in actions which appear to further some social good, aside from the interests of the firm and that which is required by law. In such cases, CSR could thus be termed philanthropy and a way for a company to 'give back' to the society.

There is also an emerging field of business strategy which focuses on products, services, and enterprises designed to serve people at the base of the world's income pyramid³. Some would consider this to be a form of inclusive business; however, in most cases a profit motive remains marginal and it therefore may not have the character of inclusive business.

The notion of inclusive business is located somewhere in-between these three concepts. While social business restrains entrepreneurs for making profits from the business operation, inclusive business allows profit to be acquired as part of its work with low income communities and at the same time as part of its drive to ensure social development. CSR is a management practice which tends to be peripheral to the purpose of the business focuses on social causes and sometimes works for social goals which have little relationship with an organisation's business operation. As a result, it typically takes place in the sphere of community investment. By contrast, inclusive business models are concerned with changes in core business (Jackman& Breeze, 2013). The bottom of the pyramid approach focuses largely

³ As cited in www.brinq.com/resources/bop(accessed on 10 June 2015. At the bottom of the pyramid is the largest but poorest socio-economic group. In global terms, these are the three billion people who live on less than USD2.50 per day.

on the market and on selling products rather than on aspects related to production and supply chains. Inclusive business is thus reliant on the settings in which profit-making companies spot profitable commercial activities which involve the poor. According to the Asian Development Bank(ADB, 2014), each of these socially embedded operations has a different outcome in terms of financial viability, rate of return, growth potential and area of social impact (table 2-2). Although the inclusive business models lie somewhere in-between mainstream business and social business, we

need to bear in mind that there is no universally-accepted definition of it.

Benefits of IMD

The power of poor people to benefit from market activity lies in their ability to participate in markets and take advantage of market opportunities. Doing business with poor people brings them into the marketplace, which is a critical step on the path out of poverty. Moreover, for entrepreneurs and firms with commercial imperatives, broadening the customer base drives innovation, builds markets and creates new spaces for growth. Inclusive business models both produce and reap the benefits of human development. IMD can improve the lives of poor people by expanding their opportunities to lead lives they value. It may do so in the following ways:

i) Creating jobs and increasing incomes, by including poor people in value chains as customers, employees, producers and small-business owners.

ii) Meeting basic needs such as food, clean water, sanitation, electricity and health-related services.

iii) Increasing productivity, through access to products and services, from electricity to mobile telephony, from agricultural equipment to credit and insurance.

iv) Empowering the poor (all these contributions support the empowerment of poor people) individually and communally, to gain more control over their lives. By raising awareness, by providing information and training, by including marginalised groups, by offering new opportunities and by conferring hope and pride, inclusive business models can give people the confidence and new sources of strength enabling them to escape poverty using their own means.

The benefits of IMD are presented in Table 2-3 and Table 2-4.

Table 2-3: Benefits of inclusive business

For the company	For the low income community		
With partners, supp	liers and distributors		
Secure supply of raw materials	Fair prices and conditions		
Traceability and quality control of raw materials	Assured sales		
Lower transaction costs	Employment creation and expansion		
Shared risks	Training and technical assistance		
Access to knowledge and local networks	Technology and knowledge transfer		
Better relations with government	Access to financing		
Strategic positioning in new fair trade markets	Participation in a business and investment environment		
With co	nsumers		
Access to new markets	Greater access to quality products and services		
Increased income	Lower and more affordable prices		
Transfer of product innovations to existing markets	Better quality of life		
Increased brand value and positioning in order to capture new markets.	Increased productivity		

Benefits for companies	Benefits for communities	Benefits for governments	Requirements for companies wanting to implement IMD
Higher profitability	Jobs and income	Increased tax revenue (from SMEs)	Changed mindset: open to collaborating with new markets
Wider market share	Increased market access	Improved social services	High understanding and knowledge of local/informal markets
Lower operating costs	Enhanced human dignity	Increased GDP	Market research, resources/investment
New consumers	Access, innovation and technology	Greater infrastructural support	Innovation and 'thinking out of the box'
Better branding of products	Easier access to credit	Improved business climate	Proper calculation of return on investment
Ease of doing business due to better relations with government and communities	Better living conditions as a result of the above		Patience

Table 2-4: Benefits of inclusive business; requirements for companies wanting to implement IMD

Inclusive business in agriculture and its challenges

Inclusive business in the agriculture supply chain can occur in a variety of forms, including contract farming, management contracts, tenant farming and sharecropping, joint ventures, farmer-owned business, and upstream/downstream business links. As discussed, not all of these will fit with IMD approaches or inclusive business models. Vermeleun and Cotula (2010) discuss a number of examples from agribusiness which are close 'mainstream business' to being unless additional measures are applied to make them inclusive. For example, 'contract farming' follows a mainstream business, unless some additional elements of inclusivity are put in place. However, most agro-based activities in developing countries have some elements of inclusivity, and a proper approach to upgrading these activities could therefore make them 'inclusive'. In other words, IMD does not necessarily require companies to do anything beyond implementing their business motives. They can continue to what they do best; IMD simply requires them to apply their skills to areas that happen to be pro-poor.

Applying inclusive business models in the agricultural sector in developing countries dominated by small-scale producers faces two major challenges: a) organising and upgrading supply from a detached producer base, and b) traceability and quality assurance of these products (Vorley, Lundy, &MacGregor, 2008). Both the companies and farmers in the local community face challenges during the process of implementation of an inclusive business model. In fact, these challenges are faced in developing a supply chain in developing countries. The success of an IMD model depends on a number of issues⁴ and requires all parties involved to play a part. IMD approaches work effectively if companies are supported by collaboration of NGOs, government and research organisations.

⁴These include identifying opportunities, analysing the market, finding solutions, developing the product, securing funding, engaging partners, leveraging local capabilities, testing the model, understanding the impact, adapting the model, expanding locally, and transferring to other countries.



CHAPTER 3: NATIONAL POLICIES AND INCLUSIVE GROWTH:

THE COMPLIMENTARY ROLE OF IMD

While discussing inclusive market development, one needs to understand the space this concept occupies in relation to various government initiatives and policies designed to make growth more inclusive and pro-poor. The IMD approach could complement various government initiatives; in some cases it could even be more efficient. Bangladesh aspires to promote inclusive growth in the process of becoming a middle income country by 2021. To accomplish this, several policy measures are outlined in **Figure 3.1: Goals in public policies** government guidance policy documents (including five year plans, perspective plans and industrial policy). These policies are predicated upon three implicit goals (Figure 3.1): (i) to enhance the consumption possibility frontier of marginal and poor households through targeted public expenditure and transfer, (ii) to enhance their factor endowment, and (iii) to ensure better access to services provided both by market and government by reducing their cost.



In all these aspects, IMD could be beneficial to both consumers and entrepreneurs. Government initiatives and policy support designed to promote inclusive growth can be organised into four categories (Figure 3.2): (i) poor-oriented public expenditure, (ii) social sector spending, (iii) access to markets, and (iv) access to financial markets.



Figure 3.2: Categories of government initiatives and policy support

Pro-poor public expenditure

Instead of relying on the trickledown effect of growth, government orients part of its expenditure in such a way that it goes directly to marginal households either as income or transfer. One example of activities funded by public expenditure is the employment scheme for poor. The extreme poor live without employment during the lean seasons (September to November and March to April).To lessen the burden of economic hardship borne marginal and poor households at these times, in FY09 the Bangladesh government introduced a 'Hundred Days Employment Scheme' to be implemented by the Ministry of Food and Disaster Management (MoFMD). The main objectives of the scheme are: (i) enhancing the employment and purchasing power capacity of the extreme poor, (ii) creating assets for the community and Cash for Work (CFW) and Food for Work (FFW) programmes are particularly designed to

country which will enhance economic productivity, (iii) the development and proper maintenance of infrastructure and environment in rural areas, which will in turn (iv) ease the economic constraints faced by the extreme poor.

Another route followed by government to promote inclusive growth by ameliorating the lives of marginal citizens is the implementation of social safety net programmes. These include Food for Work (FFW), Vulnerable Group Development (VGD), Vulnerable Group Feeding (VGF), Old-age Allowances, Allowances for Retarded People, Allowances for Widows and Distressed Women, and Grants for Orphanages. In addition, a number of programmes address transitory food insecurity stemming from price and/or supply shock. Open market sales of food at reduced prices targeting the poor, and the mitigate against the incidence of seasonal food insecurity. These social safety net programmes are broadly categorised into two groups: social protection and social empowerment, and are implemented through both development and nondevelopment budgetary allocation. Social protection includes cash transfer to the poor; social empowerment includes stipends, housing and rehabilitation, microcredit and other development programmes.

Social safety net programmes accounted for about 2.4% of GDP in 2013;the government plan is for this to reach 3% of GDP by 2015. The number of households benefiting from these programmes accounted for 12% of total households in 2005 and increased to 24% in 2010.⁵However, this ongoing endeavour suffers from leakages and inefficient targeting.

Social sector spending

Acknowledging the fact that health and education are the last candidates on the spending list of poor households, the government uses public resources to make them affordable to these households. This spending is aimed at increasing the endowment of education and ensuring the good health of the poor so that they can take advantage of the growth process.

Available data shows that education has been one of the top government priorities for many years. This sector receives 12% of the total budget, which is the second largest budgetary allocation, after public administration. The management of the country's education system comes under two ministries; (i) Ministry of Primary and Mass Education (responsible for primary education and mass literacy), and (ii) Ministry of Education (responsible for secondary, vocational and tertiary education). Bangladesh government also emphasises the importance of the health sector when allocating public funds, which, per capita, have increased from BDT6,836 (FY09) to BDT12,458 (FY13). However, although the size of the national budget as a percentage share of GDP has increased over time, the health sector's share has remained stable at around 1% of GDP.

Access to markets

The government also subsidises several essential commodities, including petroleum products, electricity and a number of inputs, like fertilizer and fuel for irrigation. Agricultural inputs in general are subsidized to enable their use by small, poor farmers.

Fertiliser marketing in Bangladesh has gone through a reform process during 1972 to 1994. The National Fertilizer Distribution Coordination Committee(NFDCC)determines the total amount of fertiliser (e.g. TSP, MoP, SSP and DAP) to be imported by various agencies (BCIC, BADC and BFA). BCIC and BADC import fertiliser directly; BFA obtain sits allotments via private sector importers (PSI) who source fertiliser from the world markets. The NFDCC decides how much fertiliser each district should have and sends allotment letters to the district fertiliser and seed monitoring committees (DFSMCs)⁶. Each DFSMC in turn sends 16 fertiliser allotment letters to each upazila. The UNO in coordination with the UAO sends the allotments to different fertiliser dealers. According to the regulation, the PSI must sell their imported fertiliser to BCIC dealers. Under the government's BADC seed marketing division, there are 22 regional,

⁵Household Income and Expenditure Survey (2010).

⁶This committee meets once a month, or more if required; its role is to monitor the arrival of fertiliser and seed, the disposal, monitoring and supervision of seed and fertiliser distribution, and the taking of any necessary measures against adulteration.

42 district and 36 *thana* sales centres throughout the country. Seed is packed in seed processing centres during the crop production season and dispatched to these sales centres in accordance with the seed distribution programme. From there, the seed is distributed to seed dealers for sale to farmers. In the private sector, the flow of seed to farmers is facilitated through marketing centres which supply to the seed dealers.

Access to financial markets

The access of poor households to financial markets is constrained by several factors. About a guarter of the total population has no access to any financial services; slightly less than half of the population lack access to the credit market. Poor banking infrastructure, lack of financial literacy, and the high cost and lack of suitable financial products are the main roadblocks to financial inclusion and a hindrance to the promotion of inclusive growth. Bangladesh has taken several measures to increase financial inclusion. The farmers can now open a (public) bank account with a minimum deposit of BDT10, an amount significantly smaller than what is usually needed to open an account in Bangladesh. Also, the conditionality of disbursing agricultural loans has been rectified to help poor farmers.

Bangladesh Bank and Small and Medium Enterprise (SME) Foundation are also working to disburse more loans to small entrepreneurs

through credit wholesaling. With SME loans given out by financial institutions under the wholesaling credit arrangement with Bangladesh Bank, women entrepreneurs are given priority: while the usual interest for an SME loan is more than 15%, women entrepreneurs receive it at single digit interest rate. The government is also trying to make financial services available to the poor by implementing the Grameen Bank modality among a number of NGOs, supervised by the Palli Karma Shahayak Foundation (PKSF). The PKSF is experienced in delivering services to the doorstep of the poor and promoting their access to market.

IMD and government initiatives for inclusive development

Despite the sevarious government initiatives, gaps remain which government cannot cover, and according to the market development approach, either the market or the private sector thus needs to take a large role in including the poor in the growth path. Government initiatives administered in a targeted way might also encourage profitable private initiatives, which could play a significant part in generating employment for poor. The next chapter explores these possibilities and how they might be implemented in various agriculture sectors.



CHAPTER 4: SECTOR STUDIES EXPLORING THE POSSIBILITIES OF IMD

This chapter explores the possibilities for the IMD approach being implemented in three sectors: fisheries, vegetable and agricultural inputs (mainly seed and fertiliser). It analyses the prevailing sector-specific problems for each sector, following the basic principles of inclusive business described in the policy toolbox for inclusive business by Tewes-Gradl et al. (2013). This approach analyses whether an issue in a particular sector would best be addressed by enabling (the company), encouraging (the company), or empowering (mainly the poor). Policy toolbox for approaches to making markets work for inclusive growth

IMD-related public policies are government decisions which directly support mutually beneficial business relationships between private sector companies and poor people. These policies can enable and encourage companies to include poor people in their value chains; they can also empower poor people to engage with companies. According to Tewes-Gradl et al. (2013), the three basic approaches which government can follow in support of inclusive business models or IMD models are:

- enabling large market players (i.e. big entrepreneurs or companies) to enter low income markets;
- 2. **encouraging** the large players to invest in the low income markets, and
- empowering the poor to engage with larger players.

Depending on the situation in a particular sector, the Bangladesh government could choose any of these strategies or a combination of all three, to create an IMD environment. Tewes-Gradl et al. (2013) has suggested the use of a 'toolbox' to identify which government policy instruments would promote these three IMD approaches (see Table 4.1). With any of the approaches, government can intervene at any time to provide information, to formulate rules and regulations, or to provide financial or structural and capacity building support. However, for any IMD approach to work, although government can and must develop a supportive policy environment, it is private companies which are needed to develop and enact those approaches. It is crucial therefore that government engages in a constructive and on-going dialogue with the private sector.

Туре	Information	Rules	Financial	Structure and
			resources	capacity
Approach				
Enable	 Data and 	 Sector regulation 	 Access to 	 Infrastructure
	research	Standards	finance/market	
	 Peer learning 	 Overarching policy frameworks 	-rate loans	
Encourage	 Awards 	 Obligatory inclusion 	 Financial 	 Development
		 Legal forms for business with 	support	partnerships
		social mission	Public	
			procurement	
Empower	 Awareness- 	 Legal framework for market 	 End-user 	 Microbusiness
	raising	participation	subsidies	support
			 Insurance 	Capacity-
			schemes	building

Table 4-1: Policy toolbox for inclusive business or IMD

Source: Tewes-Gradl et al (2013).

A series of government policy instruments can enable the entry of private sector companies into low income markets byre moving constraints in the business environment. This would create enabling conditions for investment in inclusive business models. Such policies include as the most widely used options the production of relevant data and research, as well as the establishment of business-friendly regulatory environments, which in turn can comprise sector-level regulation, standards and overarching policy frameworks.

To **encourage** the private sector to invest in the low income market, governments can devise policies to increase expected returns. Prominent instruments here include creating a legal form for business which will incorporate the poor in the process, providing financial support, engaging in preferential public procurement, and establishing development partnerships.

Policies can **empower** poor people to engage with companies or with large players as consumers, producers, distributors and employees. For example, they can be empowered by the creation of a legal framework enabling their market participation. Alternately, they can be empowered financially through end-user subsidies and insurance schemes.



Promoting inclusive growth in the fisheries sector of Bangladesh by following an IMD approach

Inclusive market development models include poor people on the demand side as clients and on the supply side as distributors, suppliers of goods and services, or employees at various points in the value chain. These models build bridges between business and the poor with the aim of bringing mutual benefit. While private actors are the main drivers behind these business models, evidence shows that government action has often been decisive for the success and growth of these innovative approaches. Aside from the direct benefits generated through business activities, inclusive business models also have a systemic impact by contributing to the inclusivity of markets overall, thereby generating inclusive growth.

This section analyses prevailing weaknesses in the growing fisheries sector within the framework of IMD or a market-based approach. The focus is mainly on the possible role of government to either encourage or enable large market players to participate in the fisheries sector in such a way that it becomes more propoor and a better source of sustainable development. It also identifies how government can take a role in the empowerment of poor fisher folk to become stronger actors in the sector. This has taken into consideration that the context of many of the shortcomings prevailing in this sector is more important than the shortcomings themselves, making the solutions not so straightforward. This chapter attempts to discover the best possible solutions to many of the complex shortcomings prevailing in this sector by introducing an IMD approach.

Fisheries sector at a glance⁷

The fisheries sector in Bangladesh provides the principal source of animal protein and the second most significant economic activity within the agriculture sector of Bangladesh. This sector broadly includes inland fisheries (both capture and culture fisheries) and marine fisheries (covering industrial [trawling] and artisanal fisheries).The capture component of inland fisheries is composed of, among others, rivers and estuaries, the Sundarban mangrove forest, *beels*⁸,Kaptai Lake, and floodplains.

Over the past fifteen to twenty years there has been a structural transformation in the inland fisheries sector of Bangladesh. Before 2000, most of the fish came from the capture sector; currently, the majority comes from the culture sector. The area under capture fisheries has been declining in the last decade (because of, for example, the silting up of riverbeds and the transformation of water bodies into industrial land), and the area under culture fisheries has been increasing. The major source of growth in culture fisheries is ponds and ditches.

Culture fisheries (or 'aquaculture') is one of the fastest growing animal food producing sectors in Bangladesh, with an average annual growth rate of around 5% between 2009 and 2011 (DOF 2012). In 2010, Bangladesh was the fifth largest global aquaculture producer after China, India, Viet Nam and Indonesia (FAO 2012); in 2015, it was the fourth largest fish producing country. Bangladesh is considered to be one of the most suitable countries in the world for of freshwater aquaculture because its favourable agro-climatic conditions.

⁷This section, along with others discussing obstacles to the fisheries sector, draws heavily from Toufique and Ahmed (2013).

⁸*Beels* are large water bodies similar to *jalmahals*.

About 371,309 ha of freshwater ponds and over three million farmers are involved in aquaculture. Within a decade, fish production has increased from 2.21 million MT (in 2004-05) to 3.55 million MT(in 2013-14), an average growth rate of over 7% per annum (DoF 2012).⁹

Year	Capture	Culture	Marine	Total	Growth rate (%)
2004-05	792588	948772	474597	2215957	5.42
2005-06	928948	919787	479810	2328545	5.08
2006-07	976604	975969	487438	2440011	4.79
2007-08	1027250	1038473	497573	2563296	5.05
2008-09	1088083	1098643	514644	2701370	5.39
2009-10	1029937	1351979	517282	2899198	7.32
2010-11	1054585	1460769	546333	3061687	5.6
2011-12	957095	1726067	578620	3261782	6.54
2012-13	961458	1859808	588988	3410254	4.55
2013-14	995805	1956925	595385	3548115	4.04

Table 4-2: Sector-wise annual fish production in MT (2004-05to 2013-14)

Source: Fisheries Statistical Yearbook 2013-14.

Aquaculture (and the fisheries sector as a whole)thus plays an important role in the economy of Bangladesh, providing food, nutrition, income, livelihoods and export earnings (Dey et al. 2010; Jahan et al. 2010; Bolton et al. 2011). Fish contributes 60% of national animal protein consumption, and accounts for 4.43% of GDP and 2.73% of export earnings (DoF 2012).

Table 4-3: Year-wise annual ex	port of fish and fish	products (2004-05 to	2013-14)
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Year	Tota	% of total export value	
	Value (in crore BDT)	Quantity (in MT)	
2004-05	63377	2571.72	5.9
2005-06	68829	3029.84	4.56
2006-07	73704	3352.89	4.9
2007-08	75299	3396.28	4.04
2008-09	72888	3243.41	3
2009-10	77643	3408.52	2.74
2010-11	96469	4603.83	2.73
2011-12	92479	4703.94	2.46

⁹In 2013-14, the country's the total annual fish production was estimated to be 3.55 million MT, of which 1.96 million MT (55%) were obtained from inland aquaculture, 0.99 million MT (28%) from inland capture fisheries and 0.59 million MT (17%) from marine fisheries (DoF 2013-14).

2012-13	84905	4158.97	2.01
2013-14	77328	4776.92	2.09

Source: Fisheries Statistical Year Book, 2013-14.

Fisheries sector: major policies

Which instruments are appropriate to the promotion of IMD in the fisheries sector of Bangladesh will depend on the nature of the constraints the sector faces and whether these can be addressed by government policies or initiatives. Bangladesh's first National Fisheries Policy was approved and endorsed by the Government of Bangladesh in 1998. Prior to this, the fisheries sector had no clear objectives and was not governed by coherent policies. The National Fisheries Policy set out a framework for directing the management of the fisheries sub-sector, including the aquaculture subsector. Since then, other ministries and departments, recognising the need for fisheries to be considered during the development of water and land resources, have either developed new policies or revised existing ones. A National Fisheries Strategy was formulated in 2006 to propose more specific procedure sand to provide guidance for the implementation of the National Fisheries Policy. This strategy is a compilation of eight sub-strategies, each formulated to give direction to a specific area. Together, these are governed by related action plans. There is also the Protection and Conservation of Fish Act 1950 (amended in 2002 and 2015), the National Jalmohal¹⁰Policy 2009, and the National Shrimp Policy 2014. These policies are in place to support poor fisher folk and the growth of the sector. However, there are loopholes in their implementation, many of which are contextual and motivated by political and economic reasons. The inclusive or pro-poor growth of the fisheries sector thus depends very much on the proper enforcement of the policies.

Barriers prevailing in capture fisheries

Toufig and Ahmed (2013) summarises the literature and identified a list of barriers to the development of capture fisheries in Bangladesh (Table 4-4). These can be categorised as those related to external factors (that is, external to fishing) and those related to internal factors (internal to fishing). Both these barriers are constraining the growth of capture fisheries; however, external factors have done most damage. According to Toufiq and Ahmed (2013), the most important external factor is the issue of governance, regulation and management of the capture fisheries sector. Destruction of immature fish (ova, larvae, breeding fish) and the use of illegal fishing gears are the most significant internal factors. Of course, both of these internal factors relate to



Table 4-4: Barriers to ca	pture fisheries in	Bangladesh
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External barriers	Internal barriers
	Over-fishing
Governance, regulation and management	
Contraction of fishing grounds (FCD/I projects)	Destruction of immature fish (ova, larvae,
	brood stock)
Pollution	Use of illegal gear
Urbanisation	
Environmental degradation	
Climate change	

Source: Toufiq and Ahmed (2013).

External barriers

There is scant provision in Bangladesh for handling effluent, other than dumping it in the nearest available water source. Many industries are located very close to fisheries resource systems. For example, 144 industrial units in Chittagong discharge effluent into the river Karnafuli and the estuaries of the Bay of Bengal. Similar pollution occurs in Kushiyara river due to discharge from a pulp mill, and in the Tulshi Ganga river due to discharge from a distillery. The Surma river is also heavily polluted by two industrial units, a pulp mill and a fertiliser factory (Ali 1989). Another important source of environmental degradation of fishery resources has been the increasing use of chemicals (for example, in insecticide and pesticide) applied to boost rice production. Retting of jute also affects fish in open waters.

Reduction in fish stocks is more due to environmental factors than to overexploitation. Most inland fisheries are multi-species, multigear in nature, so standard assessment models and concepts of overfishing are inappropriate and can only be superfluously applied. Inland fisheries in Bangladesh are heavily fished and there is probably little room for any substantial increases in catch. Destruction of immature fish (ova, larvae, brood stock) and use of illegal gears have been affecting fish stocks significantly in the capture fisheries sector.

There are number of flood control, drainage and irrigation (FCD/I)projects in Bangladesh which frequently interfere with the link established via canals between beels and rivers, prohibiting brood stock from migrating to the rivers and moving upstream in search for congenial breeding grounds. Migration between rivers and floodplains is necessary for maintaining population stability of diverse fish species. These water management projects also reduce the size of the floodplains as well as the length and intensity of flooding. Fishing grounds are converted to paddy fields, which reduces fish output. Moreover, the growth in biomass and numbers reduces due to the deterioration of fish habitat quality.

Internal barriers

Overfishing has two dimensions: economic over-exploitation and biological overexploitation. According to Wilson (1982: p. 421), economic overfishing if rent or profit out of overfishing dissipates then the factors of production used for the exploitation of fishery resources become unsustainable, given the value of the catch. In other words, the involvement of too many fishermen and women in the same area, and competition among them, might not deplete fish stocks but may constitute an inefficient use of labour and capital, given the earnings that can be made.

Biological overfishing refers to fishing to the extent that fish stocks are reduced. Evidence of biological overfishing is somewhat inadequate and inconclusive. Increased efforts to catch fish are frequently cited as a probable cause, often leading to the belief that fishery resources are being gradually depleted. Much depends, however, on the population dynamics of fish.

Destruction of immature fish (ova, larvae, brood stock) and use of illegal gears have been affecting fish stock significantly in the capture fisheries sector.¹¹.

The management of capture fisheries in Bangladesh has undergone a long process of interventions by the state, private agents, donors, various interest groups representing the fishers, and so on. The crux of the management problem is seen as the need to establish fishing rights of fisher folk in about 12,0000 waterbodies (*jalmahals*) owned by the state. These water bodies are in the custody of the Ministry of Land, which transfers leasing rights to registered fisher organisations. This is generally referred to as the leasing system.

The generic problem faced by this system is that the leasing rights are, in most cases, eventually transferred to non-fishers - mainly local rich and powerful individuals who are often linked to political parties. Ensuring that leasing rights are transferred instead to genuine fishers therefore dominates every other concern of the existing the water body management system. This problem of provision has always received inadequate attention. There is no mention in any government policy of any issues related to assignment problems, or to effect control or rent maximisation. Donor-supported projects concentrate on developing institutions which might ensure better governance of capture fisheries, an issue not emphasised in the leasing policy. According to the policy, the fishers' co-operatives were assumed to act as an institution that would take care of resource governance without much problem. That is why often the maxim of jaljarjola tar (the widely-held belief that those who own the fishing nets should get the right to fish in the waterbodies) is mentioned both by fishermen government officials. and

¹¹A news report published on 11 January, 2010 in Prothom Alo, a leading Bangladesh national daily paper, stated that a barrier had been erected in the middle of the River Padma, illegal under the Fish Act 1950. Similarly, the same newspaper on 12 June, 2012 reported the installation of illegal fishing gear, *dimjal*, in the *Itna*canal, which was known in the locality for its destruction of breeding and immature fish. Both were erected by individuals linked directly to political parties and belonging to the elite class. The local administration knew about these illegal constructions, but no action was taken at the time of the news report's publication.
Main reasons for barriers in the aquaculture sector

Fish feed

Aquaculture is primarily dependent upon an adequate supply of quality fish feed, one of the most important inputs needed to increase fish production, with feed intake being a major controlling factor of fish growth. However, artificially formulated pelleted feed containing animal protein was not used previously in aquaculture. since early 1990s, an increasing number of farmers have been using industrially manufactured pelleted feed for catfish, tilapia and climbing perch farming. A variety of types feed is used for aquaculture, including supplementary feed, farm-made aqua feeds and industrially manufactured pelleted feeds. In general, large farmers use supplementary feed, consisting of mixtures of locally available feed ingredients, such as rice bran, wheat bran and mustard oilcake. In contrast, farm-made aqua feed and industrially-manufactured pelleted feed are used by improved extensive and semi-intensive farmers, respectively (Ahmed et al. 2010). These feeds are made mainly from rice bran, wheat bran, oilcake, fishmeal, flour, maize, oyster shell, salt, antibiotics, vitamin premix and additives marketing systems

The fish marketing system in most areas of Bangladesh is traditional but plays an important role in connecting farmers and consumers. With a few exceptions, farmers seldom communicate directly with consumers. Instead, the marketing channel between farmers and consumers intertwine primary, wholesale and retail markets, involving local agents, suppliers, wholesalers and retailers (Figure 4.1). The demand for fish throughout the country is high but supply is limited, and a strong multifunctional network has developed with intermediaries and traders intervening between farmers and consumers (Ahmed et al. 2010 and 2012).



Figure 4.1: Marketing of fish in Bangladesh

Fish marketing is almost entirely managed, financed and controlled by a group of powerful intermediaries, in particular wholesalers. Communication among market actors is generally good and takes place by mobile phone. Suppliers (known locally as *farias*) are a form of intermediary trader who supply fish from primary markets to wholesalers. In general, suppliers are tied to a limited number of wholesalers. They commonly use trucks, buses, pickups and taxis to transport fish to the wholesale markets.

In general, high value fish have a longer market chain, and low-value fish (including pangas, silver carp and tilapia) a shorter market chain (Ahmed and Lorica 2002, Lem 2004).As soon as the suppliers arrive with the fish at the wholesale market, the wholesalers take care of landing, handling and auctioning according to size grading. Auctioneers are appointed by wholesalers and the auction allocates supplies to the buyers (who are usually retailers). Auctioneers are motivated to realise the highest price possible as they earn a commission (usually 3–5% of the auction price) for their services. Most sales agreements are informal and based upon trust via word-ofmouth agreements; this has the benefit of reducing time and administration costs but also carries the possible risk of ex-post disputes. Buyers sell their purchases at stalls in fish markets.

through bargaining, and depends on the species, quality, freshness, size and weight, and supply against demand. In the fish marketing channel, farmers' profit margins are reduced according to the number of intermediaries. The presence of intermediaries at different stages in the marketing channel (Figure 4.1) is due to lack of government control over trade (Ahmed et al. 2012), providing the opportunity to exploit both farmers and consumers. This makes the farmers vulnerable in their bargaining with market actors who have better capital endowments, a situation which is further aggravated by the lack of transparency in the price formation process, inequalities in market information and inadequate post-harvest infrastructure facilities. According to Lem et al. (2004), the longer the fish marketing channels, the higher the price margins. This implies that prices go up as the distance of the market increases, as well as with the number of transactions in the fish marketing channel (Brummett 2000). It has been realised that better marketing facilities, market transportation, information and government control over trade helps to improve the situation of fish marketing (Lem et al. 2004).

Nature of barriers in the aquaculture sector

Impacting upon the aquaculture sector are a number of technical, social, economic and environmental constraints (Table 4-5):

Price of fish

The price of fish in retail markets is negotiated

Constraint	Element
Technical	Low input farming systems
	 Inadequate technical knowledge of scientific fish farming
	Poor water quality and fish disease
	Poor quality of hatchery fry
Social	Multiple ownership of ponds
	Poisoning of fish farms
	Poaching of fish
	Friction between rich and poor farmers
Economic	High production costs
	Lack of financial support
	Low market price of fish
	 lack of transparency in the price formation process
	Inadequate marketing facilities
	Inequalities in market information
	Inadequate postharvest infrastructure facilities
Environmental	Unplanned conversion of rice fields to ponds
	Impacts on ice field ecosystem and biodiversity
	Climate change (flood, drought)
	 Impacts of excessive use of chemicals and growth hormone

Table 4-5: Common constraints in aquaculture

Source: Toufiq and Ahmed (2013)

Technical constraints

The stocking densities of fish fries are relatively low. Similarly, the application of feed is low and often irregular. A number of other technical constraints include the lack of technical knowledge of appropriate fish farming systems, species selection, and calculation of production costs and returns. Unplanned construction of ponds alongside each other raises concerns about water quality control and disease. Poor water quality and the presence of toxins are key causes for fish disease. High levels of organic waste deoxygenate the water, killing fish as well as other aquatic life. Fish disease is also a common problem in Bangladesh, especially epizootic ulcerative syndrome, which is a complex of primary and secondary infections of viruses, bacteria and fungi that can result in ulcerated fish or cause mass fish mortality (Rahman et al. 2002).

Social constraints

A number of social constraints have been reported by Toufiq and Ahmed (2013), including multiple ownership of ponds, poisoning of fish farms, poaching, and friction between rich and poor farmers. The first of these, multiple ownership of ponds, affects the financial and technical aspects of pond management because of inadequate cooperation n of the pond owners; in rural Bangladesh, this is thought to be one of the key reasons for low input, extensive farming systems. In contrast, a single ownership pond is simple to manage in terms of desirable culture practice, and has higher fish

production and net returns than those under multiple ownership (Chowdhury and Maharjan 2000). Poisoning of ponds is sometimes carried out by rivals or those holding a grudge, killing all the fish. Poaching is also a common problem in concentrated aquaculture areas.

Economic constraints

of fish farming have increased Costs significantly in recent years as a result of increased production costs, including labour wage rates. To begin aquaculture, farmers need a large amount of money for pond construction. Construction costs are linked closely to labour costs and depend on farm size, location, number of labourers required and season. The prices of both seed and feed have also increased significantly since fish farming has become widespread. The main issue for farmers is the shortage of operating capital; most are concerned about the high cost of feed, citing this as the major constraint to the greater expansion of fish farming (Ahmed et al. 2010). Farmers are aware of the positive effects of using more inputs, but a lack of access to finance prevents them from upgrading their production systems. Inadequate finance can therefore be a significant constraint for resource-poor farmers wishing to intensify fish farming. Poor road and transport facilities are also a significant fish marketing constraint. In addition, farmers are in a particularly weak position (i.e. low bargaining power on price) in relation to intermediaries of the fish marketing systems.

Environmental impacts

In recent years, some concerns have emerged about the long-term environmental sustainability of aquaculture. The major changes in the environment include problems associated with converting rice fields to ponds,

with the reduction in rice fields likely to have had negative impacts on rice production, which has meant decreased availability of paddy straw, used in Bangladesh for cooking fuel and fodder for cattle (Ahmed and Garnett 2011). Rice fields also provide a natural environment for a great variety of aquatic flora and fauna (Halwart 2008), and their reduction is thus likely to have a negative impact on wildlife, including aquatic birds, crabs, frogs, snails and turtles. The effects of climate change (including flood, drought and rainfall variation) have also impacted negatively on aquaculture development (World Fish Center 2009). A considerable number of ponds become inundated with flood water during the monsoon every year, making the prevention of fish escape very difficult, especially for resource-poor farmers who are reluctant to raise their pond dykes. The risk of environmental degradation in ponds specifically from pangas farming is higher because of the greater use of inputs, including excessive supplementary feed and chemicals (Ali et al. 2012). Excessive use of feed, growth hormones, antibiotics, probiotics and additives has also had an adverse impact on pond ecosystems and created concerns for the biosafety of pond environments (Hall et al. 2011).

Broadly speaking, these technical, social, economic and environmental constraints also exist for small-scale aquaculture development across Bangladesh, along with institutional constraints such as lack of information and inadequate extension services. Yield losses and production gaps result from a number of factors, including inefficiencies, inadequate credit facilities, and poor institutional support (Dey et al. 2010). Poor infrastructure, inadequate communications, presence of intermediaries, and significant transition and transport costs are also barriers for farmers to market entry (Belton et al. 2011), although market development is a prerequisite for aquaculture development. The rapid development of aquaculture also raises concerns for its environmental sustainability. Across the country, fish farmers need affordable technology with non-degrading environmental conditions to reduce yield losses and to improve production efficiency (Dey et al. 2010).

Promoting market-led inclusive growth in fisheries sector

This section explores how we can apply IMD approaches to address the barriers constraining the growth of the fisheries sector.

Capture fisheries

As noted above, many of the problems prevailing in the capture fisheries sub-sector are contextual or linked to issues of political economy, with the result that there appears to be less scope for utilising IMD in capture fisheries. To make growth more inclusive, the government can prioritise its interventions in terms of **empowering** the poor, to enable them to better participate in marketing their fish. For the JalMahal Policy to work for the really poor fishing communities, they need financial support. As good governance is a big concern here, it may not be possible to change the situation immediately; however, that does not mean no that attempt should be taken to improve it. The poor need to be made aware of their rights through training, information and education. Although various donor-funded projects have implemented such initiatives, it is time now for the government to extend its support. It could, for example, take the initiative to provide fishing communities with smart identity cards, and extend support through its financial programmes like *ekti bariekti khamar*('one house, one farm') under which poor people form cooperatives to take part in group savings and small borrowings under the supervision of and with financial support from government. There could be special cooperatives for fisher folk in relevant areas under this format, enabling them to access government waterbodies and *jalmahals*.

Toufig and Ahmed (2013) note that not all public waterbodies are alike: some are more appropriate for fish farming while others should be left open for capture fisheries. In addition, fish farming is expensive and requires technical skill, and they suggest that public waterbodies appropriate for fish farming should be leased out to entrepreneurs with the knowledge and capital to make the most from the resource. In this case, government should encourage the private sector to involve itself in fish farming in these waterbodies, under whom poor fisher folk can work as labourers. However their rights need to be addressed according to the labour law of the country. In this way there will be more efficient utilisation of resources, and problems of governance will be resolved. The private sector could be encouraged by, for example, changes to regulations and the creation of a database of water bodies where fish farming is deemed possible.

The government may also consider utilising more resources to increase the productivity of waterbodies by implementing its rule requiring there to be central effluent treatment plants in various industrial areas. This would be an attempt to **empower** the poor and also **enable** large fisheries entrepreneurs to invest in capture fisheries (in those water bodies where fish farming is appropriate). The government also needs to provide training facilities and the means to raise awareness among the fishermen and people involved in marketing of fisheries of, for example, modern fishing techniques, the use of nets, and the negative impact of illegal gears and the capturing of fish by pumping water out of waterbodies, as this technique destroys tiny fish. These will mitigate against, among other things, the impacts of environmental degradation.





Inadequate technical knowledge of scientific fish farming is a concern for culture fisheries. The government can enable the private sector to engage in more productive fish culture by increasing its access to modern techniques. As many of the modern techniques available internationally are written in scientific language and mostly in English, the government can reproduce them in user-friendly language and available make them through Upazilla¹²Information Centres. This initiative should cover techniques to improve the quality of water and information on controlling fish disease. Government can also encourage the private sector (through loans to small and medium entrepreneurs) to initiate the business of support services to fisheries sector.

Availability of quality seed is a concern for culture fisheries. There are good number of hatcheries in the country but the quality of their products need to be regulated and monitored, so that they produce better quality fish fries. This will enable private fish firms to increase their productivity and expand business, which will generate employment for poor. The hatchery people also need to be made aware of sanitary and phyto-sanitary concerns for quality fish fries and their distribution. Various social problems reduce the can scope for implementing an IMD approach. One means of addressing these would be for government to engage in massive awareness-raising activities regarding the importance of the growth of fisheries sector for the growth of the country.

Again, in terms of the issue of quality fish feed, government needs to regulate the activities of industrial fish feed producers, and occasional training is also needed for private sector feed growers. The government is currently providing cash incentives to fish exporters at a rate of 5%;

¹²An important administrative tier of local government.

however, rather than continuing this incentive, this money could be utilised to provide low cost government loans to fish farmers to enable them to adopt new production technology (which will have long-lasting impacts for the sector as a whole). This will encourage entrepreneurs to invest in the sustainable development of their business. Monitoring the quality of fish feed supplied by the private companies is also very important to mitigate against the common practice of adulteration.



Contract farming in fisheries can be encouraged to increase productivity of fish farms, in which entrepreneurs with higher investment capacity and skills will invest, and where lower skilled fisher folk can work as paid employees. This will require the creation of an enabling environment for large entrepreneurs to invest in aquaculture and fish processing. Such an initiative would also be good for ensuring better prices for entrepreneurs. Investors should only be given special tax incentives when they establish contract farming in fisheries which provides some stability for poor fisher olk (tax facilities currently are given to any earning from fisheries, and these are misused by many rich individuals).

It has been noted that there is a lack of private initiative to provide price information. Private companies in collaboration with mobile phone operators could develop easy applications to supply regular price information to fisher folk. Government can also utilise upzilla einformation centres to provide regular price information. More training programmes for fish farmers and hatchery owners could be offered by government, particularly in pond management. Marine-based aquaculture could save the use of agricultural land for fisheries.



Promoting inclusive growth in the vegetable sector of Bangladesh by following the IMD approach

Bangladesh is highly dependent on agriculture for food security and employment of the labour force, and it is possible to reduce rural poverty and raise the living standards of common people by enabling poor growers to produce more vegetables for the market rather than merely for subsistence. In recent years, vegetable and fruit production has received government. attention from Bangladesh produced 9.9 million MT of vegetableinFY14 (Wardad, 2015). According to the Household Income Expenditure Survey 2010, standard vegetable consumption per capita per day was 166.1 g. These are categorised as summer/rainy season vegetables, winter vegetables, and allseason vegetables, based on the time of year they are grown. Summer vegetables are cultivated from May to October (monsoon season) and winter vegetables are grown from November to April.

Total vegetable production is higher during winter (60% to 70%), when most districts produce a marketable surplus during this season (Hazra, 2008). Over the last decade, Bangladesh has witnessed a revolution in vegetable production; according to a recent FAO report, Bangladesh ranked third in the list of vegetable-producing countries worldwide. The Ministry of Agriculture statistics reveal that the country produced 13.8 million MTs of vegetables in FY14 with a steady6% growth rate in each of the previous three years. Currently, farmers cultivate 200 vegetable varieties¹³.

Though government efforts (including providing high quality seed, disseminating knowledge of latest cultivation methods through agriculture extension, and fertiliser allocation) have made a great contribution to this success, there remains scope to improve production, storage and transportation facilities.



¹³In FY13, Bangladesh exported vegetables (e.g. bitter gourd, brinjal, okra, bean, green chilli and cauliflower) worth over BD7,500 million (Saha, 2013). In 2014, Bangladesh exported 25,000 MT of potato to Russia; it also exports potato to Malaysia, Singapore, Saudi Arabia and a few other countries worldwide.

Figure 4.2: Vegetable revolution in Bangladesh



Source: Centre for Research and Information, 2015.

Policies prevailing in the vegetable sector

Instruments to promote IMD in Bangladesh's vegetable sector need to be appropriate the nature of constraints faced by this sector, which could be addressed by government policies or initiatives. The National Agriculture Policy 2013 and National Agriculture Extension Policy 2015 broadly aim at creating an enabling environment for sustainable agriculture growth, to reduce poverty and ensuring food security through increased crop production and employment opportunities, as envisaged in the National Strategy for Accelerated Poverty Reduction (NSAPR), the Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs). The Bangladesh government has considered vegetable to be a sub-sector of crop agriculture, with the result that there is no separate policy document on vegetable production; rather, it is very much part of National Agriculture Policy 2013.

The importance of the vegetable sector was sensitised by Bangladesh government in several policy documents, in some of which it has emphasised agricultural diversification (CIP, 2011; NAP, 2010; NFPPA, 2008). The Sixth Five Year Plan (2011-15) states that a receptive market, right policy environment, and comparative advantage in certain high-value traditional crops, including fruits and vegetables, exist in Bangladesh. However, the future of non-rice crops depends on the removal of a number of constraints which currently inhibit their expansion, including the comparatively less attention given to development of appropriate technology for non-rice crops and inadequacies of market infrastructure and services. One of the major objectives of the Seventh Five-Year Plan (2016-20) is to "encourage export of agricultural commodities, particularly vegetables and fruits keeping in view domestic production and need." The National Food Policy Plan of Action and the Bangladesh Country (2008-15) Investment Plan (BCIP) stressed the need to strengthen the food marketing system and improve value chains as a measure for improving food security and increasing incomes. However, it is difficult for the vegetable producers or exporters to receive support from these policies, which have been drafted and implemented by different departments or

agencies, often working in an uncoordinated manner. A specific integrated policy document on the vegetable sector is needed to ensure coordinated government support.

The government's Export Policy (2009-12) also mentioned the importance of vegetable exports, and has declared the following support to the sector:

- Encouragement of contract farming for the production of exportable vegetables, where the NGOs and exporters can play an important role in improving the marketing system.
- Allotment of government khas land, if available, to interested exporters for the production of vegetables and fruits; the establishment of export villages will be encouraged;
- Encouragement of the production of modern and scientific packaging materials necessary for the export of vegetables, foliage and fruits;
- Encouragement of the cultivation, production and export of potatoes;
- Continuing of the training system for the producers and exporters of vegetables, flowers-foliage and fruits;
- Efforts to be made to commercialise the agricultural sector by assisting production of exportable agricultural production, processing, marketing and other related activities¹⁴.

The question now is how far the declared policy supports are actually being implemented, and

what constraints are prevailing in their implementation.

Common constraints in the vegetable sector

A number of studies report constraints in the vegetable sector, including technical, social, economic and environmental constraints (Table 4-6).



¹⁴GoB, Ministry of Commerce. (2009). Export Policy 2009-12.

Constraint	Element
Technical	Low input farming systems
	 Inadequate technical knowledge on scientific farming
	Poor soil quality
	Poor quality of inputs
Social	•Small and scattered land
	Theft of vegetables
	Friction between rich and poor farmers
Economic	High production costs
	Lack of financial support
	Low market price of vegetables
	 Lack of transparency in the price formation process
	Inadequate marketing facilities
	 Inequalities in market information and
	 Inadequate post-harvest infrastructure facilities
Environmental	 Unplanned conversion of rice fields to vegetables farms
	Impact of climate change (flood, drought)
	Impact of excessive use of chemicals and fertiliser

Table 4-6: Common constraints in the vegetable sector

Some of these constraints are elaborated below.

Postharvest handling

Postharvest handling is very important for the marketing of any perishable good, as the quality of the product at the point of sale depends on this. However, no standard for handling and grading horticultural products has been developed in Bangladesh, and thisis urgently needed for both domestic and export markets (Hassan, 2013). For example, because of the lack of a standard grade and the resultant poor quality of produce, potential agricultural products (such as potato, mango, banana) from Bangladesh cannot be exported to mainstream global markets. Instead, export is limited to ethnic markets such as those catering for the Bangladeshi diaspora. Standard packaging is also needed to facilitate the handling and marketing of vegetables. For example, potato growers generally use gunny sacks of 80-84 kg capacity to package table potatoes, where as cold store owners and traders are interested in using 40-50 kg capacity net bags which are easier to handle and which would at the same time easily comply with workers' health and safety regulations (Hassan, 2013).

In Bangladesh, vegetable storage facilities are inadequate, with an absence of low temperature storage facilities for most fruits potatoes.¹⁵More and vegetables, except attention is needed for postharvest technologies required to prolong the shelf life of fruit and vegetables (such as modified atmosphere storage, heat treatments,

¹⁵In recent years, reasonable progress has been made in storage suitable for potatoes all over the country. There are now around 393 public and private cold storage units, which have approximately 4 million MT capacity, against a demand of 82.05 million MT (Hassan, 2013).

recommended chemical dips, and ethylene scavengers).

Route to market¹⁶

Efficient marketing is a significant factor in the reduction of a) postharvest loss (which can occur during washing, sorting, grading, packaging, transportation and storage), and b)risk and uncertainty in terms of the timely delivery of quality, safe produce to the consumer at reasonable prices. An inefficient marketing system reduces demand from consumers and participation by farmers, the facing significant challenges latter to participation in the growing markets for high value nutritious crops, including vegetables and fruit. High marketing costs often stem from poor transportation networks and lack of market information, and sometimes from the lack of competitiveness in the market.

Marketing channels and market actors vary widely with the types of produce and production locations. Figure 4.3presents the basic relationship between existing vegetable supply chain intermediaries in Bangladesh. There are **five intermediaries** in the major distribution channel:

Faria. A small trader who deals in products within three or four local markets and handles a small volume of products. A *faria* purchases products from farmers and sells them to either a *bepari* or direct to consumers. They are usually landless labourers or small farmers with no full-time work (Tasnoova et al, 2006).

Bepari. A professional trader who purchases agricultural products from farmers or *farias* in the local market or village. This group handles a larger volume of products then *farias*. *Beparis* sell their products to *arothdars*.

Arothdar. An *arothdar* serves as a fixed commission agent with a fixed establishment. They operate between the *bepari* and retailers, charging a fixed commission for providing storage facilities.

Retailer. Retailers are the last link of marketing channel. They purchase products from *beparis* through the *arothdars* and sell them direct to consumers.



¹⁶This section draws heavily from Hasan (2013).





Source: Rubel& Shinya (1990) Perishable food supply chain constraints in Bangladesh.¹⁸

¹⁷Descriptions are taken from a 1990 publication; however, these still hold true in 2016.

¹⁸Rubel and Shinya, cited in Sabur, S.A. (1990): *Price spreads and price structure of vegetables in Bangladesh*. Department of Agricultural Economics and Rural Sociology, Bangladesh Agricultural Institute, Dhaka.

Price of vegetables

The price of vegetables in retail markets is negotiated through bargaining, the main indicators being species, quality, freshness, size and weight, and gaps in demand and supply. The presence of intermediaries observed at different stages in the marketing channel is due to lack of government control over trade (Ahmed et al. 2012). These intermediaries have the opportunity to exploit both farmers and consumers without adding much value to the products. This makes the farmers vulnerable when bargaining with market actors who have better capital endowments, a situation further aggravated by the lack of transparency in the price formation process and inadequate postharvest infrastructure facilities.



Figure 4.4: Factors causing price rises

Recommendations for promoting market-led inclusive growth in the vegetable sector

There are a number of barriers to the promotion of market-led, inclusive growth in the vegetable sector, and these need to be addressed. Bangladesh is the third largest vegetable producing country in the world. However, the country is unable to utilise this production efficiently and earn foreign exchange from world markets, generating income for poor producers. The government needs to develop a separate policy document for the vegetable sector, to cover all actors in the vegetable value chain identified above.

The National Agriculture Policy, National Agriculture Extension Policy and National Export Policy do not apply exclusively to the vegetable sector; a separate vegetable sector policy would provide the grower, input supplier, market retailer or exporter with an easy point of reference in order to explain anything to the relevant authority. However, having a separate vegetable sector policy would in itself go a long way towards removing barriers prevailing at different steps of the value chain and thus improving competitiveness. The policy would also support private entrepreneurs in the marketing of green or processed vegetable. This is a way of **enabling** private sectors to invest in low income markets, which is essential if the poorest farmers are to engage as fully-fledged market actors.

The existence of too many intermediaries in the vegetable value chain (each receiving surplus from it but not adding any value) is a major source of inefficiency in this sector. One effective way of addressing this would be to encourage contract farming in the vegetable sector, enabling the poor producer to receive a better price for their product. Under this new

system, agro-companies or NGOs who currently have the capacity to transport and sell the product to the consumer would be able to buy direct from the farmers and sell on to the consumer, helping to reduce the number of intermediaries in the vegetable value chain. Any intermediary who loses work could be employed in other small-scale sectors as SME. The government could encourage contract by agro-companies, NGOs farming and exporters through policy support. As a result, both vegetable growers and others in an efficient value chain would be benefited from greater access to the market and competitive prices. In addition, government can provide training to farmers on how to preserve their surplus using simple techniques¹⁹.

Seasonality, perishability and bulkiness of products hamper the quality of many vegetables, creating a further barrier to entering the global export market. To address this, government can encourage private companies to establish standard cold storage and vegetable packaging industries at the local level, by providing policy support and developing an incentives structure (such as easy land leasing system, a one-stop service for all utility connections, loan guarantees, and tax concessions). This will ultimately reduce the risks incurred by the long distance transportation of vegetables, benefit the poor producer with local level cold storage facilities, and protect growers from the adverse impact of price fall immediately after harvest. Any direct incentive support should, however, be granted for a certain period of time only.

¹⁹I suggest giving a couple of examples here of simple methods of preserving– the warm water one, and maybe one more.

Another way for vegetable producers to achieve better prices is to form cooperatives and sell their produce at auction, (such as the CDP auction market in Khulna). The government or local authority can **encourage** the development of a community market place and collection centres, again to reduce the role of intermediaries.

Secondary studies reveal that vegetable exporters attempting to trade in international markets are encountering scarcity of cargo planes and delays in customs clearance. Customs policy is administered by the Ministry

of Finance, and cargo planes are controlled by the Ministry of Tourism and Civil Aviation; export is administered by the Ministry of Commerce. Although the Export Policy mentions the provision of dedicated cargo services for vegetable exporters, implementation of this requires the coordination of a number of associated ministries. Government can also ensure proper scaling facilities and a cool chain, as well as separate scanning facilities (i.e. not the same as those used for passenger luggage) for vegetable exporters.



Promoting inclusive growth in Bangladesh's fertiliser sector following the IMD model

The introduction of high yielding varieties (HYVs) of seed in the late 1960s brought about a significant change in terms of production and productivity to Bangladesh's agriculture sector. In addition to the HYV seed itself, this modern technology needs two complementary inputs, namely, water and fertiliser.²⁰ Particularly in the *rabi* season(November to March), more than half the total cultivable land in Bangladesh uses HYV technology to produce more rice (Mujeri et al., 2015).

Demand for fertiliser

In Bangladesh in recent years, a rising demandsupply gap has been observed for fertiliser, with domestic production insufficient to meet the total demand. There is an increasing trend in fertiliser consumption in Bangladesh dating from the 1960s, and in 2013-14 it exceeded 4.5 million MT). In 2008-9 the share of imported fertiliser increased to 56% compared to the previous year.

In addition, **Error! Reference source not ound.**5 shows there to be an overly-simplistic approach towards using fertiliser, with the focus being only on urea. In 2002-3, Bangladesh imported only 8% of the urea it needed from the world market; in 2008-09, this had increased to almost half of the urea needed. The country also imports the entire amount of muriate of potash (MoP) fertiliser needed, and although Bangladesh has two di-ammonium phosphate (DAP) plants, their low production capacity makes their contribution to meeting the rapidly rising local demand negligible.



Source: Economic Review-2014.

before which its level of use was low. This went up dramatically as part of the Green Revolution,

²⁰Rice production relies heavily on inputs of water and fertiliser; in Bangladesh, the major share (around 75%) of total fertiliser is applied to rice (Mujeri et al., 2012).

Policies prevailing in the fertiliser sector

A number of factors have contributed to the fertiliser distribution system under the Bangladesh Agriculture Development Corporation (BADC) not having worked properly from the 1970s.Firstly, it took a long time to appoint dealers. At the same time, the supply of fertiliser was uncertain because of BADC's limited transportation and storage capacities. Even the low commission received by fertiliser dealers had a serious impact on distribution.

In 1994 the Bangladesh government opened the fertiliser market up fully to the private sector, giving it the opportunity to participate at every stage of the fertiliser business, from import to selling to those at farm level. In 1993, the Bangladesh Fertilizer Association (BFA) was created, and by 1994 its 450 members had begun to perform human capacity building, policy advocacy, and MIS functions for members.

In response to a post-privatisation crisis, in early 1995 a judicial commission was formed and the government, in consultation with the BFA, began to appoint district-level fertiliser dealers through public advertisements, and districtbased selection committees. The Dealership Policy 2008 made it mandatory to appoint at least one dealer in each union (a village-level local government institution) by cancelling the previous upazila-based system (operating at sub-district level). This policy was however weak in implementation and was followed by the Dealership Policy 2009. Where sales representatives of dealers were abolished, restrictions to dealership within the district were imposed (dealers cannot sale their fertilizer outside their own district) and an identity card system introduced for local salespeople.

Common constraints to the fertiliser sector

A number of studies report constraints in the fertiliser sector. These include technical, social, economic and environmental constraints, presented in the following table.

Constraint	Element
Technical	Low level of production systems
	Inadequate distribution
	Quality is not up to the mark
Social	 Local elite control the distribution system
	 Poor farmers have lack of knowledge about fertiliser quality
	 Friction between rich and poor farmers
Economic	Lack of financial support
	Lack of transparency in the price formation process
	Inadequate marketing facilities
	 Inequalities in market information and
	Inadequate storage facilities
Environmental	Impact of climate change (flood, drought)
	Impact of excessive use of fertiliser

Table 4-7: Commor	constraints to the	e fertiliser sector
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Two major issues have emerged; one is marketing and distribution, and the other is fertiliser quality.

Marketing and distribution system

Marketing, distribution and use of fertiliser have been the focus of Bangladesh's fertiliser policy in the recent past. Various efforts have been made to design an efficient, undistorted and non-discriminatory fertiliser distribution system; efforts fail however, mainly because of graft and vested interests.

Alongside the many positive features of liberalisation, a few inefficiencies have persisted in the input market. Among other problems, sudden and unexpected price hikes, and the unbalanced use and adulteration of fertiliser continued to affect the efficient operation of the fertiliser market. As a consequence, the timely supply of quality and adequate quantity of fertiliser has remained a major concern for the country's fertiliser sector. In recent years, major 'fertiliser crises' have occurred (i.e. 2005, 2007 and 2008), creating public concern about the functioning of the fertiliser market (Mujeri et al., 2015).

Previous studies assert that the demand for and the supply of fertiliser (and consequently its price) are not determined by market forces alone; rather, government plays a role in the whole process. In the fertiliser sector, availability is controlled by government on the basis of estimated annual demand; government also determines the local price paid by farmers. In addition, the distribution or allocation of fertiliser at local level, up to district and subdistrict levels, is conducted through a chain of registered dealers and sub-dealers under the supervision of the administration at different tiers of the government, including local government institutions where committees exist at different levels (see Figure 4.6).





Source: Mujeri et al., 2015 adapted it from Hossain and Haq, 2010

Challenges of distribution and marketing system

Mujeri et al. (2015) found that the new marketing system was unable to perform well in remote and underdeveloped areas of the country where transportation and communication networks were not well developed. For example, in the Chittagong division, even though the number of commissions given out had increased, fertiliser prices remained much higher than in other divisions of the country. An adequate supply and availability of fertiliser could not be ensured in these areas because of remoteness.

To reduce the role of the public sector (in the form of the BADC) and further strengthen the role of the private sector in fertiliser marketing and distribution, the government, with support from the USAID, launched FDI-2. It was assumed that the private sector had the ability to respond more quickly to market signals and to operate more efficiently than the public organisations in ensuring an adequate supply of fertiliser at the right time. Delayed application of fertiliser has a direct, adverse effect on agricultural production.

Challenges of the quality of the fertiliser

Previous studies have observed that farmers often complain about low quality and adulterated fertiliser, and the notable financial and crop losses this incurs. In 2009, the Soil Resource Development Institute (SRDI) analysed 3,780 samples of different fertiliser and found 40%to be adulterated; Katalyst²¹(2009) found 52% of the same

samples to be substandard. Fertiliser adulteration mainly takes the form of lowerthan-specified levels of nutrients, causing soil degradation and affecting crop productivity (Barkat et al., 2010). In addition, fertiliser often contains high levels of cadmium, lead and chromium. It has been reported that most of the fertiliser samples tested contain high levels of cadmium but a relatively lower concentration of lead or nickel (Mujeri et al., 2015). There is therefore a need i) to install an efficient and effective quality control programme to eliminate the production and marketing of substandard fertiliser, and b) for government to set up a strong monitoring system to maintain the quality of all types of fertiliser.

Past studies indicate that non-urea fertiliser, more specifically that imported and marketed by private companies, is often found to be adulterated (Jahiruddin et al., 2010). In addition, some traders sell SSP labelled as TSP (SRDI 2007-8).It is also essential to recognise that little attention has been given in the past to the quality aspects of fertiliser, and this needs to be reversed without delay, through establishing strong surveillance and effective monitoring mechanisms.

Recommendations for promotion of market-led inclusive growth in the fertiliser sector

Adequate warehousing facilities, particularly in relatively remote areas, are needed to ensure the effective distribution of quality fertiliser. Government can provide incentive packages to **encourage** the private sector to invest in these areas; alternatively, simple loan facilities can be provided to the private sector to develop warehouses in remote areas of the country.

²¹This was published in 2009 report by Katalyst and here we have cited from FAO. (2011). *Case Studies on Policies and Strategies for Sustainable Soil Fertility and Fertilizer Management in South Asia*. Thailand: FAO.

Government can provide a subsidy for organic fertiliser to reduce its price in comparison to chemical fertiliser. This is likely to increase its popularity among farmers. Government can also provide more training and promotion activities for farmers to ensure they have proper knowledge of the limits and utilisation of fertiliser (both organic and chemical), with a particular focus on a chemical and organic mix.

To reduce shipment time and transportation costs, fertiliser supply to dealers should, as far as possible, be made from the nearest buffer stocks. At the same time, more buffer stock points need to be established by the government. This will ensure efficiency and fertiliser quality at the time of distribution.

To ensure the efficient and effective marketing of fertiliser, the dealer appointment process needs to be taken out of the hands of the powerful and elites. Experienced dealers with proper storage facilities should be appointed on a competitive basis, ultimately assisting the whole marketing process to be more efficient.

To stop the adulteration of fertiliser, the monitoring network, especially at the field level, needs strengthening. Samples of different fertilisers can regularly be collected randomly from different markets and chemical tested in laboratories, to ensure the necessary action is taken against those responsible for adulteration. In this whole process, the SRDI, under the Ministry of Agriculture, could be mandated to analyse fertiliser samples in its own laboratories and report back to the National Fertilizer Committee (NFC). The NFC can use the media (public and private) to share this knowledge, empowering poor farmers to avoid purchasing adulterated fertiliser in the future.

Promoting inclusive growth in Bangladesh's seed sector, following the model of IMD

Quality seed is one of the most important agricultural inputs for ensuring efficient agricultural production. The efficiency of other agricultural inputs (such as fertiliser and irrigation) can be enhanced through its use, which can enhance productivity by 15-20 percent.²²

Both public and private sector initiatives are prevailing in the seed industry in Bangladesh. Rice, wheat and maize are the country's major cereal crops, and the annual seed demand for each of these three crops is about 313.96, 72.00 and 3.30 thousand MTs, respectively. However, the public sector can meet only 23.67%, 26.46% and 7.06% respectively of this demand (MoA, 2006, Islam et al., 2010). There are many seed merchants in Bangladesh who collect seed from various sources to sell on to farmers. However, the quality of this seed is not entirely reliable. Along with commercial seed use, most farmers retain part of their produce to be used as next season's 'seed' because of its easily availability at 'almost no extra cost.' It is estimated that using bad quality seed for both rice and wheat incurs an annual loss of BDT8.36 billion because of poor yielding ability (Islam et al., 2010). Huda (2001, cited in Islam et al., 2010) strongly opines that the use of good quality seed in Bangladesh could enhance annual cereal production by BDT90 billion.

Before the 1990s, levies on seed imports, subsidies on domestically produced seed, and restrictions on the use of new genetic material prevented the emergence of the private seed sector. In the late 1980s, the private sector thus only supplied about 5% of the total demand for seed (Ali et al., 2015). Active participation of the private sector and NGOs in seed production started after the National Seed Policy (NSP) 1993 and Seed Rules 1998. The public sector organisations - the Bangladesh Agricultural Development Corporation (BADC), Bangladesh Agricultural Research Institute (BARI), Bangladesh Rice Research Institute (BRRI), Bangladesh Institute of Nuclear Agriculture (BINA), and Bangladesh Jute Research Institute (BJRI) -work mainly for improved seed production and distribution. There are 100 companies with 8,000 dealers in the private sector related to seed production, import and distribution (Ali et al., 2015).

Present status of demand and supply of quality seed in Bangladesh

Although in recent years the supply of quality seed from both the public and private sectors has shown a highly remarkable increase, there is a long way to go to support the agricultural growth of the country. In 2009-10, Error! eference source not found. the quantity of seed supply was 240,475 MT. This increased to 267,777 MT in 2012-13 (21% of total demand) and was expected to reach to 314,526 MT in 2014-15 (still only 27% of seed demand). Although these figures appear to fall alarmingly short of the country's need, the supply of quality seed for rice – Bangladesh's main staple crop - is almost 60%. It is also higher for other important crops, including wheat (56%), maize (75%) and jute (83%). The lower supply of spice and oil seed is responsible for the decrease to the total average. The supply of quality seed is also lower for potato; BADC supplies only 2%-3% of quality potato seed, the remainder coming from the farmers' own production and import.

²²All the data used in this section retrieved from http://d8seedbank.org/DataVeri/Seed%20System%20of%
20Bangladesh-2015.pdf on December 7, 2015.

Policies prevailing in the seed sector

With the introduction of the National Seed Policy in 1993, the formal seed industry obtained a legal base and the momentum to emerge in a dynamic and diversified way. In the seed production and distribution system, the private sector began to act as an integral part of the seed industry, and the private sector seed system as a whole gradually started turning from an unorganised to an organised system. The overall purpose of the NSP is to make the best quality seed of improved varieties of crops conveniently and efficiently available to farmers with a view to increasing crop production, farmer productivity, per capita farm income, and export earnings. It aims to promote, through education, training and financial support, the balanced development of public and private sector seed enterprises. It also focuses on the promotion of the balanced development of the seed sector by providing equitable opportunities to the public and private sectors at all stages of the seed industry, from breeding to marketing of seed.

Common constraints for the seed sector

A number of studies report constraints in the seed sector, including technical, social, economic and environmental constraints, presented in the following table.

Constraint	Element		
Technical	Low seed collection systems		
	 Inadequate technical knowledge of scientific seed collection and 		
	preservation		
	Poor postharvest handling		
	Poor grading system		
Social	Small and scattered land		
	Friction between rich and poor farmers		
Economic	High production costs		
	Lack of financial support		
	Lack of transparency in the price formation process		
	Inadequate marketing facilities		
	 Inequalities in market information and 		
	Inadequate post-harvest infrastructure facilities		
Environmental	Unplanned conversion of rice fields to vegetables farm.		
	Impact of climate change (flood, drought)		
	Impact of poor packaging system		

Table 4-8: Common constraints in the seed sector

Some of these constrains are elaborated here.

Organisational structure

A review of the present organisational structure will assist understanding of the seed sector in Bangladesh. Currently, this is broad-based, involving public and private sector participation under policy guidance as outlined in the National Seed Policy. Studies have found that 21% of the total requirement of quality seed is supplied by private and public organisations, and 79% is produced traditionally (Ali et al., 2015). There are therefore ample opportunities for intensive and extensive involvement of private sector companies to meet the increasing demand for seed.

Marketing system

Three types of marketing system exist in Bangladesh's seed sector. Firstly, despite the commercialisation of agriculture, a major part of the seed available is farm-saved seed. Farmers are a source of seed production and availability, which can be considered a traditional method of seed distribution. They generally produce seed surplus to their own demand, which they retain and then sell in the local market. Crop-producing farmers buy seed directly from seed-producing farmers.



The second seed marketing system involves local seed traders buying locally produced seed from farmers and selling it locally. The third type can be divided into two systems: one depends on import, the other on local production.



Under the import-based system of marketing, distributors/importers import seed directly from foreign countries and make it available to the farmers or seed users through wholesalers and retailers. In the local production-based system of marketing, distributors/marketing organisations produce seed through contract farmers or procure seed from reliable seed producers in selected areas, and, after cleaning, grading and processing, preserve it in seed stores. This seed is also made available to farmers through wholesalers and retailers.



Farmers usually collect seed from various sources, with the intention of getting as good a quality as possible to get a better yield. Their tendency is to cultivating cash crops; however, immediate gains from maize and onion (among others) have enabled some farmers to make large profits, and this has set farming communities to thinking outside sustainable towards agriculture and more income generating crops. Furthermore, present developments in communication technologies, in particular the availability of mobile phones and advertisements in the mass media, are influencing farmers to get their seed from a range of sources, including unknown sources, such as land owners; in addition, some NGOs supply seed in the form of credit. The release of new varieties also plays an important role in the farmers' selection.

Postharvest handling

Good practice in the postharvest handling of seed is an essential stage in the production process, and has a huge impact on the farmer's performance in the market. In Bangladesh standard postharvest handling practice is not still widespread. The storage devices used by the farmers are frequently unsatisfactory, particularly in terms of protecting seed from moisture. Appropriate research needs to be carried out to improve indigenous storage facilities; at the same time, the government should encourage the introduction of modern storage devices, such as the USA organic cocoon, the Germax cocoon, the IRRI-made storage bag, the rexine cocoon, thick polybag and ferro-cement bins. Farmers should be given appropriate training in areas related to postharvest loss reduction, especially during the period of cereal seed storage.

Challenges to the seed sector and recommendations for market-led inclusive growth

The Seeds (Amendment) Act 2005 has restricted the private sector from developing new varieties of notified crops and production of their breeder seed, which has created an uneven regulatory privilege for the public sector. At the consultation workshop, private sector investors raised this issue of getting permission to produce breeder seed, stating that it contradicts National Seed Policy (NSP) provision for the private sector. BADC's seed prices should reflect costs more closely and subsidies should be phased out gradually as per NSP strategy.

Government needs to create a level playing field where the private sector will be strengthened in every way possible to compete with the public sector. Firstly, the private sector should be provided with the facilities mentioned in the NSP. Issues such as lack of seed testing, breeder seed production and maintenance, truthfully labelled seed production, poor seed distribution and marketing are impeding the private sector, preventing it from participating competitively in seed production and marketing. Reforms are necessary to remove (or at least reduce the impact of) these barriers, which will **encourage** private sector investment.

Quality seed made up 12.61% of the total supply of seed in 2005-6; this increased to 21% in 2012-13 (Ali et al., 2015). The government representative attending the consultation workshop stated that to ensure seed quality, government needs more staff and infrastructure facilities to cope with the volume of demand. In the meantime, government can promote awareness and training in seed production and packaging, in particular how to maintain proper temperature, a cool chain and moisture levels.

Seed adulteration has become quite a common phenomenon. It is difficult for the Seed Certification Agency to monitor the huge marketing system of both the public and private sectors. There is an inadequate supply of breeder seed supply due to the inability of agriculture research institutes to produce an adequate quantity, which in turn is because of an absence of breeder seed production units. Shortcomings of the SCA (such as unrealistic linkage with the DAE, faulty organogram, shortages of funding, staff and facilities, as per provision of NSP) need to be addressed immediately.

CHAPTER 5: DISCUSSION AND CONCLUSIONS

This study has explored various concepts of IMD and attempted to associate these concepts with various sub-sectors in agriculture to enable the development of a guideline to introduce and encourage inclusive business in those sectors. The analysis in this report covers the basic principles of the IMD approach and its role in poverty reduction; its application in three sectors(fisheries, vegetables and agricultural inputs, namely seed and fertiliser); and possible ways to promote the IMD approach further in Bangladesh by making the policy environment more suitable for the private sector to practice this model. The study was based on secondary sources of information, discussion with stakeholders, focused group discussions and key informant interviews. One part of the study has covered the development of a conceptual base for inclusive business which can be applied in various sectors, in particular in agriculture.

The study has also explored the potential space for the IMD approach amid existing public sector initiatives for inclusive growth. It was noted that public sector initiatives have their virtues and also their limitations, and are not serving the need of inclusive growth sufficiently for various reasons. There is thus space for the market to work for inclusive business. That possibility has been explored for three agriculture sectors, and the analysis has come up with a guideline for promoting IMD approach in these sectors. This guideline is provided below.

Summary guideline for promoting IMD in selected agricultural sectors of Bangladesh

Fisheries sector

Capture fisheries

- To make the growth of capture fisheries more inclusive the priority for government should be to intervene in terms of **empowering** the poor, so that they can better participate in marketing the fish.
- To make the JalMahal Policy work for the really poor fishing communities, it needs to make financial support accessible. The poor should be made aware of their rights through training, information and education. Though various donor funded projects have taken such initiatives, the government should extend support more, for example, by providing fisher folk with smart identity cards. Government can also provide support through its programmes such akekti bari ekti khamar ('one house one farm'), under which poor people form cooperatives which allow group savings and small loans under government supervision and financial support. There could be special cooperatives for fishing communities in the relevant areas under this format, so that members can access the government water bodies or Jalmahals.
- Public water bodies appropriate for fish farming should be leased out to entrepreneurs with the knowledge and capital to make the most from the resource. The government should thus encourage the private sector to involve themselves in fish farming in those

water bodies. In those firms poor fishermen can work as labourers. This requires changes in the regulations and the creation of a database of water bodies where fish farming is possible.

- Government policy to have central effluent treatment plants in various industrial areas needs to be implemented; this will go a long way to increase productivity. This will also be considered as an attempt to **empower** the poor and **enable** the large entrepreneurs in fisheries to invest in capture fisheries (where fish farming is possible).
- Government also needs to provide training facilities and awareness raising, covering, among others, modern fishing techniques, use of nets, and the negative impact of illegal gears, mitigating against the impacts of environmental degradation.
- Awareness should be raised against the capture of fish by pumping water as this technique destroys tiny fish.



Culture fisheries

- Government can enable the private sector to engage in more productive fish culture by increasing its access to modern techniques. As many of the modern techniques available internationally are written in scientific language and mostly in English, government can reproduce them in user-friendly language and make them available through Upazila Information Centres.
- Quality of fish fries produced in various hatcheries needs to be regulated and monitored, so that they produce better quality fish fries.
- Monitoring the quality of fish feed supplied by the private companies is very important as adulteration is a common phenomenon.
- Activities of industrial fish feed producers need to be monitored to ensure production of quality fish feed. Occasional training for private sector feed growers is also necessary.
- The government fund which is currently required for providing cash incentive to fish export could be better utilised by providing low cost loans to fish farmers to encourage them to adopt a new technology of production which has long-lasting impacts for the sector as a whole.
- The hatchery owners and fish feed producers need to be made aware of sanitary and phy to sanitary concerns for quality fish fries and fish feed, and their distribution.

- Contract farming in fisheries may be encouraged to increase productivity of fish farms where entrepreneurs with higher investment capacity and skill will invest and low-skilled fishermen can work there as paid employees. Investors in fish farming may be given special tax incentives only when they have contract farming in fisheries connecting poor fisher folk (currently, tax facilities are given to any earning from fisheries, which is misused by many rich people).
- Private companies in collaboration with mobile phone operators can come up with easy applications to supply regular price information to fishermen. Government may also utilise *upzila* einformation centres for providing regular price information.
- More training programmes for fish farmers and hatchery owners, could be offered by the government, particularly on pond management.
- Marine-based aquaculture could save use of agricultural land for fisheries.

Vegetable sector

 A separate policy for the fruit, flower and vegetable sector needs to be developed, which would cover all actors in the respective value chains and improve efficiency and competitiveness. The policy would also support private entrepreneurs in marketing of green or processed vegetable. This is a way of **enabling** private sectors to invest low income market according to the policy tool mentioned in the beginning of this chapter.

- Government can encourage private companies to establish standard cold storage and vegetable packaging industries at local level by providing policy support and by developing incentives structure (such as easy land leasing system, one stop service for all utility connections, guarantee for loan, tax concessions) for private companies. In addition, government can provide training to farmers on how to preserve their crops with simple techniques like using warm water.
- To receive better prices, vegetable producers can form cooperatives and sell the vegetables they produce through auction, such as the successful CDP auction market in Khulna. The government or local authority can encourage the development of a community marketing place and collection centres to reduce the role of middlemen (as per the Supply Chain Development Model).
- Vegetable exporters facing a scarcity of cargo planes and delayed customs clearance, prohibiting them from selling their products on the international markets. Customs policy is administered by the Ministry of Finance; cargo planes are controlled by the Ministry of Tourism and Civil Aviation; exports are administered by the Ministry of Commerce. Although the export policy mentions the provision of dedicated

cargo services for vegetable exporters, implementation would require coordination of all the associated ministries. Government can also ensure proper scaling facilities, a cool chain, and also separate scanning facilities for vegetable exporters.

Fertiliser sector

- Adequate warehousing facilities, in particular in relatively remote areas, are necessary for effective distribution of quality fertiliser. Government can encourage this through initiating incentive packages encouraging the private sector to invest in these areas.
- Government could provide a subsidy on organic fertiliser to reduce its price compared to chemical fertiliser. This is expected to increase its popularity among farmers. Government can also provide more training and promotion activities for farmers, to provide proper knowledge of the limits and utilisation of fertiliser (both organic and chemical, with a special focus on a chemical and organic mix).
- To reduce shipment time and transportation costs, fertiliser supply to the dealers should be made, as far as possible, from the nearest buffer stocks. This will ensure efficiency and quality of the fertiliser at the time of distribution.
- To ensure the efficient and effective marketing of fertiliser, the appointment process of fertiliser dealers needs to be taken out of the hands of elite and powerful individuals. The appointment of experienced dealers with proper storage facilities will help make the

whole marketing process more efficient.

To stop adulteration of fertiliser, the monitoring network, especially at the needs strengthening. field level. Samples of different fertiliser should be collected randomly from different markets regularly for chemical testing in laboratories to enable action to be taken against individuals involved in fertiliser adulteration. As part of this process, the Soil Resource Development Institute (SRDI) under the Ministry of Agriculture could be mandated to analyse fertiliser samples in its own laboratories taken at random from the market at regular intervals. The SRDI can then send their report to the National Fertilizer Committee (NFC), who can share this knowledge through public and private the media, empowering poor farmers to avoid purchasing adulterated fertiliser.

Seed sector

• Government needs to create level playing field where the private sector will be strengthened in every way possible to enable it to compete with the public sector. The private sector should be provided with the facilities mentioned in the NSP. Deficiencies in, among others, seed testing, breeder seed production and maintenance, truthfully labelled seed production, poor seed distribution, and marketing are impeding private sector from competitively participating in seed production and marketing. Reforms are necessary to remove/lessen these barriers which will encourage private sector investment.

- Quality Varietal Replacement Rate (VRR) or Varietal Turnover Rate (VTR) must be increased tremendously to empower poor farmers to use better quality seed. Government can promote awareness and training in, among others, seed production and packaging, and in particular how to maintain proper temperature, cool chain, and moisture levels.
- It is difficult for the Seed Certification Agency (SCA) to monitor the huge marketing system of both public and private sector. There is an inadequate supply of breeder seed supply due to

the inability of agriculture research institutes to produce an adequate quantity, which in turn is because of an absence of breeder seed production units.

There are also other shortcomings of the SCA (such as unrealistic linkage with the DAE, faulty organogram, shortages of funding, staff and facilities, as per provision of NSP). Immediate attention need to be given to these shortcomings, to **enable** relevant agencies to reduce seed adulteration.



CONCLUDING REMARKS

Public sector initiatives alone cannot alleviate poverty: the market needs to work in such a way that the poor are linked meaningfully with the market to enable their development. This study has shed some light on the possible role of IMD in three subsectors of agriculture. It appears that policymakers need to take a role in creating an enabling environment for the promotion of IMD in these sectors; in addition, government can take measures designed to encourage the poor to participate effectively in the market. If policymakers can act appropriate and with conviction then IMD will be possible and the overall growth of the country will be inclusive.

Appendix 1: Fisheries sector



Figure A1: Fisheries sector of Bangladesh (2010-2011) at a glance



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