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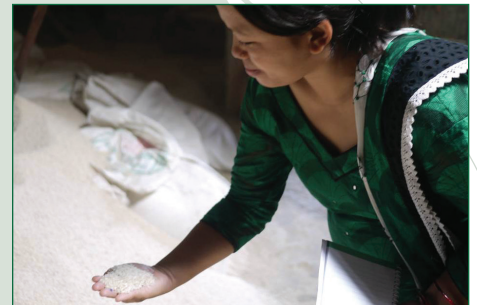


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Agricultural Trade

REGIONAL TRADE IN SEED, FERTILIZER, AND STRATEGIC GRAINS

A Review of the Legal, Regulatory, and Institutional Constraints to Growth Across South Asia

APRIL 2014





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The views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development nor the United States Government.

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LIST OF ACRONYMS



| Acronym | Meaning |
|------------|--|
| AAPI | Accelerating Agriculture Productivity Improvement |
| ADB | Asian Development Bank |
| AEC | Agro-Enterprise Center |
| AEO | authorized economic operator |
| AfT | Aid for TRADE |
| AICL | Agricultural Inputs Company Limited |
| AIP | Agro-Inputs Project |
| APPPC | Asian Pacific Plant Protection Convention |
| APPPC | Asia and Pacific Plant Protection Commission |
| APSA | Asian Pacific Seed Association |
| AS | ammonium sulphate |
| ASPA | Asia and Pacific Seed Trade Association |
| ASYCUDA | Automated System for Customs Data |
| AUSAID | Australian Agency for International Development |
| BADC | Bangladesh Agricultural Development Corporation |
| BARC | Bangladesh Agricultural Research Council |
| BARI | Bangladesh Agricultural Research Institute |
| BCIC | Bangladesh Chemical Industries Corporation |
| BFA | Bangladesh Fertilizer Association |
| BFTI | Bangladesh Foreign Trade Institute |
| BIMSTEC | Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation |
| BOO | “Build, Own and Operate” |
| BPL | Below Poverty Line |
| BRRI | Bangladesh Rice Research Institute |
| BTILS | BIMSTEC Transport Infrastructure and Logistics Study |
| CACP | Commission for Agricultural Costs and Prices |
| CAP | Covered and Plinth |
| CBEC | Central Board of Excise and Customs |
| CBSP | Community Based Seed Production |
| CEAPRAD | Center for Environmental and Agricultural Research and Development |
| CII | Confederation of Indian Industry |
| CIMMYT | International Maize and Wheat Improvement Center |
| CIRDAP | Centre on Integrated Rural Development for Asia and the Pacific |
| COENCOSA | Cost of Economic Non-Cooperation to Consumers in South Asia |
| CSISA | Cereal Systems Initiative for South Asia |
| CUTS | Consumer Unity and Trust Society |
| CUTS-CITEE | “Consumer Unity and Trust Society Center for International Trade, Economics and Environment” |
| DADO | District Agriculture Development Office |
| DAE | Department of Agricultural Extension |
| DAP | diammonium phosphate |
| DFID | UK Department for International Development |
| DGF | Directorate General of Food |
| DISSPRO | District Seed Self-Sufficiency Program |
| DoA | Department of Agriculture |
| DUS | “Distinctness, Uniformity and Stability” |
| ESCAP-SSWA | Economic and Social Commission for Asia and the Pacific South and South-West Asia Office |

| | |
|---------|--|
| FAI | Fertilizer Association of India |
| FAO | Food and Agriculture Organization of the United Nations |
| FAQ | fair-to-average quality |
| FBCCI | Federation of Bangladesh Chambers of Commerce and Industry |
| FCI | Food Corporation of India |
| FCO | Fertilizer Control Order |
| FDI | foreign direct investment |
| FDP | fertilizer deep placement |
| FGIS | American Federal Grain Inspection Service |
| FICCI | Federation of Indian Chambers of Commerce and Industry |
| FNCCI | Federation of Nepalese Chambers of Commerce and Industry |
| FPMU | Food Planning and Monitoring Unit |
| FTF | Feed the Future |
| FYM | farm yard manure |
| GATT | General Agreement on Tariffs and Trade |
| GiZ | German Society for International Cooperation |
| GMO | genetically modified organism |
| GOB | Government of Bangladesh |
| GON | Government of Nepal |
| ICRIER | Indian Council for Research on International Economic Relations |
| IFAD | International Fund for Agricultural Development |
| IFC | International Finance Corporation |
| IFDC | International Fertilizer Development Center |
| IPNMS | Integrated Plant Nutrient Management System |
| IPPC | International Plant Protection Commission |
| IRRI | International Rice Research Institute |
| ISTA | International Seed Testing Association |
| KISAN | Knowledge-Based Integrated Sustainable Agriculture and Nutrition |
| LDC | local distribution company |
| LI-BIRD | Local Initiatives for Biodiversity Research and Development |
| MEP | minimum export price |
| MFN | Most-Favored Nation |
| MoA | Ministry of Agriculture |
| MoAC | Ministry of Agriculture and Cooperatives |
| MoC | Ministry of Commerce |
| MOCPA | Ministry of Cooperatives and Poverty Alleviation |
| MoCS | Ministry of Commerce and Supplies |
| MoFDM | Ministry of Food and Disaster Management |
| MOP | muriate of potash |
| MOU | memorandum of understanding |
| MSP | minimum support prices |
| MT | Metric Tons |
| NARC | Nepal Agricultural Research Council |
| NARS | National Agricultural Research System |
| NBR | National Board of Revenue |
| NBS | Nutrient Based Subsidy |
| NBSM | Nepal Bureau of Standards and Metrology |
| NCC | Nepal Chamber of Commerce |
| NCS | Nepal Council for Standards |
| NFC | National Food Corporation |
| NFSB | National Food Security Bill |

| | |
|-----------|---|
| NGO | non-governmental organization |
| NIRTTTP | Regional Trade and Transport Facilitation Project for Nepal and India |
| NSAI | National Seed Association of India |
| NSCL | National Seed Company Ltd |
| NTB | non-tariff barrier |
| NTM | non-tariff measures |
| ODC | duty and charge |
| OIC | Orange International Certificates |
| OPV | open-pollinated variety |
| PBR | Plant Breeders' Rights |
| PDS | public distribution system |
| PEG | Private Entrepreneurs Guarantee |
| PFDS | Public Foodgrain Distribution System |
| PPP | public-private partnership |
| PPP-IAD | public-private partnership for integrated agriculture development |
| PVP | plant variety protection |
| RISTE | Addressing Barriers to Rice Seeds Trade between India and Bangladesh |
| RKC | Revised Kyoto Convention |
| SAARC | South Asian Association for Regional Cooperation |
| SAARC-CCI | South Asian Association for Regional Cooperation Chamber of Commerce and Industry |
| SAARC-TPN | South Asian Association for Regional Cooperation Trade Promotion Network |
| SAE | South Asia Economic Summit |
| SAFTA | South Asian Free Trade Area |
| SAPTA | South Asian Association for Regional Cooperation Preferential Trading Agreement |
| SARTIP | South Asia Regional Trade and Integration Program |
| SASEC | South Asia Sub-Regional Economic Cooperation |
| SAWTEE | "South Asia Watch on Trade, Economics and Environment " |
| SCA | Seed Certification Agency |
| SEAN | Seed Entrepreneurs Association of Nepal |
| SFAC | Small Farmers' Agri-Business Consortium |
| SMD | Soil Management Directorate |
| SPS | sanitary and phytosanitary |
| SQCC | Seed Quality Control Center |
| SRDI | Soil Resource Development Institute |
| SSB | Sashastra Seema Bal |
| STRASA | Stress Tolerant Rice for Africa and South Asia |
| TCARD | Technical Committee on Agriculture and Rural Development |
| TEPC | Trade and Export Promotion Centre |
| TSP | triple super phosphate |
| UNCTAD | United Nations Conference on Trade and Development |
| UNDP | United Nations Development Programme |
| UNESCAP | United Nations Economic and Social Commission for Asia and the Pacific |
| UPOV | International Union for the Protection of New Varieties of Plants |
| USAID | United States Agency of International Development |
| VCU | Value for Cultivation and Use |
| VDC | village development committee |
| WCO | World Customs Organization |
| WFP | World Food Programme |
| WGI | Worldwide Governance Indicators |
| WTO | World Trade Organization |

EXECUTIVE SUMMARY

MOTIVATION AND BACKGROUND

This report addresses the legal, regulatory and institutional environment for trade in seed, fertilizer and grain in Bangladesh, India and Nepal. The report is meant to serve as a key baseline document for The United States Agency of International Development (USAID)'s regional food security strategy; it also aims to inform strategies and decisions by government institutions, donors, non-governmental organizations (NGOs) and the private sector. This document can be used for a variety of purposes: it can be accessed as a foundation for agricultural policy development, a framework for donor intervention, a substantive resource for future projects, a benchmark for assessing change, a tool for academic instruction, and, most immediately, a "jumping off point" for stakeholder discussion and consensus-building under USAID's regional Feed the Future (FTF) program(s).



In particular, the assessment covers the following topics:

- » Regional agricultural trade policy with respect to increasing efficiency, stability and transparency of cross-border trade, with a focus on seed, fertilizer and strategic grains;
- » Regional institutional architecture for improved policy formulation and implementation of regional reforms;
- » South Asian agriculture input policies to evaluate the potential effects on neighboring countries, with a focus on India, Nepal and Bangladesh.

The report summarizes the team's key findings about how, when and under what conditions potential policy interventions are most likely to contribute to trade growth and support the U.S. Government's investments in FTF countries in South Asia. Based on the report's findings, we make a variety of recommendations.

METHODOLOGY

Within each of the targeted areas mentioned above, this diagnostic has accessed data from a broad spectrum of stakeholders and endeavored to build a "360° picture" of the challenges to trading agricultural commodities in South Asia.

For three weeks in October and November, 2012, a team of consultants convened in Nepal, Bangladesh and India to conduct interviews across the agricultural sector. The team met with more than 200 national and local officials, farmers and their associations, small, medium, and large agricultural enterprises, business associations, think tanks and other NGOs, research institutions, donor representatives and many others. Interviews for the "rapid diagnostic" took place in three phases: 1. Nepal (Kathmandu, Birgunj, Nepalgunj), 2. Bangladesh (Dhaka, Benapol) and 3. India (New Delhi and Hyderabad).

The findings are derived from an analysis of the Commercial Legal and Institutional Reform (CLIR) framework, which includes the following:

- » **Legal Framework.** Each chapter of the diagnostic first examines the laws and regulations that each of the three countries have in place. The diagnostic poses the following questions: How closely do existing laws reflect emerging global standards? How well do they respond to commercial realities that end-users face? What inconsistencies or gaps are present in the legal framework? Often discovered through this review are opportunities to make relatively small changes that may result in significant openings for business development and expansion.

- » **Implementing Institutions.** Next, the diagnostic examines those institutions that hold primary responsibility for implementation and enforcement of the laws, regulations and policies governing the seed, fertilizer and grain sectors. For example, public procurement of grain is a critical issue to understand as part of the region's ability to freely move grain during times of duress.
- » **Supporting Institutions.** The diagnostic then considers the environment of organizations, individuals or activities without which the legal framework or policy agenda cannot be fully developed, implemented or enforced. Examples of these supporting institutions include professional associations, universities, NGOs and other similar ancillary service providers. Of particular interest with respect to supporting institutions is whether they have any meaningful involvement in what the law says or how it is implemented.
- » **Social Dynamics.** Finally, studying social dynamics entails asking whether the affected constituencies of a law or policy perceive a need for change, and, if so, how they are demonstrating this need. Are they effectively lobbying those institutions that can make a change? Is the media seizing the issue as a topic of public concern? Are individuals speaking out? Or, have social dynamics taken a less positive approach—for example, is the “gray economy” growing as a response to overly burdensome conditions for market entry?

SUMMARY OF SUBJECT-SPECIFIC FINDINGS:

TRADE IN SEED

Farmers in Nepal and Bangladesh are fortunate to have access to a large and steady flow of new varieties of field crops and vegetables from public and private breeding in India. Each country handles this opportunity quite differently; due to ill-advised policies by the Government of Nepal (GON), most varieties from India reach Nepal's farmers through informal channels that undermine the development of Nepal's local seed industry. In Bangladesh the situation is quite different; there, companies introduce an array of maize hybrids as well as some rice hybrids from India, helping Bangladeshi farmers benefit from the world-class research and development taking place within India. On a regional level, harmonization of seed standards is a long way off. In fact, the development of regional seed standardization policies may even be unnecessary if each country is willing to act unilaterally to simply accept varieties from other countries (as in the case of Bangladesh).

TRADE IN FERTILIZER

Nepal, Bangladesh and India all depend on importing much or all of their (politically sensitive) fertilizer supplies. Partly as a result of this, public policy at a national and regional level plays a critical role in determining the type and the source of fertilizer imported into each country, as well as the rate and the timing of fertilizer imports. Each of the South Asian countries considered in this diagnostic suffers from some level of market distortion, causing an overuse of nitrogenous fertilizers and a regional trend towards harmful soil imbalances. This report suggests a move away from single-product policies that cause such imbalances in favor of a move towards a strategic understanding of nutrient policy and implementation through extension agents. Already well recognized in India, this concept needs to be embraced by governments and fertilizer industries alike in Bangladesh and Nepal to enable them to meet their potential as agricultural economies capable of feeding their own populations, and the region more broadly.

TRADE IN GRAIN

There is good reason to believe that large grain surpluses will become the new normal for Indian agriculture. While Nepal and Bangladesh have both managed to increase their levels of self-sufficiency through increased production, estimates suggest that they will be net importers of grains for years to come.

Increasing focus on infrastructure connectivity throughout the region (e.g., within Nepal and between India and Bangladesh) will go a long way towards increasing the efficiency of grain trade. This report highlights the need for soft infrastructure as much as hard, including development of grain inspection services to increase the trust of private traders across the region.

Building a framework for enhanced cooperation around areas of mutual interest is crucial to the stability of future grain flows; advanced warning on major policy decisions (e.g., export bans, price support and price stabilization), would go a long way towards building stronger commercial relationships.

REGIONAL INSTITUTIONAL ARCHITECTURE

Intraregional trade has increased across South Asia in recent years, but slowly. Delays at the border continue to be a problem, particularly for agricultural products, which are subject to widely divergent standards and quality control measures often of dubious intention. Policy unpredictability, a lack of necessary trade-related infrastructure, a dearth of transit agreements and slow customs processing all add to the complex process of trading agricultural products across South Asia. Lack of harmonization of customs procedures and weak networking with the private sector underlie these border issues, contributing to low levels of trade. The most important barriers to regional integration, however, may be political and security-related.

There are many possible reasons for the low level of intraregional trade in South Asia, including lack of policy coordination, the sensitive product lists in the South Asian Free Trade Area (SAFTA) and non-tariff barriers (NTBs) (including inefficient customs clearing procedures and delays, standards and testing and the failure to allow each other's vehicles to travel within their borders). Structural factors, such as lack of progress in trade facilitation, efficacy of regulatory agencies, logistical capability of ports, airports and land border crossings, poor border infrastructure (lack of warehousing, handling, scanning and testing facilities and limited space for loading) and lack of connectivity also work against intraregional trade.

CHAPTER I: INDIAN TRADE IN SEEDS

INTRODUCTION

This chapter discusses aspects of India's seed sector, including international agencies active in India, which are relevant to increasing efficiency of seed trade and technology (variety) transfer to improve food security in the region, especially in Bangladesh and Nepal. The chapter focuses on two issues already identified to be important for seed trade and variety transfer in the region based on the literature review and visits to Nepal and Bangladesh in October 2013: regulations on variety introduction in each country, and phytosanitary controls on seed trade between South Asian countries.



LEGAL FRAMEWORK

India has a liberal seed regulatory framework at the federal level (Table 1) with some additional but similarly workable regulations at the state level. Overall, the regulatory system accommodates a competitive private sector well-linked to world breeding.

India's seed regulatory framework¹ is set by the **1966 Seeds Act** and amendments,² **Seeds Rules and amendments, Seeds (Control) Order**,³ the **New Policy on Seed Development**, 1988,⁴ the **Destructive Insects and Pests Act**, 1914,⁵ the **Plants, Fruits and Seeds (regulation of import into India) Order**, 1989,⁶ and a **plant variety protection act and regulations**.

At the federal level, variety registration is not required to sell seeds. Companies must name the seed variety on the label, but the variety does not have to be tested or registered by the Government of India (GOI). Several states require variety registration before seed sale. Seed industry sources report that Andhra Pradesh and

Maharashtra have the "strictest" controls on introduction of new varieties; India's private seed industry concentrates in these states. Industry sources also opined that some larger private companies favor regulations to slow market entry by newer and smaller companies. In any case, state level controls on variety introduction are not considered burdensome; for example, Andhra Pradesh requires variety registration, but bases it on information provided by the seed company (Government of Andhra Pradesh 2012).

At the end of the 1980s, India eased controls on private import of seeds and germplasm and allowed large Indian and foreign companies into the industry, enabling India's seed industry to work more closely with the world industry. For major food crops, the 1988 reforms asked for one year of field trials for imported seeds of a new variety (but not for imported seeds or germplasm intended for breeding); as of 2013, informants say that one year of tests focuses exclusively on the seed's susceptibility to pests and diseases, with no attention to other performance characteristics.

¹ GOI. 1966. The Seeds Act, 1966; GOI. 1972. The Seeds (Amendment) Act, 1972. All available at: <http://faolex.fao.org/>.

² GOI. 1968. The Seeds Rules 1968; GOI. 1973. The Seeds (Amendment) Rules, 1973; GOI. 1974. The Seeds (Amendment) Rules, 1974; GOI. 1981. The Seeds (Amendment) Rules, 1981. All available at: <http://faolex.fao.org/>.

³ GOI. 1983. The Seeds (Control) Order, 1983; GOI. 2006a. The Seeds (Control) Amendment Order, 2006. All available at: <http://faolex.fao.org/>.

⁴ GOI. 1988. New Policy on Seed Development, 1988. Available at: http://seednet.gov.in/Material/NEW_POLICY_NPSD.pdf.

⁵ GOI. 1914. The Destructive Insects and Pests Act, 1914.

⁶ GOI. 1989. Plants, Fruits and Seeds (regulation of import into India) Order, 1989. Available at: <http://faolex.fao.org/>.

TABLE 1: IMPACT OF SEED REGULATORY FRAMEWORKS ON CRUCIAL SEED INDUSTRY ACTIVITIES

| TO START A SEED COMPANY, MOA REGISTRATION IS: | TO INTRODUCE A NEW VARIETY, VARIETY REGISTRATION IS: | | TO PRODUCE OR ACCESS SEED FOR WHOLESALE DELIVERY: | | | TO SELL SEED: | |
|---|--|--|---|---|---|--|---|
| | Voluntary or automatic and low cost | Required, with discretionary approval after time and expense | MoA registration of contract farmers is: | MoA controls on seed imports are based on: | Seed certification is: | MoA registration of seed dealers is: | MoA approvals of seed exports are: |
| Required but automatic (nominal fee) | Voluntary for all species | --- | Not required | (a) phytosanitary criteria; (b) seed quality for sale in India; (c) the label states the variety or kind of seed; (d) seed import for cotton, wheat, and some other crops is allowed only by government | For all crops, except for varieties released by public research | Required but automatic (nominal fee); states may waive the requirement | Required; (a) seeds must meet India's quality standards; and (b) labels must state the variety or kind. The Essential Commodities Act allows GOI to limit seed exports for food crops, fruit, vegetables and jute for other reasons |

Knowing what seed companies can do—how they contribute to agricultural development—provides a foundation for understanding what policies are required to allow South Asia's seed industry to develop, taking advantage of varieties and partnerships available across the region and beyond.

What is a seed company? A seed company wholesales seed under its brand name. Many seed companies import seed to sell; this is especially so for vegetable seed, but may also extend to hybrids for field crops such as maize, rice and sunflower. When seed companies source seed in-country, they generally leave most seed growing to contract farmers, but process and package the seed themselves (which they may do in rented facilities).

Seed companies introduce new varieties, linking farmers to world breeding: When governments allow seed companies to introduce varieties, companies compete by offering menus of varieties with characteristics farmers value. In competitive seed markets, even very good varieties of field crops are commonly pushed out by better varieties within five to ten years; with vegetables, new varieties replace old ones even faster. This forces companies continuously to seek and introduce better varieties. In other words, seed companies are technology companies, introducing varieties that drive agricultural growth. Except for countries with the largest seed markets and industries, such as India, China and the US, most new varieties come from foreign public or private breeding.

Seed companies sell quality: Seed companies build their markets over many years by selling seed of useful varieties with acceptable and reliable quality. To do so, companies must be able to control the source of their seed, i.e., to import seed for multiplication or sale, and to choose which local farmers to engage for seed production on a year-by-year bases.

The 1955 Essential Commodities Act allows the GOI to control trade of specified commodities. Despite some moves over the years to apply the act to imports and exports of seeds of food crops, fruits, vegetables, fodder and jute,⁷ seed industry sources report that the GOI does not interfere with exports of seeds for grains. For example, export of rice seeds is allowed even when the GOI blocks exports of rice as grain.

India's regulatory framework for genetically modified organisms (GMOs) began with the 1986 Environmental Protection Act. In 2012, the Technical Expert Committee appointed by the Supreme Court delivered a report recommending a ban on field tests pending improved regulation.⁸ As of 2013, the GOI has approved only GMO cotton.

Imported seeds must meet India's minimum seed quality standards. Seed imports do not have to be certified, and the variety does not need to be registered in India. Seed imports are subject to strict phytosanitary controls guided by Plants, Fruits and Seeds (regulation of import into India) Order,⁹ 1989. Through the South Asian Association for Regional Cooperation (SAARC), the GOI participates in the SAARC Seed Bank, established in 2011, and in the SAARC Seed Forum, tentatively established in 2010.

IMPLEMENTING INSTITUTIONS

GOI institutions have little to do with the movement of seed varieties from India to other countries in the region. However, breeding in the GOI and state institutions contributes to a substantial flow of new varieties from public and private breeding in India, many of which either are or could be useful to farmers in neighboring countries, including Bangladesh and Nepal (Table 2).

At the federal level, the Indian Council of Agricultural Research coordinates research in 13 national institutes, 3 bureaus, 9 project directorates, 2 national research centers, 27 all-India coordinated research projects and 5 all-India network projects (see: <http://www.icar.org.in/en/crop-science.htm>). Because agriculture is a state subject, state governments fund research in state universities modeled after US land grant universities. Government research organizations at the central and state

levels breed varieties. About half of annual government spending on agricultural research (\$563-688 million) goes toward crops,¹⁰ of which an important proportion goes toward breeding.

The GOI, through SAARC, participates in the **SAARC Seed Bank**, approved in 2011. The preamble to the agreement anticipates the Seed Bank will “contribute to the objective of harmonized seed testing and certification” and “facilitate seed trade within the region.”¹¹ Harmonization of seed standards could marginally improve trade—but each country acting alone can achieve almost the same outcome by simply certifying and testing seeds intended for export according to the standards of the importing country, without having to negotiate similar standards. Proposals to harmonize variety tests (Value for Cultivation and Use (VCU) and Distinction, Uniformity and Stability (DUS)) and to develop multi-country lists of approved varieties through the Seed Bank divert attention from the alternate and workable option for each country acting unilaterally to simply accept varieties from other countries (which could include unilateral acceptance of test results). Trying to harmonize variety tests and lists threatens to drag governments into unnecessary negotiations giving power to the government least willing to accept varieties from other countries.

India's private seed industry generates many varieties that could be useful for farmers in the South Asia region.

In 2010, SAARC established the SAARC Seed Forum with a provisional structure. The structure is being formalized in 2013. SAARC staff expect the Forum to be managed by a board with each SAARC country contributing a government and private sector representative (the head of the national seed trade association). SAARC staff report that IFC's Bangladesh Investment Climate office has approved a project for the Forum to harmonize seed regulations across SAARC countries, including certification and seed quality standards.

⁷ GOI. 1986. The Essential Commodities Act, 1955 (as amended up to 24/12/1986); GOI. 2006b. The Essential Commodities (Amendment) Act, 2006. All available at: <http://faolex.fao.org/>.

⁸ USDA. 2013. India Agricultural Biotechnology Annual 2013. Available at: http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Agricultural%20Biotechnology%20Annual_New%20Delhi_India_7-15-2013.pdf.

⁹ GOI. 1989. Plants, Fruits and Seeds (regulation of import into India) Order, 1989. Available at: <http://faolex.fao.org/>.

¹⁰ Pal S, Rahija M, Bientema N. 2012. India: Recent Developments in Agricultural Research. Washington, DC: IFPRI. Available at: <http://www.asti.cgiar.org/pdf/India-Note.pdf>.

¹¹ SAARC. 2011. Agreement on establishing the SAARC seed bank. Kathmandu: SAARC. Available at: <http://seednet.gov.in/saarc-seedbank.pdf>.

International public sector organizations active in India and relevant for movement of varieties across national borders include: Consultative Group on International Agricultural Research (CGIAR) centers (especially IRRI, CIMMYT, and ICRISAT) and related projects, including Stress Tolerant Rice for Africa and South Asia (STRASA) and Cereal Systems Initiative for South Asia (CSISA).

The **Directorate of Plant Protection, Quarantine and Storage**¹² in the Ministry of Agriculture is responsible for phytosanitary controls at border points. Aside from this organization, other government agencies could influence phytosanitary strategies, including the Central Seed Committee, an advisory body established by the 1966 Seeds Act, as well as plant pest and disease specialists in ICAR and universities.

MoA's Plant Quarantine officers participate in meetings of the Asian Pacific Plant Protection Convention (APPPC), which provides a forum for countries to discuss phytosanitary protections, with an objective to resolve trade disputes by basing phytosanitary control on scientific principles—e.g., to focus on quarantinable pests.

The **SAARC Seed Forum** is well-placed to address regional phytosanitary strategies, including both relaxing controls on intraregional trade and strengthening controls on seeds and other vegetative materials coming into South Asia.

SUPPORTING INSTITUTIONS

India's private seed industry generates many varieties that could be useful for farmers in the South Asia region. Estimated aggregate spending on research among Indian seed companies increased approximately 20% per year from \$4.9 million in 1994/95 to \$88.6 million in 2008/09.¹³ Because variety registration is optional for private varieties, there is no complete list of introduced varieties. As part of a study of private agricultural research, Nagarajan went through companies' annual reports to compile a partial list of private variety introductions (Table 2). This includes only private hybrids (companies also introduce non-hybrid varieties for rice, wheat and other crops) from only 34 companies. Even with this incomplete list, government and private companies introduced 20-54 new varieties per crop per year during 2005-10 for major crops (rice, wheat, maize, pearl millet, sorghum and cotton).

TABLE 2: AVERAGE NUMBER OF NEW SEED VARIETIES INTRODUCED INTO INDIA PER YEAR, 2005 -2010

| CROPS | PRIVATE HYBRIDS* | PUBLIC CULTIVARS | PUBLIC CULTIVARS PLUS PRIVATE HYBRIDS |
|--------------|------------------|------------------|---------------------------------------|
| Rice | 13 | 40 | 53 |
| Wheat | 7 | 16 | 23 |
| Maize | 23 | 15 | 37 |
| Pearl Millet | 16 | 8 | 24 |
| Sorghum | 13 | 8 | 20 |
| Cotton | 43 | 12 | 54 |

* Incomplete list, from 34 companies only.

Source: Pray and Nagarajan 2012.

Between India and neighboring countries, private companies manage transfer of varieties—and in some cases, seed trade—to deliver varieties. For example, Indian companies produce hybrid maize seed for export to Bangladesh, without any involvement of the GOI or the Government of Bangladesh (GOB) to test or approve variety introduction. Similarly, Indian and Nepali companies manage transfer of varieties to Nepali farmers, although much of the trade is informal because the GON has not approved the varieties. Indian companies can export varieties and seeds not only for private varieties but also for varieties from public breeding.

India has about 500 seed companies; in 2012, India's domestic seed market was ranked as the 6th largest in the world, with \$2 billion in annual sales.¹⁴ Private companies dominate India's markets for hybrid seed,¹⁵ while public sector seed companies have a large share of markets for open-pollinated varieties of rice and wheat.

¹² Asia and Pacific Plant Protection Commission, 2013.

¹³ Pray C, Nagarajan L. 2012. Innovation and Research by Private Agribusiness in India. IFPRI discussion paper 01181. Washington, DC: IFPRI. Available at: <http://www.ifpri.org/sites/default/files/publications/ifpridp01181.pdf>.

¹⁴ International Seed Federation (ISF). 2013. Seed statistics. Nyon Switzerland: ISF. Available at: http://www.worldseed.org/isf/seed_statistics.html.

¹⁵ Shreedhar G, Gupta N, Pullabhotla H, Ganesh-Kumar A, and Gulati A. 2012. A Review of Input and Output Policies for Cereals Production in India. IFPRI discussion paper 01159. New Delhi: IFPRI.

Because phytosanitary controls are a government responsibility, no private organizations are responsible to decide or reform the strategy for phytosanitary controls or to implement controls.

There are a number of supporting institutions affecting, or with the potential to affect, the flow of Indian seed across the region. The National Seed Association of India is the leading trade association for India's seed industry. Another important trade association is the Seedsmen's Association. One private international organization with potential influence on regional variety movement and seed trade is the Asian and Pacific Seed Association, headquartered in the Philippines. The organization is a venue for companies from regional countries to arrange for seed trade and variety transfer; but has little influence on government policies.

SOCIAL DYNAMICS

Virtually all public and private organizations involved in agricultural research or seed trade in India as well as relevant international organizations would like to see India's seed industry delivering varieties and/or seeds to regional countries. India's private seed companies have been focused, for the most part, on the domestic market—expecting annual growth of 15% from a low base of only \$1.60 per capita per year (Table 3). India's current seed exports and imports are small relative to domestic sales, summing to only 7% of domestic sales vs. 20% in the US (Table 3).

Companies are clearly interested to expand sales into regional countries...What is unclear is how companies hope to get seeds to foreign farmers.

Seed industry sources are aware that research in India delivers a flow of varieties that could be useful in neighboring countries. Companies are clearly interested to expand sales into regional countries, including Pakistan and Sri Lanka along with existing markets in Bangladesh and Nepal. What unclear is how companies hope to get seeds to foreign farmers. One option is to export seeds produced in India, but this may be unpalatable for regional governments worried about the reliability of their seed supply and the development of their national seed industries. Alternately—and more cooperatively or strategically—Indian companies may produce seeds in neighboring countries. They could do this through subsidiaries or joint ventures, or by licensing varieties to local companies in those countries. Costs are also a factor when considering this option; hybrid seeds may be exported, while low-value seeds of open pollinated varieties may be fit for production in importing countries.

TABLE 3: AVERAGE NUMBER OF NEW SEED VARIETIES INTRODUCED INTO INDIA PER YEAR, 2005 -2010

| COUNTRIES | POPULATION 2013 | DOMESTIC SALES 2012 | | SEED EXPORTS 2011 | | | SEED IMPORTS 2011 | | |
|---------------------------------|--------------------|---------------------------|------------------|-----------------------------|----------------|--------------------------------|-----------------------------|----------------|--------------------------------|
| | | \$ millions | \$ per capita | Vegetables (\$ millions) | TOTAL | | Vegetables (\$ millions) | TOTAL | |
| | | | | | \$ millions | As a % of domestic sales | | \$ millions | As a % of domestic sales |
| Bangladesh | 153 | 125 | 0.8 | NA | NA | | NA | NA | |
| India | 1,233 | 2,000 | 1.6 | 29 | 59 | 3% | 47 | 70 | 4% |
| SELECTED OTHER COUNTRIES | | | | | | | | | |
| France | 66 | 2,800 | 42.4 | 366 | 1,616 | 58% | 150 | 683 | 24% |
| Germany | 80 | 1,170 | 14.6 | 73 | 745 | 64% | 97 | 714 | 61% |
| United States | 316 | 12,000 | 38.0 | 507 | 1,394 | 12% | 318 | 908 | 8% |

Source: Population from Wikipedia (2013). Seed data for Bangladesh for July 2011-June 2012 are from Financial Express (2012). All other seed data are from International Seed Federation (2013).

Addressing the **National Seed Association of India**, Raj Paroda, a former government official and currently with the independent Trust for Advancement of Agricultural Sciences, urged the industry to aggressively promote exports:¹⁶

...many of the Indian seed companies are now capable of undertaking seed production for export, particularly to SAARC, African, Central Asian, South East Asian and the Pacific countries.... India's seed exports can be increased many fold from current US \$400 million... Hence, forward-looking initiatives in this context will be highly beneficial to Indian seed sector. For this, we need to strengthen our efforts on market intelligence and have required bilateral relations and partnerships built. We need to have an aggressive approach now and develop strategy to capture seed markets abroad in a well-planned manner. NSAI [National Seed Association of India] could bring out a policy paper on this aspect soon."

According to seed industry sources, the GOI can be expected to allow exports of varieties and seed, including public varieties. As noted previously, for example, companies have been able to export rice seed when rice grain exports were not allowed. However, GOI may discourage exports of germplasm, and may also discourage seed imports. Export and import restrictions are "politically motivated for commercial seed."¹⁷

INTERNATIONAL PUBLIC SECTOR VIEWS

International public sector organizations and related donor-funded projects, including the International Maize and Wheat Improvement Center (**CIMMYT**), the **International Rice Research Institute (IRRI)**, **CSISA**, and **STRASA** promote introduction of varieties in multiple countries. The strategy these organizations take is to work through governments, accepting that government committees to approve varieties. For example, IRRI through STRASA in early 2013 supported discussions on harmonization, including:¹⁸

- » Joint evaluation of improved rice varieties for release in areas with similar agro-climatic conditions in both countries.
- » Reciprocal acceptance of research data.
- » Streamlining of evaluation to reduce processing time from two to three years to one.

Consumer Unity and Trust Society (CUTS), with support from the Bill and Melinda Gates Foundation, is currently implementing a research and advocacy project funded to "address barriers to rice seeds trade between India and Bangladesh," with a focus on Indian exports to Bangladesh.¹⁹ "Over the next 18 months [from April 2013], CUTS International and its partners will implement this project in partnership with a number of local partners in Bangladesh and India. The major issue to be addressed is how to formalize informal trade in rice seeds which is happening on both sides of the border."

Several seed company informants in India were open to suggestions to promote rationalization of phytosanitary barriers in South Asia—relaxing barriers between regional countries. This echoed sentiments among seed companies in both Bangladesh and Nepal.

International organizations could play a role include the SAARC Seed Forum, which was created with a provisional structure in 2010 but is currently developing a more formal structure with public and private board members from all SAARC countries. SAARC staff expressed interest in undertaking a project to rationalize phytosanitary controls across SAARC members.

The **Asian Pacific Plant Protection Convention** (APPPC), the regional organization linked to the Food and Agriculture Organization of the United Nations (FAO)'s International Plant Protection Convention, is well positioned to provide technical assistance on the proposed rationalization of phytosanitary controls.

¹⁶ Paroda R. 2013. Lecture. Available at: http://nsai.co.in/images/filepicker_users/6587628292-62/Lectures/NSAI%20Foundation%20Day%20Lecture.pdf.

¹⁷ Verma P. No date. The Indian Seed Industry. Slide 24. New Delhi: National Seeds Association of India. Available at: http://www.apsaseed.org/images/lovelypics/Documents/Technical%20Session08/India_%20Country%20Report.pdf.

¹⁸ IRRI. 2013. Workshop on: Rice production in Bangladesh and collaboration between India and Bangladesh on seed issues. Dhaka, 17 February 2013. Available at: <http://irri-news.blogspot.com/2013/03/bangladesh-workshop-seeks-to-enhance.html>.

¹⁹ CUTS. 2013. Huge scope for India-Bangladesh cooperation on rice seeds trade. Available at: http://www.cuts-citee.org/RISTE/Press_release-Huge_scope_for_India-Bangladesh_cooperation_on_rice_seeds_trade.htm

CHAPTER 2: INDIAN TRADE IN FERTILIZER

INTRODUCTION

In India, consumption of nitrogen (N), phosphate (P) potassium (K) fertilizers has increased from 1.1 million MT in 1966-67, the year preceding the green revolution to 28.2 million MT in 2010-11.

Meanwhile, the country's food grain production increased from 74 million MT in 1966-67 to 241.56 million MT in 2010-11. India at present is the second largest producer of nitrogen fertilizer in the world, and enjoys the third position for phosphate fertilizers.

However, potash is totally imported. India is second only to China in nitrogen and phosphorus consumption. The consumption of chemical fertilizers (in terms of nutrients) during 2010-11 was 28.2 million MT; comprising 16.6 million MT of nitrogen, 8.1 million MT of phosphate and 3.5 million MT of potassium fertilizer. The Indian average consumption of fertilizers increased from 95 kg/ha in 2004-05 to 144 kg/ha in 2010-11.²⁰ The country is well located to supply much of South Asia with fertilizer, and does so formally and informally.



India's steady growth of fertilizer consumption has unexpectedly turned since 2008. The continued deterioration of government finances has forced the current government to go back to the drawing board and rationalize expenditure categories. This has not only been economically unproductive, but has also failed to bring political gains. While government coffers were full in the pre-2008 high-growth era, the current fiscal deficit is of increasing cause for concern to domestic analysts. Growth projections are pessimistic and GDP growth rate is the lowest it has been in three years. Further, India's credit ratings have been downgraded and the Indian government is cash²⁰ strapped. To add to the structural fiscal crunch, the Rupee lost nearly 18% of its value in the last six months of 2011, worsening the situation.²¹

Compelled to fix the current financial situation, which threatens growth and investment fundamentals, policymakers are significantly reducing politically sensitive subsidies—including those related to fuel and fertilizer. This will inevitably create knock-on effects throughout the region, where subsidized Indian fertilizer supplies many of the region's markets.

[India] is well located to supply much of South Asia with fertilizer, and does so formally and informally.

LEGAL FRAMEWORK

At independence, India inherited a national government-managed system of fertilizer distribution to districts and through cooperatives. **The Fertilizer Control Order, (FCO) 1957**, based on the Essential Commodities Act, 1955, authorized the GOI to manage all fertilizer production, imports and exports, distribution, and prices.²² The FCO provides for compulsory

²⁰ Shreedhar G, Gupta N, Pullabhotla H, Ganesh-Kumar A, and Gulati A. 2012. A Review of Input and Output Policies for Cereals Production in India. IFPRI discussion paper 01159. New Delhi: IFPRI.

²¹ Dev. S.L. 2012. Constraints and Challenges: the Indian Fertilizer Industry against the back drop of the Current Indian Political Economy. S. L. Dev Research and Advisory white paper.

²² Mujeri MK, Shahana S, Chowdhury TT, Haider KT. 2012. Improving the effectiveness, efficiency and sustainability of fertilizer use in South Asia. New Delhi: Global Development Network.

registration of fertilizer manufacturers, importers and dealers; the specification of all fertilizers manufactured or imported and sold in the country; regulation of the manufacture of fertilizer mixtures; packing and marking on the fertilizer bags; appointment of enforcement agencies; setting up of quality control laboratories and prohibition on the manufacture and import and sale of non-standard or spurious or adulterated fertilizers. The **1973 Fertilizer (Movement Control) Order** dealt with interstate movement. The Fertilizer Monitoring System introduced in 2007 guided fertilizer distribution to the district level.

Because private companies produce large volumes of fertilizer in India, and because the GOI does not want companies to charge farmers the full production cost, the GOI has, over time, implemented various systems to subsidize fertilizer production. Basing subsidies on costs led to higher subsidies for less efficient factories. Over the years, the GOI has tried to devise methods to calculate subsidies that do not reward inefficient factories, but success remains elusive.

In recent years, measures have been taken to render FCO into a more dynamic instrument of nutrient management policy. Clause 20B has been added to allow for customized fertilizers in the interest of site-specific nutrient management. Customized fertilizers of 36 grades of fertilizer have been included in FCO. To promote secondary and micro-nutrients on a large scale, nine fortified fertilizers have been included in the FCO and the procedure for their inclusion simplified. Procedure for inclusion of new fertilizers in the FCO has also been simplified by dispensing with the requirement of multi-location trials if the product is one of the variants of the products already included in FCO. Five bio-fertilizers (rhizobium, azotobacter, azospirillum, phosphate solubilizing bacteria and mycorrhizae) and three organic fertilizers (city waste compost, vermi-compost and castor de-oiled cake) have been included in the FCO to facilitate their use.²³

As noted previously, policymakers are significantly reducing subsidies on politically sensitive goods in an effort to improve the current financial situation, which threatens growth and investment fundamentals. The GOI has taken unprecedented positions to rationalize and cut government expenditure. In 2008, the GOI instituted the Nutrient Based Subsidy (NBS) Policy. The stated goals of the NBS included, but were not limited to, reducing the total subsidy outgo on fertilizer (a big ticket budget category); encouraging balanced soil nutrition (which

was previously heavily skewed towards subsidized products, most importantly, the main nitrogen-based fertilizer, urea) and bringing in industry competition. Unfortunately, the subsidy on Urea has remained high while the subsidy on diammonium phosphate (DAP) and muriate of potash (MOP) has been significantly reduced. This policy change has created an incentive structure that skews demand heavily toward nitrogen (N) and away from phosphate (P) and potassium (K). This has resulted in high prices for P and K at the farmgate, reduced imports of P and K and a significant imbalance in the N:P:K ratio. A nutrient imbalance tends to reduce yields and damages soil health.

[The government's subsidy of urea] has created an incentive structure that skews demand heavily toward nitrogen and away from P and K... reducing yields and damaging soil health.

IMPLEMENTING INSTITUTIONS

The **Ministry of Chemicals and Fertilizers** manages public sector companies and regulates private companies producing and importing fertilizers.²⁴ Fertilizer subsidies are managed through this Ministry. In 2008, the GOI introduced nutrient-based pricing for fertilizers containing nitrogen (N), phosphorus (P), potassium (K), and/or sulfur (S). Under this system, the maximum retail prices for fertilizers are based on how much N, P, K, and S the fertilizer products contain. In 2010-11, the GOI's estimated outlays for fertilizer subsidies was Rp 528 billion, or \$12 billion.²⁵ Estimating about 65 million MT of fertilizer products with one or more of the four subsidized nutrients (N, P, K, and S), the average subsidy per MT of fertilizer product was about \$170.²⁶ As of 2011, the GOI's nutrient-based subsidy for N was Rp 20/kg, implying a maximum retail price for Urea (46% N) of Rp 9.3.²⁷

With this subsidy, the Urea price in India (\$206/MT at Rp 45 = \$1) is nearly 20% less than it is in Bangladesh (\$250/MT at Tk 80 = \$1).

²⁴ GOI. 2013a. Fertilizer Policy. New Delhi: GOI, Ministry of Chemicals & Fertilizers, Department of Fertilizers. Available at: <http://fert.nic.in/page/fertilizer-policy>; GOI. No date. Annual report 2011-2012. New Delhi: GOI, Ministry of Chemicals & Fertilizers, Department of Fertilizers. Available at: <http://fert.nic.in/sites/default/files/Annual%20Report%202011-12%20English.pdf>.

²⁵ GOI. 2013a. Fertilizer Policy. New Delhi: GOI, Ministry of Chemicals & Fertilizers, Department of Fertilizers. Available at: <http://fert.nic.in/page/fertilizer-policy>.

²⁶ World Bank. 2013. Commodity price data (pink sheet). Available at: <http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:21731023~menuPK:538203~pagePK:64165401~piPK:64165026~theSitePK:476883~isCURL:Y,00.html>.

²⁷ GOI. 2013a. Fertilizer Policy. New Delhi: GOI, Ministry of Chemicals & Fertilizers, Department of Fertilizers. Available at: <http://fert.nic.in/page/fertilizer-policy>.

²³ Shreedhar G, Gupta N, Pullabhotla H, Ganesh-Kumar A, and Gulati A. 2012. A Review of Input and Output Policies for Cereals Production in India. IFPRI discussion paper 01159. New Delhi: IFPRI.

The MoA, at the federal level, trains fertilizer inspectors, many of whom work for departments of agriculture within state governments.²⁸ During 2010-11, the fertilizer inspectors of the central government inspected 1,254 ships of urea, MOP, DAP and 100% water soluble Complex fertilizers and found six ships containing non-standard fertilizers. Presently there are 74 laboratories in the country (including four central government laboratories) with a total annual fertilizer analyzing capacity of 131,000 samples.²⁹

Although India produces fertilizer, the demand/supply gap has increased in recent years, thereby leading to an increased dependency on imports.

SUPPORTING INSTITUTIONS

According to the **Fertilizer Association of India (FAI)**, the supply of plant nutrients from chemical fertilizers is the key to increasing agriculture production by enhancing land productivity. Although India produces fertilizer, the demand/supply gap has increased in recent years, thereby leading to an increased dependency on imports. India's fertilizer imports were about 2 million MT in 2000; by 2008, the country's fertilizer imports had increased to more than 10 million MT.

Intensive agriculture, while increasing food production, has at the same time caused problems relating to nutrient imbalances. This has resulted in increased mining of soil nutrients and depletion of soil fertility. Indian soils not only show a deficiency of primary nutrients (nitrogen, phosphorous and potassium) but also of secondary nutrients (sulphur, calcium and magnesium) and micro-nutrients (boron, zinc, copper, iron etc.) in most parts of the country which has become a limiting factor in increasing yields and food productivity. The FAI recognizes that 60% of the Indian farmers are considered poor and must increase yields to generate profits. Public and private sectors face a great challenge when it comes to communicating and educating millions of farmers across India.

The shift from a fertilizer product-based subsidy scheme to a nutrient-based scheme has resulted in unintentional, negative consequences. By maintaining significant subsidies on Urea while significantly reducing the subsidies on DAP and MOP, the shift in subsidy policy has resulted in a 300% increase in cost to farmers and 50% decrease in DAP and MOP usage in 2013. Therefore, the N:P:K ratio has worsened, growing to 10-12:2:1, whereas the ideal ratio for many crops is 4:2:1. With the dominance of India in the South Asian fertilizer market, this nutrient imbalance appears to repeat itself via informal flows of fertilizer to both Nepal and Bangladesh. Considering that the imbalanced use of fertilizers is seen as one of the main reasons for a decline in soil health and a major limiting factor for increasing crop productivity, soil test-based site-specific nutrient management is a logical solution, and must be expanded within India and beyond the country's borders, particularly in Nepal. The FAI is a proven leader in fertilizer use management and appears to be well placed to act in a mentor-like relationship with parallel bodies in both Nepal and Bangladesh.

Established in 2009, the **Cereal Systems Initiative for South Asia (CSISA)** which includes Nepal, Bangladesh and India, supports regional and national efforts on improving cereal production. This broad-based initiative involves more than 300 public and private sector partners. Although the main focus of CSISA is improving crop varieties and dissemination of improved cropping systems, a research commitment to the role of crop nutrients in high yield production could provide a platform for a regional dialogue on the role of fertilizer. In India, the private sector fertilizer industry needs to increase its financial commitment to high yield research, as well as outreach and education programs. It is expected that such research would have positive spillover effects throughout the region.

²⁸ GOI. 2013b. Fertilizer quality control. New Delhi: MoA. Available at: <http://cfqcti.dacnet.nic.in/dutenf.html>

²⁹ Shreedhar G, Gupta N, Pullabhotla H, Ganesh-Kumar A, and Gulati A. 2012. A Review of Input and Output Policies for Cereals Production in India. IFPRI discussion paper 01159. New Delhi: IFPRI.

SOCIAL DYNAMICS

Fertilizer prices are politically sensitive in India and in the surrounding countries. The GOI is under heavy pressure to keep prices low but is simultaneously faced with increasing demand from farmers, high international prices and substantial leakage to surrounding countries. The GOI has promoted self-sufficiency in fertilizer production. As a part of that effort, the GOI encourages companies to make foreign investments to access raw materials or produce intermediate product for export to India to support India's in-country production. Indian companies have invested in Senegal, Jordan, and Morocco to get rock phosphate or phosphoric acid, and companies are considering other investments.³⁰ The Nepal fertilizer annex of this report details ways in which Indian investment could help spur investment in Nepal's non-existent fertilizing mining sector.

The GOI's fertilizer policy (as of August 30, 2013) recognizes and discourages illegal trade. The GOI notes that it has received complaints of smuggling of subsidized fertilizers to neighboring countries. Given the limited availability of fertilizers in the country and the high cost of the related subsidy, the GOI classified DAP/MOP as "restricted" in order to discourage exports and smuggling.³¹ Despite this official policy, the price differential between the countries is such that large volumes of fertilizer, estimated at 500,000 MT annually, flow into Nepal alone. The illegality of this trade is neither good for India (because of the large revenue losses) nor Nepal (because of the adulteration that tends to accompany illicit flows).

[India's] nutrient imbalance appears to repeat itself via informal flows of fertilizer to both Nepal and Bangladesh.

³⁰ GOI. No date. Annual report 2011-2012. New Delhi: GOI, Ministry of Chemicals & Fertilizers, Department of Fertilizers. Available at: <http://fert.nic.in/sites/default/files/Annual%20Report%202011-12%20English.pdf>.

³¹ GOI. 2013a. Fertilizer Policy. New Delhi: GOI, Ministry of Chemicals & Fertilizers, Department of Fertilizers. Available at: <http://fert.nic.in/page/fertilizer-policy>; GOI. No date. Annual report 2011-2012. New Delhi: GOI, Ministry of Chemicals & Fertilizers, Department of Fertilizers. Available at: <http://fert.nic.in/sites/default/files/Annual%20Report%202011-12%20English.pdf>.

CHAPTER 3: INDIAN TRADE IN GRAINS



INTRODUCTION

Indian grain production has come a long way since the country's independence. Between 1947 (the year of India's independence) and 2000, India transformed from an economy with structural grain deficits into one with vast surpluses of rice, wheat and to some extent, maize. Yield improvements, expansion of land under cultivation, and the use of green revolution technologies have together moved India to a country that not only has enough food available to meet its current needs but turned it into one of the world's largest exporters of grain. There is good reason to believe that this will become the new normal for Indian agriculture. Domestic policy created the incentives necessary to increase production domestically; cheap (and heavily subsidized) inputs, guaranteed markets and prices (through minimum support prices (MSPs)) together created the conditions for supply growth and eventually large and politically sensitive surpluses of rice and wheat.

Indian grain surpluses have, for a long time, filled much of Nepal and Bangladesh's grain deficits. India's status as preferred source of grain for both countries is based on at least four key points:³² 1) it is the least costly import option; 2) it is the quickest import option; 3) location allows importers to trade in small quantities of grain; and 4) India produces and exports parboiled rice, which is preferred by Bangladeshis and Nepalis. India's export restrictions in 2007 eventually forced Bangladesh to diversify its source of grain, while Nepal relied on informal trade across the highly porous border with India. Indian policy and the resulting supply balance will continue to play a critical role in the lives of nearly two hundred million consumers in Bangladesh and Nepal alone.

GOI subsidy, support prices and state procurement schemes will continue to create an environment supportive of increased grain production, with potentially far-reaching implications for the region.

GOI subsidy, support prices and state procurement schemes will continue to create an environment supportive of increased grain production, with far-reaching implications for the region. Schemes to subsidize fertilizer, electricity³³ and irrigation continue to prop up the country's supply base, resulting in effective subsidies to the farmer of 40-75% for fertilizer and 70-90% for irrigation and electricity. MSPs for wheat, paddy and to some extent maize create the incentives for strong growth in grain supply, which has increased each of the last ten years, with double digit increases in 2012.³⁴ The MSPs are expected to continue drawing more farmers and farmland into the production of each of these three crops. Despite higher MSPs for maize and other coarse cereals, credible estimates suggest that most farmers will continue to plant rice due to the government's rice- and wheat-focused food grain procurement system (i.e., year-round procurement of rice and wheat vs. irregular procurements of maize and other coarse grains).³⁵ GOI procurement of grains through the Food Corporation of

³² Deb et al. 2009.

³³ Grossman, Nick and Dylan Carloson, Agriculture Policy In India: The Role of Input Subsidies' USITC Executive Briefings on Trade, March 2011.

³⁴ Food Corporation of India Website: <http://fciweb.nic.in/procurements/view/20>.

³⁵ USDA "Grain Voluntary Update", July 2012.

India (FCI) and state agencies continues to provide guaranteed markets for growers of strategic commodities, statutorily guaranteeing such procurement over the next three years with the recent passage of the National Food Security Bill (NFSB), a commitment estimated at 62.2 million MT per year.³⁶

Despite the growth in grain supply per capita, India remains home to one third of the world's malnourished children.³⁷ The recent passage of the NFSB, perhaps the world's most ambitious legislation related to food security, was hotly contested by all sides, and imbued with election year politics. The implications for regional trade may be profound, and are similarly debated on all sides of the political spectrum. On one side of the bill, opponents argue that it is politically motivated, stokes inflation and is fiscally unsustainable. Proponents such as K.V.Thomas, Minister of Consumer Affairs, Food and Public Distribution, refute these arguments, saying that "By providing food security to 75 percent of the rural and 50 percent of the urban population with focus on nutritional needs of children, pregnant and lactating women, the National Food Security Bill will revolutionize the food distribution system."³⁸ While stocks of grain are at an all-time high, a number of industry experts interviewed for this diagnostic report that it's not clear where the supplies necessary to fill the NFSB's statutory responsibility will come from in years when stocks are low. Most crucially, it's not clear whether imports will be an acceptable policy option to the GOI.

Government policy continues to drive the creation of large surpluses in excess of demand and total capacity to store such grain. National grain in storage is estimated to exceed available storage by approximately 10 million MT. The government is hesitant to further tax the national accounts by making a loss on sales below the procurement price of the grain. It was this same lack of storage that compelled the GOI to lift the grain export ban in 2011; a number of people interviewed for this report expect that it is the same issue of storage capacity that will eventually force the government to sell at a loss, something politicians are arduously resisting. Despite massive surpluses, well-placed analysts interviewed for this report suggest that it would only take two back-to-back droughts to bring India back to a position of importing wheat and possibly rice. To help curb the issue of inadequate storage, the government is in the

process of adding 10 million MT in grain storage capacity over the next five years, greatly increasing GOI's ability to store reserves.

While stocks of grain are at an all-time high, a number of industry experts interviewed for this diagnostic report that it's not clear where the supplies necessary to fill the NFSB statutory responsibility will come from in years when stocks are low.

Unlike other countries in Asia during the food price crisis of 2007/2008, India successfully stabilized grain prices using the policy instruments at its disposal. But the minimum export price (MEP) and eventual export ban that allowed for such stability also had a substantial effect on markets in (at least) two neighboring countries, driving increased price volatility and higher prices in both Bangladesh and Nepal. The impact of these policies was relatively brief in both countries, however, as informal trade taking place along the long and porous borders allowed prices to equilibrate relatively quickly. While most analyses of the food price crisis tend to focus on the negative effects of the export policies pursued by India, it is also important to consider that during those years the (official) import of rice in Nepal and Bangladesh made up a relatively small of percentage of total available rice in the domestic markets,³⁹ accounting for 3% and 2%, respectively.

LEGAL FRAMEWORK

The legal and regulatory framework pertaining to grain production in India is of paramount importance to its neighbors. A number of legal instruments in particular influence the flow of grain to the region, including the **Essential Commodities Act (1955)**, **National Policy on Handling, Storage and Transportation of Food Grains**, **Model Act on Agricultural Marketing**, **Forward Contract (Regulation) Act (1952)**, **General Grading and Marketing Rules (1988)**, **Destructive Insects and Pests Act (1914)**, **Private Entrepreneurs Guarantee (PEG) Scheme, (2008)** and the **National Food Security Bill (2013)**.

GOI controls on trade in cereals are based on the **Essential Commodities Act (1955)**, which provides the legal basis for states to impose temporary restrictions on storage and trade in grains including rice and wheat. The GOI controls storage and internal movement of cereals, aiming to limit private speculation and moderate prices in line with policy preferences.

³⁶ Joshi, P.K., "Will India's National Food Security Bill Help or Hurt www.foodsecurityportal.org, Facilitated by IFPRI, July 9, 2013.

³⁷ Gillespie, Stuart, Jody Harris and . "The Agriculture Nutrition Disconnect in India, What do we Know?" IFPRI Discussion Paper 01187, June 2012.

³⁸ U.S. Department of Agriculture, New Delhi, India, Indian Cabinet Approves National Food Security Bill 2013, GAIN Report IN3037, April 11, 2013

³⁹ http://www.cpd.org.bd/pub_attach/CPD_CMI_WP4.pdf.

The Act stipulates that commodities which have been deemed “essential commodities” may only be stored and/or traded with specified quantitative restrictions (storage limits etc.) by licensed entities. The act contains a number of provisions that may restrict the flow of grain across borders, at times even hampering the flow of commodities between surplus and deficit areas within India itself. Penalties for legal infraction, including jail time, are considered severe by those involved in trade, reducing the risk individuals and companies are willing to take across the sector.

GOI controls also guide exports and imports through various measures, including MEP, tariffs, transport subsidies, quotas, phytosanitary restrictions and others. In 1994, India signed the Uruguay Round Agreement on Agriculture and relaxed controls on cereal exports. Reforms included revising the MEP of rice to allow exports (with quantitative restrictions), allowing non-durum wheat exports (also with quantitative restrictions) and “promoting export competition.”⁴⁰

The controversial **National Food Security Bill (NFSB)** became law September 12, 2013. Under the NFSB, the GOI created a statutory basis for the delivery of 5kg of grain to approximately 820 million beneficiaries on a monthly basis. Approximately 61 million MT of cereals, primarily rice and wheat, will be distributed through the existing public distribution system (PDS) as a result of the NFSB.⁴¹ There are a number of notable challenges to implementing this ambitious legislation: 1) targeting those most in need (i.e., poor; malnourished or at-risk populations; 2) the fiscal strain of the statutory responsibility at the cost of other potential uses, including investment; and 3) sustaining the scheme in the context of changing consumption and production patterns.⁴² The fundamental challenge for the government will be navigating an environment in which it buys some amount of grain for nearly half of the Indian population between 12-15 Rupees/kg and sells it at 1-3 Rupees/kg. At a regional level the new legislation is expected to reduce the tradable volume of grain available for export, pushing more grain through informal channels or forcing trading partners to find alternative sources of supply.

The NFSB will require a substantial increase in the GOI food subsidy. It's estimated that the GOI will provide 61 million MT of food per year in line with the new statutory requirements, with a subsidy bill of approximately \$18.4 billion.⁴³ For many economists, the critical issue with the new legislation is the fiscal burden of the new subsidies and the potential to add to existing inflationary pressures. A second concern that is widely discussed amongst the agricultural community is the reallocation of investment resources away from the productive sector and towards a subsidy system known to be rife with massive “leakage.”

At a regional level the [NFSB] is expected to reduce the tradable volume of grain available for export, pushing more grain through informal channels or forcing trading partners to find alternative sources of supply.

PRICING POLICY

GOI pricing policies have played an important role in the growth of grain production across India, encouraging increased production through ever-higher procurement prices. Wheat and rice prices are set by calculating MSPs for fair-to average quality (FAQ) grain. MSPs for wheat, paddy and coarse grains (including maize) are set by the Department of Agriculture and Cooperation based on the recommendations of the Commission for Agricultural Costs and Prices (CACP). MSPs are based on average costs of production as estimated by the CACP. The MSPs are revised annually and tend to be used to achieve multiple policy objectives including price stabilization and income support.⁴⁴ Most critically, the MSPs tend to drive the growth in Indian grain surplus and the availability of grain for the PDS, effectively increasing the available supply for formal and informal trade with Nepal and Bangladesh.

“We have to live with the export bans. This is a democratic government with poor people to take care of...”

– Large grain-trading operation in New Delhi

⁴⁰ Shreedhar G, Gupta N, Pullabhotla H, Ganesh-Kumar A, and Gulati A. 2012. A Review of Input and Output Policies for Cereals Production in India. IFPRI discussion paper 01159. New Delhi: IFPRI.

⁴¹ USDA, GAIN Report. 9/16/2013.

⁴² <http://indiagovernance.gov.in/thinkpiece/?thinkpiece=5>.

⁴³ Commission for Agricultural Costs and Prices, December 2012.

⁴⁴ Jha, Shikha, P.V. Srinivasan and Maurice Landes., “Indian Wheat and Rice Sector Policies and the Implications of Reform” USDA Economic Research Service. ERR-41. 2007.

EXPORT MANAGEMENT

India utilizes a MEP and occasional export bans to control the export of commodities whose price goes beyond government targets. During the 2007-08 spike in world cereals prices, the GOI raised the minimum export price of rice in steps from \$425/MT in October 2007 to \$1,000/MT by April 2008, and then banned export of non-Basmati rice, taking the private sector by surprise. The GOI had banned wheat exports from early 2007. The GOI also banned futures trading in rice in September 2007, out of fear of possible inflationary effects. Despite the bans, India arranged some cereals exports to Bangladesh⁴⁵ and continued to export grains to Nepal through formal and informal channels. These bans persisted until June 2011, when GOI allowed private traders to export wheat and FCI to export rice. Despite a strongly negative reaction globally, domestic policy objectives were met in both cases.

With a small fraction of rice produced actually traded on the global market, India's export policy tends to have a particularly large influence on global rice prices (and regional availability of supplies); Jha and Srinivasan (2007) estimate that a 1 million-MT change in rice exports by India can result in a 4.7% change in the international price of rice. Prices of wheat and rice increased in Nepal and Bangladesh as a result of India's export ban and eventual move to a MEP, but more importantly, India's status as a supplier of first resort was called into question increasing uncertainty in grain markets across both countries. Interviewees widely regard Indian export policy (specific to grains) as "ad hoc, opaque and subject to frequent change." Taken together, Bangladesh and Nepal are at the mercy of a policy making process that is deeply political and unlikely to be changed by any regional reform agenda.

TRANSPORT AND STORAGE

Grain storage and movement is central to the food security strategy of the GOI and a critical determinant of cost and availability of grain to the region. The FCI has the sole responsibility for moving grains from surplus to deficit states,⁴⁶ something interviewees consider a bottleneck to the efficient and timely distribution of grain throughout the country. At the time of the team's field visit, the GOI was reported to be holding an unprecedented stock of 90 million MT of rice and wheat, some 15 million MT in excess of the country's storage capacity. Lack of storage and antiquated storage customs (e.g., use of 50kg bags) leads to substantial post-harvest losses, estimated at 10% or more per year by industry but less than 1% by government officials. Moving and storing grain in 50kg bags is said to add 5% to the cost of both activities, unnecessarily driving up costs for local and regional consumers alike. If the past is any predictor of future policy, a more relaxed near-term export policy is likely. Given the importance of India's grain to the region, any large scale release of stocks is likely to have negative ripple effects for the region's producers and strongly positive effects for the region's consumers.

The GOI maintains stockholding limits for rice and paddy under the Essential Commodities Act to counter government fears of hoarding. Exemptions to these limits are made for certain exporters to help them reach economies of scale. Permitted volumes are established by state governments and vary across the country.⁴⁷

⁴⁵ Shreedhar G, Gupta N, Pullabhotla H, Ganesh-Kumar A, and Gulati A. 2012. A Review of Input and Output Policies for Cereals Production in India. IFPRI discussion paper 01159. New Delhi: IFPRI.

⁴⁶ Comptroller and Auditor General of India Storage Management and Movement of Food Grains in Food Corporation of India". Report No. 7 of 2013.

⁴⁷ "India Rice Prices Reach Record High in November 2013; Up 20% from Last Year." Oryza.com. 2 Dec. 2013.

TABLE 4: REGULATORY SUPPORT TO FACILITATE FCI'S OPERATIONS

| REGULATIONS / RESTRICTIONS | ORIGIN AND CURRENT STATUS | ENFORCEMENT DETAILS |
|----------------------------------|--------------------------------------|--|
| I. INTERNATIONAL TRADE | | |
| Export monopoly/restrictions | | Adjustable quantitative ceiling on export of wheat (~2 million MT) and rice (~10 million MT); strict licensing requirement for paddy export; and other grain exports are subject to registration of contracts. |
| Year introduced | 1965 | |
| Still enforced? | Partially | |
| Import monopoly/restrictions | | FCI retains full monopoly control over import of common paddy, fine variety rice, wheat, and coarse grain. Wheat import by roller flour mills is allowed under certain conditions. |
| Year introduced | 1965 | |
| Still enforced? | Yes | |
| II. MOVEMENT RESTRICTION | | |
| Year introduced | 1941 (during British Rule) | Officially lifted in 1977, but has been enforced sporadically across India until recently. Now enforced in selected states. |
| Still enforced? | Yes, partially | |
| III. PREFERENTIAL TRANSPORTATION | | |
| Year introduced | 1965 | FCI gets priority in railway transportation over private traders all over India. |
| Still enforced? | Yes | |
| IV. RESTRICTIONS ON STORAGE | | |
| Year introduced | 1955 Under Essential Commodities Act | Imposes stock quantity limits. Lifted by the center, but frequently revised and sporadically enforced in recent years at the state level. |
| Still enforced? | Yes | |
| V. RESTRICTIONS ON PROCESSING | | |
| Year introduced | 1958 Under Rice Milling Industry Act | Forces rice millers to deliver certain proportion of output (levy) to FCI at fixed processing margins; restricts open market sales until levy commitment is fulfilled. |
| Still enforced? | Yes. Enforced in most states | |

Source: Ganesh-Kumar et al, 2007

India's 13th Five Year Plan (2015-20) sets a target of an additional 18 million MT of silo capacity, to be developed on a Build, Own and Operate (BOO) basis in line with the National Policy on Handling, Storage and Transportation of Foodgrains (2000). The move towards public-private partnerships (PPPs), reportedly an FCI initiative and widely applauded by industry players interviewed for this report, will lead to the development of dozens of steel silo storage facilities, long-term contracts with builders of traditional go-downs under a scheme called Private Entrepreneur Guarantee (PEG).⁴⁸ Industry players noted that this policy may reverberate throughout the region; if the GOI perceives long-term grain storage as a viable policy option, the government may begin to hold grain for longer periods, essentially taking supply off the table that would have otherwise been available to regional players.

IMPLEMENTING INSTITUTIONS

Food policy in India continues to be driven by food security concerns, which are generally construed to mean rice and wheat availability. As part of this policy, grain price and supply stability are paramount. Despite a strong record of economic growth in recent years, national surveys suggest that India still has more than 300 million people living in poverty, including nearly one third of the rural population. It's no surprise then that food policy is shaped accordingly.⁴⁹

The public, private and non-profit sectors all seem to agree on the objective of bolstering the nation's food security—how this can be done, however, remains quite controversial.

⁴⁸ www.davidmckee.org

⁴⁹ www.foodsecurityportal.org/India

Public intervention is widespread and costly to the GOI given the existing statutory requirements relating to procurement, storage, transport and distribution of food grains. The new NFSB described in the previous section is expected to increase this burden even further. The grain marketing system (i.e., public procurement, storage and distribution) continues to grow, despite the widely known problem of the system's inefficiency and the widely known existence of superior cost-effectiveness in areas managed by the private sector.

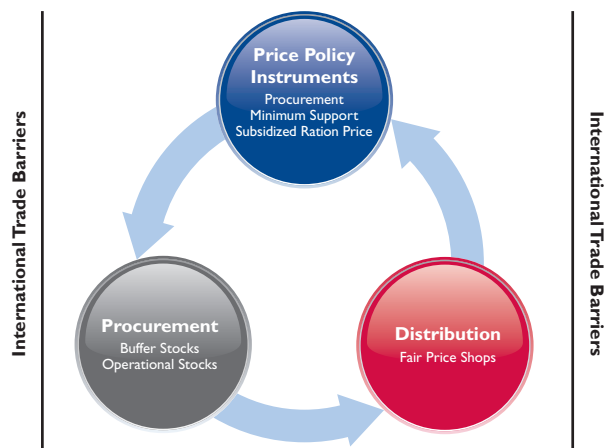
FOOD CORPORATION OF INDIA

Procurement, storage, transport and distribution are all carried out by the FCI, the GOI parastatal. Until the 1970s, international trade in cereals was channeled through the FCI. The FCI continues to drive exports, though it no longer has a monopoly. For example, in June 2011, The Hindi reported: "The government is likely to allow exports of two million MTs of wheat through private trade, and one million tonnes of non-basmati rice from its own godowns which is expected to ease storage problems".⁵⁰ With the government tightly controlling the export of grains, especially wheat and rice, the FCI continues to exert substantial influence on the domestic market: the restrictive export policy insulates domestic consumers from movements in world prices (as seen in 2007-08) and enables the FCI to procure grains from farmers in surplus states, where the system tends to strongly incentivize sales to the FCI over private actors. The FCI issues stocks to other agencies for various government programs. Since 2000, the FCI has procured an average of about 20% of wheat and 30% of the country's rice production.⁵¹

The FCI is charged with managing a number of policy objectives and at least three related activities (see Figure 1) central to the GOI's food security system. The system as it currently stands is designed to: 1) provide production incentives to farmers, including a MSP; 2) subsidize grains for consumers through the PDS; and 3) provide the market with stabilization support through large scale procurement and buffer stock operations. Meeting farmer demands (generally related to higher prices) and consumer demands (generally related to stable and low prices) is the critical challenge for the GOI (like

most other governments' food policy regimes);⁵² to date resource constraints seem not to be limiting either of these competing pull on resources. Across the board, this was the most pressing concern for the people interviewed for this report.

FIGURE 1: FCI ACTIVITIES



Source: Ganesh Kumar et al (2007).

Despite the breadth of responsibility and legal advantages held by the FCI, or perhaps because of them, the FCI's operations are reported to be inefficient and incredibly taxing on the country's national treasury. Whereas private traders tend to operate with net margins of 9-10% on sales, FCI losses as a percentage of sales range between 29% in the case of rice to 68% in case of wheat. Available estimates suggest that, compared to the private sector, the FCI's per unit storage costs are 30% higher; per unit labor costs are almost four times higher in the case of rice and seven times higher in the case of wheat.⁵³

India's willingness to depend on international markets has been shaped, in part, by the historical scarcity of foreign exchange reserves. The current situation is quite different; in October of 2013, Indian reserves totaled more than \$280 billion. At a price of \$368/MT, purchasing the country's entire rice supply (37 million MT) would only take 5% of Indian foreign exchange reserves, in stark contrast to the scenario when many of the current policies were formulated.

⁵⁰ The Hindi, 2011. Govt may allow wheat export via private route, rice through FCI. 30 June 2011. Available at: <http://www.thehindu.com/sci-tech/agriculture/govt-may-allow-wheat-export-via-private-route-rice-through-fci/article2147961.ece> (accessed 9 September 2013).

⁵¹ Shreedhar G, Gupta N, Pullabhotla H, Ganesh-Kumar A, and Gulati A. "A Review of Input and Output Policies for Cereals Production in India". IFPRI discussion paper 01159. New Delhi: IFPRI. 2012.

⁵² Ganesh-Kumar, A., Ashok Gulati, and Ralph Cummings Jr., and Management in India Responding to Today's Challenges and Opportunities". IFPRI. New Delhi. 2007.

⁵³ Ganesh-Kumar, A. Ashok Gulati, and Ralph Cummings, Jr "Reforming Foodgrains Management: Achieving Food Security with Cost-Effectiveness". Mumbai: IGIDR. 2008.

BUFFER STOCKS

A Technical Group on Buffer Stocking Policy is responsible for the development of GOI buffer stock policy, and makes recommendations on the targeted levels to be held by the government. The Group includes the Ministry of Food, Ministry of Agriculture, the FCI and the Planning Commission. Over the last several years FCI procurement has increased significantly (from 34 million MT in 2006 to 69 million MT in 2012), higher than that required under the NFSB, showing the government's capacity to achieve the procurement targets.

However, the high costs involved in procuring and storing such large volumes of grain suggest that holding reserves in cash may be a more efficient option for the government, and less taxing for the regional grain trading system. Recent analysis by the GOI suggests that holding buffer stocks in part in forex is both achievable and desirable.⁵⁴ The political sensitivities to holding large food stocks are such that this is an unlikely policy outcome, albeit one that is preferred by many influential voices in the public and private sector alike.

PUBLIC DISTRIBUTION SYSTEM (PDS)

Falling under the Ministry of Consumer Affairs, Food and Public Distribution, the PDS is responsible for distribution of subsidized grain to India's poor. Operationalized through special Food Price Shops, the PDS is the critical bridge between the State's massive procurement regime and the needy. A number of widely known issues with the PDS are raised in literature: corruption is widespread, operating costs are high, the quality of the food grains is often poor and there is the substantial challenge of reaching the poor, or even determining who the poor are for that matter. The cost of the PDS is estimated at \$13 billion a year, and is expected

to increase substantially once the NFSB fully comes online. The FCI is responsible for procuring the grain used in the PDS. A number of people interviewed for this report noted that traders are likely to capture all or most of the subsidy meant for the poor under the PDS. Leakage, widespread throughout the program, especially in North East states, is reportedly destined for domestic mills and informal trade channels into Nepal and Bangladesh. Given the interconnected features of the PDS, public procurement, storage and distribution programs, the fear of interruptions at any point along this chain tends to curtail the initiative to reform any one stage of this process. To provide a consistent flow of grain to regional markets, the FCI may need to limit its procurement operations; to do this, demand on the PDS would first need to be reduced through more effective targeting of those in need.⁵⁵

...the high costs involved in procuring and storing such large volumes of grain suggest that holding reserves in cash may be a more efficient option for the government, and less taxing for the regional grain trading system.

Customs matters are regulated by the **Central Board of Excise and Customs (CBEC)** of the Department of Revenue of the Ministry of Finance. CBEC is responsible for the levy of and collection of duties and taxes, the prevention of smuggling, and administrative matters related to Customs, Central Excise, Service Tax and Narcotics. However, comments made in meetings with the private sector indicate that the GOI, including CBEC, is open to working with the other countries in the region to improve regional trade. This would include improvements in the area of customs-to-customs cooperation.

⁵⁴ Gulati, Ashok, Surbhi Jain. "Buffer Stocking Policy in the Wake of the NFSB: Concepts, Empirics, and Policy Implications". New Delhi: Commission for Agricultural Costs and Prices. 2013.

⁵⁵ Ganesh-Kumar, A. Ashok Gulati, and Ralph Cummings, Jr. "Reforming Foodgrains Management: Achieving Food Security with Cost-Effectiveness". Mumbai: IGIDR. 2008.

TABLE 5: GOVERNMENT OF INDIA PRODUCTION AND PROCUREMENT (2008-13) IN MILLION MT

| YEAR | WHEAT | | RICE | | TOTAL | |
|---------|------------|-------------|------------|-------------|------------|-------------|
| | Production | Procurement | Production | Procurement | Production | Procurement |
| 2008-09 | 80.68 | 25.38 | 91.18 | 34.10 | 171.86 | 59.48 |
| 2009-10 | 80.80 | 22.51 | 89.10 | 32.03 | 169.90 | 54.54 |
| 2010-11 | 86.87 | 28.34 | 95.98 | 34.20 | 182.85 | 62.54 |
| 2011-12 | 94.81 | 38.15 | 105.31 | 35.04 | 200.22 | 73.19 |
| 2012-13 | 93.62 | 25.09 | 104.22 | 33.88 | 197.84 | 59.97 |

Source: Department of Food and Public Distribution, Government of India.

SUPPORTING INSTITUTIONS

The GOI plays a dominant role in the rice, wheat and maize value chains through the setting of MSPs, procurement, storage and transport activities. That notwithstanding, supporting institutions including private growers, trade associations and private transport and storage operators each play a vital role in India's own food security, and that of the region.

FLOW OF TRADE

Private sector exports of rice have been freed up since 2011 when the GOI allowed, for the first time, private companies to export wheat from government stocks. The move came on the heels of multiple failed government tenders. India's principal wheat destinations include Bangladesh, Korea, Indonesia and U.A.E, (see Chart 3), much of this meant for use in animal feed. Bangladesh makes up for nearly half of India's (official) wheat exports while 'other,' smaller importers make up just over one quarter. Imports continue to be limited by subsidized sales of wheat under OMS. Small amounts of wheat flour are imported to supply the fast-growing market for specialty flours not available locally.⁵⁶

India is the world's largest exporter of rice for the third year in a row.⁵⁷ India's principal rice destinations include Saudi Arabia, Iran, Nigeria and Kuwait, with 'other' destinations making up nearly 50% of the total export. Despite increasing domestic prices of

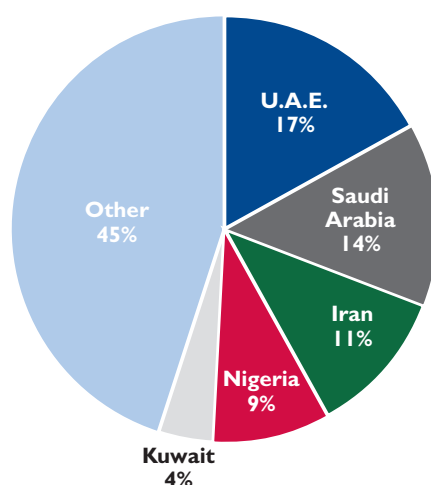
rice, the government is not expected to impose export controls on rice in the near future. These expectations aside, major players in the rice sector all note the ad-hoc nature of the government's export policy, and say that future export controls cannot be ruled out. Private players all noted a strong demand for Indian rice on the back of particularly competitive prices since the government lifted the export ban in 2011.

The majority of trade between India and Bangladesh flows through Benapole (Bangladesh) and Petrapole (India). The majority of agricultural trade between India and Nepal flows through the Birgunj (Nepal) and Raxaul (India). A substantial volume of this trade in grains comes on the back of bicycles and rickshaws loaded with two to four 60kg bags at a time. The trade is often characterized as "informal" rather than illegal given the normalcy of the flow, which is said to involve much of the border communities on both sides of each border. No estimates were available regarding the volume of these flows, which may have a substantial impact on the official import/export statistics of the region. Interviews note a generally slow trade process, in part because of congestion near the border and slow customs processing. Existing literature suggests that the majority of informal trade originates in India—which is not surprising, given its size—and flows into Bangladesh and Nepal. Reports from the field suggest that policies that limit which border points can be used for receipt of goods has a tendency of pushing trade through informal channels, in line with exporters' preferences to minimize costs.

⁵⁶ USDA, "Grain and Feed Annual - India", 2013.

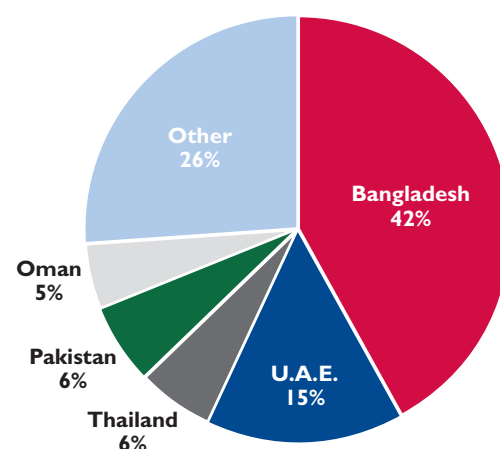
⁵⁷ "India Simplifies Risk Management System to Speed-up Export Clearances." Oryza.com. 14 Nov. 2013.

FIGURE 2: INDIA RICE EXPORTS CY 2011



Source: USDA Grain and Feed Annual Report, 2013

FIGURE 3: INDIA WHEAT EXPORTS MY 2011/2012



STORAGE AND MOVEMENT OF GRAINS

One of the most important forces driving India's openness to trade is its own ability to properly store and transport its surplus grain. People interviewed for this report noted that the 2007-08 export bans were finally lifted, in part, because India could no longer justify the cost of storing such large volumes of grain. Due to the forecast bumper crop and expected record government procurement, the GOI will be under tremendous pressure due to the inadequacy of existing warehouses/storage facilities.

GOI grain (which are mostly comprised of wheat) stocks are held in covered go-downs, silos and uncovered sites called Covered and Plinth (CAP). FCI rents approximately 15% of its storage from private operators to hold the Central Pool stock of grains. As of March 2012, FCI storage capacity, including hired capacity, was only 33 million MT compared to a stock of nearly 67 million MT, leaving a gap of approximately 34 million MT. Owned capacity is not reported to have changed over the last five-year period according to a government audit carried out in 2013.⁵⁸ Due to constraints in available storage capacity, the FCI is at times not able to take over stocks at the time of procurement. Under the 2008 PEG, 2.8 million MT of storage was added by private operators by March 2012, and another 8.3 million MT was expected to be completed by spring 2013.

FEDERATION OF INDIAN CHAMBERS OF COMMERCE AND INDUSTRY (FICCI)

FICCI is a non-government, not-for-profit organization representing India's business and industry. FICCI-sponsored projects have endeavored to sensitize Indian businesses to customs procedures and to promote trade facilitation with other countries in the region.

The FICCI Agriculture Desk has been working to increase farm income and productivity. It has a long-standing collaboration with India's Ministry of Agriculture promoting public-private partnership in the agricultural value chain, including warehousing, farm mechanization and extension. FICCI, together with the Small Farmers' Agri-Business Consortium (SFAC) of the Ministry of Agriculture has developed guidelines for public-private partnership for integrated agriculture development (PPP-IAD). Future plans include development of a framework for modern warehousing and construction of silos. FICCI is the key contact for SAARC activities in India. FICCI is also the key contact point

for the SAARC Trade Promotion Network (SAARC-TPN) and it represents India on the SAARC Chamber of Commerce and Industry (SAARC-CCI).

Regional initiatives under FICCI include: 1) development of economic cooperation in the business community among the SAARC countries; 2) facilitation of trade between India and SAARC member countries; 3) assistance for building and strengthening trade and investment partnerships in the region; 4) assistance to the governments of the region to formulate trade, investment and visa policies for the SAARC countries; and 5) providing help to resolve various bottlenecks to trade such as tariff and non-tariff barriers. As the largest and oldest business organization in India, FICCI has tremendous capacity to bring together the public and private sectors.

CONSUMER UNITY AND TRUST SOCIETY (CUTS) INTERNATIONAL

CUTS International is a non-profit, non-governmental organization working on public interest issues. It is headquartered in Jaipur, India. The CUTS Center for International Trade, Economics and Environment (CUTS CITEE) was established to focus on the international trade regime under the WTO and on bilateral/regional FTAs. CUTS CITEE is an established organization in the area of regional collaboration. It has worked on various aspects of economic and trade cooperation and trade and poverty. It has worked closely with the GOI on trade-related matters. It is accredited to many international organizations, including the World Trade Organization (WTO), United Nations Conference on Trade and Development (UNCTAD), United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and the United Nations Development Program (UNDP). CUTS is considered to be on the front line of research and advocacy on global trade issues. It provides an independent developing country perspective.

CONFEDERATION OF INDIAN INDUSTRY (CII)

CII is a non-government, not-for-profit, industry-managed organization. As India's premier business association, it has over 7,100 members from both the public and private sectors. Its membership includes fertilizer companies and seed companies. CII represents the product sector, not the individual companies. The GOI asks CII for opinions on trade issues. For example, CII assisted the Government in convincing Indian industry to embrace duty-free, quota-free treatment for local distribution companies (LDCs).

⁵⁸ Comptroller and Auditor General of India Storage Management and Movement of Food Grains in Food Corporation of India". Report No. 7 of 2013.

SOCIAL DYNAMICS

Three major changes underway in India are likely to emerge as drivers of government policy and private participation in the years ahead: 1) projections to 2025 suggest declining cereal consumption per capita; 2) increasing domestic surpluses; and 3) managing the fiscal burden of the government's food-related statutory requirements spelled out in the NFSB.

High rates of economic growth, a growing population, urbanization and an increasingly global food market, are continuing and will continue to drive changes across India's food and agricultural sector. Much of this change is expected to drive consumers to buy fewer staple grains and more animal proteins and horticultural products. This will drive future policy choices with regards to price support and procurement programs but only if the GOI moves from an orthodox view of food security (i.e., supply availability of rice and wheat). Despite this shift away from grains on a per-capita basis, overall consumption of grains in India continues to increase on the heels of a growing population and increased demand from the animal feed industry.⁵⁹ The latter point is one that has the potential to reduce the GOI's willingness to permit the free flow of grains to regional partners.

A combination of improved agronomic practices, uses of technology and government incentives (e.g., MSPs) continue to drive surpluses to new heights, especially in the case of rice. Managing these surpluses is likely to drive government policy in new directions including adaptations to the current MSP, storage and transport systems.

The NFSB passed in 2013 is an extraordinarily bold experiment in food security policy. The fiscal burden is guaranteed to be high and its sustainability unknown. The law itself implies a massive obligation to procure, store and transport a huge amount of grain internally or from abroad. The government's fiscal responsibility will continue to swell as beneficiary numbers continue to grow, adding a large amount of uncertainty to future flows of grain from India.

⁵⁹ Kumar, Praduman, P.K. Joshi and Pratap S. Birlhal. "Demand Projections for Foodgrains in India" *Agricultural Economics Research Review*. Vol. 22 July-December 2009 pp 237-243.

CHAPTER 4: SOUTH ASIAN REGIONAL INSTITUTIONAL ARCHITECTURE



INTRODUCTION

Beginning in the 1980s, South Asian governments made a marked shift towards outward-looking policies. Governments joined various international organizations and implemented a range of reforms to meet international obligations.

LEGAL FRAMEWORK

India and Bangladesh have the **India-Bangladesh Trade Agreement**. Under the agreement, the countries provide Most-Favored Nation (MFN) treatment to each other except in the case of transit trade, which is covered by the Treaty of Transit. The two countries signed the Protocol on Inland Water Transport and Trade in October 1999 and renewed it in 2007. The Protocol covers bilateral and transit trade between the two countries. They also signed agreements relating to railway transport between the two countries.

India and Nepal signed the **Treaty of Trade** in 1991, and renewed it in 2002 and 2009. It defines the bilateral trade routes. India and Nepal also signed an agreement to control unauthorized trade for the prevention and control of smuggling. The two countries also signed a **Treaty of Transit** in 1999, which resulted in India providing transit and support services and facilities at Kolkata and Haldia ports. The Treaty also specifies the entry and exit points to and from India for the transit trade of Nepal and specifies the procedures to be applied to imports to, and exports from, Nepal. The treaty was renewed in January 2013 without the five additional trade and transit routes requested by Nepal.

Bangladesh and Nepal do not have a bilateral trade agreement. They do have a transit agreement that provides transit rights to Nepal for third country trade. The agreement does not, however, address bilateral overland trade between the two countries. Instead, they have an agreement that provides for a transit route using Banglabandha (Bangladesh)—Phulbari

(India)—Khakarbita (Nepal) as a transit corridor. India provides transit to Nepal and Bangladesh for overland bilateral trade, but not for their extra-regional transit trade.

A trilateral transit understanding among Bangladesh, Nepal and India is in place to facilitate trade between Nepal and Bangladesh through India, but it has had little impact so far. According to interviewees in Nepal and Bangladesh, India is primarily responsible for the difficulties they have with regional trade. Issues mentioned include lack of a presence at border posts and the distance to laboratories from the borders with India. After discussing these issues with interviewees in India, however, it is less clear that India is to be faulted. India has taken a number of important steps to improve the situation at the borders, including the implementation of an Electronic Data Exchange (EDI), which facilitated the implementation of a Risk Management System. Further research would be necessary to make a definitive statement about the border issues.

South Asia has to yet to develop a comprehensive regional transport and transit agreement for cross-border movement of goods and vehicles. The Ministers of Transport for the SAARC countries agreed, in 2008, to reach a Regional Transport and Transit Agreement. The SAARC Ministers have agreed to draft motor vehicle norms to be considered at the next SAARC Transport Ministers meeting and then put before the country heads at the next SAARC summit in early 2014. SAARC has announced a plan to demonstrate a container train linking India, Bangladesh and Nepal.

The estimates of gains to be realized from greater regional integration may be underestimated due to the large amount of informal trade in the South Asia region. Estimates of informal trade volumes are high, perhaps as much as 72% of formal trade.⁶⁰ The high level of informal trade in the sub-region suggests that there are strong incentives for traders to bypass rules and regulations. Such action is fostered by a lack of transparency and accountability, partly due to the private sector's lack of access to information and channels for communication. This situation leads to governance risks, deters legitimate trade and increases transaction costs.

WORLD TRADE ORGANIZATION (WTO)

Most countries, including the three considered in this review, are members of the WTO. The WTO promotes trade liberalization; it is a forum for governments to negotiate trade agreements and to settle disputes. The bulk of the WTO's current work comes from the 1986-94 negotiations called the Uruguay Round and earlier negotiations under the General Agreement on Tariffs and Trade (GATT).

The 1994 Uruguay Round Agreement on Agriculture addresses domestic support (subsidies), market access (tariffs and non-tariff barriers), and export subsidies. The 1994 "Marrakech Ministerial Decision on Measures Concerning the Possible Negative Effects of the Reform Program on Least-Developed and Net Food-Importing Countries" addresses food aid and aid for agricultural development, particularly the issues of adequate supplies, financing and technical assistance to improve agricultural productivity and infrastructure.

Since 2001, the WTO has hosted long-running negotiations known as the Doha Development Agenda. These negotiations seek to eliminate export subsidies, reduce tariffs and domestic farm subsidies and expand tariff rate quotas. The recent Bali Package, formulated at the 9th Ministerial Conference of the WTO (December 3 to 7, 2013) keeps the Doha agenda alive. It includes renewed commitments to trade facilitation, particularly in the area of modernization of customs procedures. Most importantly in the context of this report, the Bali package provides for minimum access for agricultural imports subject to quota, including fertilizer, seed and grain. The package also provides for a temporary resolution of the "peace clause" dispute with India, by shielding India's food stockpiling program from trade challenges under the WTO for at least four years. This dispute had threatened to block success of the meetings.

Aid for TRADE (AfT) came into being when the WTO launched the Doha Round. The organization's focus was to help LDCs. Although funding for AfT in the South Asia region has been growing, it is still very limited. Funding to India and Afghanistan has grown rapidly, but funding for the other South Asian countries has been very limited. During 2002-11, 63% of all AfT funding for the region went to India and Afghanistan and only 37% to the other six countries; 95% of the funding went to economic infrastructure and building productive capacity. Funding for regional infrastructure, regional testing facilities and regional research has been extremely limited. Regional funding was less than 0.5% of the funding received by all of the South Asian countries. South Asia received only 2% of the requirement for a single country between 2005 and 2010.

Nepal made the argument, in connection with acceding to the WTO, that because it is a small, poor country it cannot immediately comply with WTO requirements regarding subsidies. Nepal needs to protect major food commodities through subsidies. Further, the argument was made that public sector outlays on research and extension are not subsidies, but Green Box measures that should be allowed.

India is supporting an effort to push for a change to WTO rules on subsidies to allow governments in developing countries to pay poor farmers above-market prices for food for national stockpiles in order to ensure food security.

SOUTH ASIAN ASSOCIATION OF REGIONAL COUNTRIES (SAARC)

The members of SAARC are Bangladesh, Bhutan, Maldives, India, Pakistan, Nepal and Sri Lanka. To promote trade and cooperation among its members, the SAARC Preferential Trading Agreement (SAPTA) was signed in 1993 and put in force in 1995. The South Asia Economic Summits (SAEs) have taken steps toward greater economic cooperation within member countries by establishing a free trade area (SAFTA) in 2006 and with plans for a Custom Union by 2015 and economic union by 2020.

...interviewees for this report resoundingly believed that only India's will can change the direction of SAARC. For this reason, most SAARC initiatives exist only on paper.

⁶⁰ 2005. Informal Trade in South Asia: How to channelize to a formal route? Jaipur, India: CUTS Centre for International Trade, Economics & Environment.

SAARC has gone through four phases of development: 1) conception (1977-80); 2) meetings of Foreign Secretaries (1981-83); 3) meetings of Foreign Ministers (1983-85); and 4) summits (1985-2004).⁶¹ The efforts towards economic integration in South Asia have been hampered by political considerations among the countries; interviewees for this report resoundingly believed that only India's will can change the direction of SAARC. For this reason, most SAARC initiatives exist only on paper. There tends to be a great emphasis on seminars and workshops, but a lack of initiatives to address priority issues and a lack of regional focus.

The SAARC Secretariat was described by interviewees harshly in each of the three countries visited for this report. Sources noted that staff who work for the Secretariat have no real authority and simply "rubber stamp" what comes through their office. The SAARC staff cover a huge breadth of topics and tend to be generalists. To date, the Secretariat has not been able to afford professional staff with the capacity to push through important technical initiatives. In line with their other criticisms, interviewees widely reported a total lack of progress attributable to SAARC.

⁶¹ SAARC: Origin, Growth, Potential and Achievements, Muhammad Jamshed Iqbal.

The SAARC Secretariat, although it currently has very low capacity, at least provides some organizational structure for the region. This structure should be used to further communication among the countries with respect to increasing trade in agriculture in the region, particularly for fertilizer, seed and grain. SAARC has been able to provide a forum for regular meetings of political leaders to discuss mutual problems. This has helped to diffuse tensions between India and Pakistan and between India and Sri Lanka. Unfortunately, such momentum has not been felt in the area of regional agricultural policy harmonization.

PREFERENTIAL TRADING ARRANGEMENTS

The countries under review are parties to numerous preferential trading agreements, as shown in the table below. It should be noted that critics of bilateral trade agreements are concerned about the negative impact on regional agreements. The same can be said about the effect of regional agreements on multilateral agreements. However, given the particular difficulties encountered in trying to implement multilateral agreements and even regional agreements, bilateral agreements are usually the next-best alternative.

TABLE 6: PREFERENTIAL TRADING ARRANGEMENTS OF SOUTH ASIAN COUNTRIES

| COUNTRY | REGIONAL TRADE AGREEMENT | BILATERAL TRADE AGREEMENT (FREE TRADE AGREEMENT OR ECONOMIC PARTNERSHIP AGREEMENT) | FRAMEWORK AGREEMENT | PROPOSED |
|-------------------|---|--|---|--|
| Bangladesh | APTA, 1976 SAPTA, 1995 BIMSTEC, 1997 SAFTA, 2006 | | Bangladesh-India, 2006 Bangladesh-Morocco, 2005 US-Bangladesh, 2005 Sri Lanka-Bangladesh | Bangladesh-Nepal Bangladesh-Pakistan Bangladesh-Iran Bangladesh-Egypt |
| India | APTA, 1976 SAPTA, 1995 BIMSTEC, 1997 SAFTA, 2006 | India-Sri Lanka, 2001 India-Mercosur PTA, 2005 India-Nepal, 1991 India-Bhutan, 2006 | ASEAN-India, 2004 India-Afghanistan, 2003 India-Bangladesh, 2006 India-Singapore, 2005 India-SACU, 2004 India-Chile, 2006 India-GCC, 2006 India-Thailand, 2004 | India-Malaysia India-Republic of Korea India-China India-Egypt |
| Nepal | BIMSTEC, 1997 SAPTA, 1995 SAFTA, 2006 | India-Nepal, 1991 | | Bangladesh-Nepal |

Note: APTA: Asia-Pacific Trade Agreement. SAPTA: South Asia Preferential Trade Agreement. BIMSTEC: Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation. GCC: Gulf Cooperation Council. US: United States. ASEAN: Association of Southeast Asian Nations. SACU: Southern Africa Customs Union. Source: APTIAD, 2007.

IMPLEMENTING INSTITUTIONS

THE SAARC SECRETARIAT

The SAARC Secretariat is still in the early stages of development. Decisions can only be taken by consensus and only then when Ministers agree on the meeting. Such high-level involvement in what would normally be considered day-to-day operations tends to result in few meetings and no real momentum between them. The Secretariat can only coordinate and monitor; it cannot take initiative on its own. SAARC has technical committees and working groups to coordinate programs and activities in such areas as agriculture, forestry, human development, energy and culture.

SAARC has several committees, including a **Technical Committee on Agriculture and Rural Development (TCARD)**. The TCARD finalized the **SAARC Agricultural Perspective/Vision 2020 during 2006-08, using input from each member state**. The vision discussed the long-term challenges in the region and set forth priorities in the areas of production, natural resource management, bio-safety and bio-security, technology development, seed and other inputs, food safety standards, adaptation to climate change and risk mitigation, and livelihoods of small and marginal farmers. Other organizations under SAARC include the SAARC Development Fund, the SAARC Food Bank, the South Asia Regional Standards Organization and the SAARC Standard Coordination Body.

The SAARC Group on Customs Cooperation has been working on the harmonization of customs procedures. SAARC also conducted the SAARC Regional Multi-Modal Transport Study in 2007, which identified numerous transport and rail corridors for further study.

The Committee on Economic Cooperation, consisting of the commerce/trade secretaries of each country, is responsible for accelerating the growth of member states. The Committee promotes intra-regional trade and investments. It also analyzes global and inter-regional developments. It oversaw the formulation of the SAPTA, which came into effect in December 1995, and the SAFTA, which came into effect on January 1, 1996. The SAFTA Ministerial Council is the highest decision-making body of SAFTA. The goal of creating a South Asian Economic Union was announced at the Kathmandu Summit in 2002.

SAARC AGRICULTURE MINISTERS

The SAARC Agricultural Perspective/Vision 2020 was launched by the SAARC Agriculture Ministers on November 5, 2008, at its Extra-Ordinary Meeting in New Delhi. At this meeting each member state made a presentation on various topics, describing its national experience as well as discussing possible regional approaches to addressing food production, research and prevention of soil degradation, best practices in procurement, the management of climate and disease risks in agriculture, agricultural investment and sharing of agricultural technologies.

The SAARC Agriculture Ministers signed a memorandum of understanding (MOU) with the Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP) in 2007 with the purpose of creating synergy between the two organizations. The Agriculture Ministers also established the SAARC Food Bank as a regional approach to food security, providing a supplement to national efforts. The SAARC Food Bank will need to establish links to international institutions like the International Food Policy Research Institute (IFPRI) and the International Fund for Agricultural Development (IFAD) in order to secure the necessary funding to operate efficiently.

Additional activities directed by the Agriculture Ministers include the Material Transfer Agreement, the draft SAARC Food Safety and Quality Standards for Agricultural Produce and the Counterpart Scientists Meeting process to undertake field trials of select varieties of rice and wheat in the region. Agriculture extension management in SAARC Countries was developed in order to deepen agriculture research-extension linkages. Other areas of focus for the SAARC Agriculture Ministers include farm mechanization, a harmonization of the SAARC quarantine network and efficient use of nutrients in agriculture.

SAARC member states also agreed to share success stories related to agriculture research and extension at meetings of the Agriculture Ministers. For example, India distributed documentaries related to various technologies, Bangladesh shared its technology regarding deep placement of Urea for ensuring efficient nutrient management in rice and Nepal agreed to share its experience with a group approach to agriculture extension. The Ministers also noted India's progress on establishing seed testing laboratories in five member states.

BIMSTEC

Another important area of cooperation is the development of cross-border infrastructure with the hope of enabling the four South Asian countries, other than Sri Lanka, to serve as a land bridge to Southeast Asia. In furtherance of this, the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) prepared the BIMSTEC Transport Infrastructure and Logistics Study (BTILS) under Asian Development Bank (ADB) technical assistance in 2008. The study developed an action plan for logistics and transport in the region. ADB has used the resulting plan in designing projects in the region. BIMSTEC has set up two regional centers, one on tourism in Bangkok, and another on energy in Delhi. The permanent secretariat is being established at Dhaka, Bangladesh.

SUPPORTING INSTITUTIONS

SAARC TRADE PROMOTION NETWORK (SAARC-TPN)⁶²

The SAARC-TPN was developed in 2012 and is funded by the German Society for International Cooperation (GiZ) through 2016. Following that, it is expected that the members of the network will provide funding. It is made up of 28 organizations from the eight SAARC countries. It includes representatives from the Chamber of Commerce and Industries in each country, as well as other chambers of commerce, export promotion bureaus and members of the SAARC Secretariat.

The SAARC-TPN's goal is to increase intraregional trade. The group has just finished an extensive study into non-tariff measures (NTMs) in the region, which should be available soon. By the end of 2013, SAARC-TPN plans to establish three pilot desks for monitoring NTMs, with the aim of facilitating discussion about ways to eliminate unnecessary NTMs. The work being done with respect to NTMs is of particular importance to trade in agricultural products, including fertilizer, seed and grain. SAARC-TPN appears to be a promising platform for future donor engagement. The network has connections in all eight SAARC countries and is a good example of government and the private sector working together to resolve regional issues.

The work being done with respect to NTMs is of particular importance to trade in agricultural products, including fertilizer, seed and grain. SAARC-TPN appears to be a promising platform for future donor engagement.

SAARC CHAMBER OF COMMERCE AND INDUSTRY (SAARC-CCI)

The SAARC Chamber of Commerce and Industry was established to improve the business environment in SAARC countries and to provide a means for disseminating information. The SAARC CCI submitted a draft constitution to the SAARC Secretariat and was approved in December 1992. The mandate of CCI is to promote trade facilitation, encourage the reduction in NTBs, harmonize customs procedures and promote regional cooperation. The SAARC CCI has been active in promoting interaction between the private sectors of the member states through the Economic Cooperation Conference, held annually. The CCI also provides inputs for SAPTA and SAFTA and organizes the annual SAARC Trade Fair.

SOUTH ASIA SUB-REGIONAL ECONOMIC COOPERATION (SASEC)

The South Asia Sub-Regional Economic Cooperation (SASEC) Program is an initiative designed to promote cross-border connectivity and trade facilitation among its four member countries (Bangladesh, Bhutan, India and Nepal). ADB serves as the Secretariat. Priority areas include transport, trade facilitation, energy and IT.

In November 2012, ADB approved a budget of \$47.7 million for the SASEC Trade Facilitation Program for Bangladesh, Bhutan, India and Nepal. The project will include modernizing customs, streamlining trade procedures and engaging the private sector. ADB is collaborating with the Australian Agency for International Development (AUSAID), the Department for International Development (DFID), BIMSTEC, UNESCAP, SAARC and the World Customs Organization (WCO) in these efforts.

The SASEC Trade Facilitation and Transport Working Group will be holding its 6th meeting in Kathmandu in November 2013. Based on the team's findings and research, there is clearly a need for increased funding for trade-related assistance in South Asia, especially regarding trade-related infrastructure investment and building supply capacities in LDCs such as Nepal. There is also a need for a clearer AfT strategy in the region.

CONSUMER UNITY AND TRUST SOCIETY (CUTS) INTERNATIONAL

Since the mid-1990's, CUTS has been working to foster peace and prosperity in South Asia through better economic cooperation. The core areas of operation are trade and development, with an increasing emphasis on environmental sustainability and food security.

⁶² <http://www.saarctrade.info>

In 2011, with support from the Asia Foundation, CUTS International implemented a project entitled “Cost of Economic Non-Cooperation to Consumers in South Asia (COENCOSA).” The study highlighted the gains that would accrue to consumers of five South Asian countries (Bangladesh, India, Nepal, Pakistan and Sri Lanka) from enhanced regional trade integration. While total static gain would be more than \$2 billion per year, dynamic gains would be much higher.

CUTS International and the Asia Foundation have decided to work on the removal and/or harmonization of customs-related and other procedural non-tariff barriers targeting key stakeholder groups. The focus is on specific customs-related and/or other procedural non-tariff barriers faced by specific commodities traded between India and other countries of the South Asia region.

To take forward the agenda of regional economic cooperation in South Asia, a project entitled “Promoting Participatory Approaches for Removing Regional Trade Barriers in South Asia” (COENCOSA Phase II) was initiated. The result of this was the report entitled “Reforming Non-Tariff Barriers, Case for a Participatory Approach in South Asia,” published in July 2013.

CUTS International's next plan is to address the regionalization of the bilateral agreements in the region. CUTS CITEE organized a two-day launch of its project entitled “Addressing Barriers to Rice Seeds Trade between India and Bangladesh” (RISTE) in Kolkata on April 19 and 20, 2013. It is supported by the Bill and Melinda Gates Foundation and will be implemented from January 2013 to September 2014, across the four eastern Indian states (Bihar, Jharkhand, Orissa and West Bengal) and Bangladesh. The project aims to highlight the issues related to the inflow and outflow of rice seeds and explore ways in which the two countries can cooperate in improving rice yields. An appropriate policy regime to increase trade and cooperation between the two countries in agricultural inputs is needed, especially in high-yielding variety seeds. The project also focuses on generating and advocacy documents and policy briefs, and will provide an agenda for cooperation on larger issues of agriculture development in both the countries.

SOUTH ASIA WATCH ON TRADE, ECONOMICS AND ENVIRONMENT (SAWTEE)

In 1995, CUTS International was instrumental in bringing together a number of like-minded organizations from five South Asian countries (Bangladesh, India, Nepal, Pakistan and Sri Lanka) into a common platform to form the SAWTEE network. The group works to conduct joint activities on various aspects of

trade and regulatory issues. SAWTEE advocates for bilateral, regional and multilateral trade negotiations in the region, and also publishes the Trade Insight publication four times per year. Trade Insight is a very informative publication which addresses important trade issues such as NTBs, trade facilitation and more.

UNITED NATIONS ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC (UNESCAP)

The South and South-West Asia Office of ESCAP was established in New Delhi in December 2011, to strengthen the development pillars of the United Nations. It supports ESCAP's endeavor to further enhance its assistance to member states with inclusive and sustainable development policies aimed at achieving the Millennium Development Goals. The ESCAP South and South-West Asia Office (ESCAP-SSWA) serves ten countries in the sub-region: Afghanistan; Bangladesh; Bhutan; India; Iran; Maldives; Nepal; Pakistan; Sri Lanka and Turkey. The work of ESCAP-SSWA covers strengthening connectivity, trade and transport facilitation, and regional economic integration. It also covers regional cooperation for food security.

UK DEPARTMENT FOR INTERNATIONAL DEVELOPMENT (DFID)

The UK is providing funding to support the Asian Development Bank (ADB), World Bank and International Finance Corporation (IFC) to increase regional trade and economic integration in South Asia (from Central Asia to Bangladesh). Support is expected to contribute to an improvement in intraregional trade, investment and connectivity. Specific planned results include a 10% reduction in the time taken for goods to cross four key border posts.

The South Asia Regional Trade and Integration Program (SARTIP) began in June 2012. The project focuses on initiatives to promote regional integration and connectivity, including work on border posts, trade facilitation and customs corridors.

WORLD BANK

The World Bank is doing a firm-specific study of NTBs, with assistance from the Research and Information System for Non Aligned and Other Developing Countries and the Indian Council for Research on International Economic Relations (ICRIER). The World Bank is also launching its Regional Trade and Transport Facilitation Project for Nepal and India (NIRTTP). The purpose of this project is to decrease transport time and logistics costs for bilateral trade between Nepal and India by reducing key infrastructure bottlenecks in Nepal and by supporting the adoption of modern approaches to border management.

SOCIAL DYNAMICS

South Asia is perennially plagued with multiple intraregional and intrastate conflicts based on geographic boundaries or issues of religion, caste, language or ethnicity. The region has yet to provide an appropriate environment for supporting efforts towards integration.

...there appears to be a greater level of trust between the public and private sectors in India than in Nepal and Bangladesh

India, however, has made significant efforts towards improving relations with its neighbors. At the 2011 SAARC Summit, India's prime minister announced a reduction in the number of items on the country's SAFTA Sensitive List for least developed countries from 480 to 25.

Corruption and black market trading are serious issues in South Asia. A December 2011 survey of South Asian countries, published by Transparency International, found that more than one in three people who deal with public services said they pay bribes. Only Sub-Saharan Africa has a higher rate of bribe-paying. None of the South Asian countries surveyed was in the top half of Transparency International's Corruption Perceptions Index.

India and Nepal ratified the United Nations Convention against Corruption in 2011; Bangladesh has not ratified the convention. In Bangladesh, amendments to the Anti-Corruption Commission Act that would weaken the Anti-Corruption Commission in Bangladesh have been sent to Parliament but not adopted. The fragile political situation in Nepal has made implementation of measures to curb corruption difficult. The GOI is perceived by interviewees to have a serious commitment to trade reform. Also, there appears to be a greater level of trust between the public and private sectors in India than in Nepal and Bangladesh.

ANNEX I: BANGLADESH TRADE OVERVIEW



LEGAL FRAMEWORK

The legal framework in Bangladesh is sufficiently modern to allow Bangladesh to address trade facilitation issues. Bangladesh has revised its customs laws to comply with the Revised Kyoto Convention (RKC) and significant progress has been made in implementation of the RKC. Despite the progress to date, there is a need for more transparency with respect to the laws. A new USAID project will soon be launched in Bangladesh, attempting to address some of these concerns by implementing a new website and an advance rulings program.

The GOB understands the need to engage in trade facilitation efforts to bring Bangladesh up to international standards. Both the Ministry of Commerce (MOC) and the National Board of Revenue (NBR) indicated a particular interest in implementation of the World Customs Organization (WCO) SAFE

framework of standards and the Single Window program, both intended to better utilize available government resources while speeding up the trade process. The major trade-related legislation in Bangladesh is shown in Table 7.

Bangladesh and India signed a series of new agreements in January 2010 to address some of the barriers to bilateral trade through new trade and transit provisions for Bangladesh. These include: 1) the extension of duty-free access beyond India's SAFTA to help narrow the large trade gap; 2) transit rights for goods from India's northeastern state of Tripura to Chittagong, including a new rail link; and 3) the allowance of rail transit from Bangladesh to Nepal and Bhutan. The increased rail transit is expected to benefit Bangladesh, Nepal and Bhutan, giving landlocked areas greater access to ports.

TABLE 7: PREFERENTIAL TRADING ARRANGEMENTS OF SOUTH ASIAN COUNTRIES

| AREA | LEGISLATION |
|---|---|
| Customs duties | Customs Act, 1969, currently under review as part of NBR modernization. |
| Import and export regulations | Imports and Exports (Control) Act, 1950; Customs Act, 1969; Review, Appeal and Revision Order, 1977; Importers, Exporters and Indentors (Registration) Order, 1981; Licenses and Permit Fees Order, 1985; Import Policy Order 2012-15; Export Policy 2012-15. |
| Customs valuation | Amendments introduced to the Customs Act, 1969 |
| Preshipment inspection | Amendments introduced to the Customs Act, 196 |
| Rules of origin | Standard Rules of Origin, 1977 |
| Standards | Imports and Exports (Control) Act, 1950; BSTI Act 1986; BD standards also mentioned in the Import Policy Order; Bangladesh Accreditation Act 2006 |
| Sanitary and phyto-sanitary measures | Imports and Exports (Control) Act, 1950; Plant Quarantine Act 2011; Safe Food Act 2013 |
| Contingency measures | Amendments introduced to the Customs Act, 1969 |
| Agriculture | Agriculture Research Council Act 2011 Fish Feed and Animal Feed Act 2010 and Fish hatchery act 2010 |

Source: WTO Secretariat

IMPLEMENTING INSTITUTIONS

The MOC is responsible for overall trade and commerce activities in Bangladesh. The NBR under the Ministry of Finance is responsible for trade facilitation, enforcement of government regulations, protection of society and environmental protection, preparation of foreign trade statistics, trade compliance and protection of cultural heritage.

Customs is being modernized with increased automation, greater transparency, the requirement for fewer signatures and decreased inspection of goods. Customs, with the support of the MOC, is working to improve customs processing. This includes working with the IFC to conduct a WCO time-release study. This study should provide very useful information for determining where the delays are occurring. Export restrictions do remain, including restrictions on the export of urea fertilizer (produced by KAFCO) and food grains, including rice and flour products as well as pulses.

A serious concern in Bangladesh is that different parts of the country apply different risk management criteria. A national risk management system will allow for faster customs processing and fewer inspections at the border, as well as encourage foreign direct investment (FDI). The Customs office at Chittagong expects Automated System for Customs Data (ASYCUDA) World to be fully operational by June 2014. The system in Bangladesh will ultimately be able to connect with India's EDI system and Nepal's ASYCUDA system. Based on the team's research, personnel working on the project, from the MOC and from Customs, seem highly capable. There will, however, be a huge need for training and as well as for IT experts, the latter of which the GOB is unable to fully fund by itself.

At Benapole, selection for inspection is done manually and documents are always reviewed. Customs clearance on the Indian side is also very slow. There are no warehouses or testing facilities on the Indian side of the Benapole border. This means samples must be sent to Calcutta. It takes at least a week to get the results, and in the meantime the goods must sit on the Bangladesh truck waiting for clearance. All told, there are a number of known impediments to the efficient flow of goods through this important trade corridor.

SUPPORTING INSTITUTIONS

Federation of Bangladesh Chambers of Commerce and Industry (FBCCI): FBCCI is the lead organization for business in Bangladesh, safeguarding the interest of the private sector. It has done little of note in the area of trade. FBCCI is the representative for the SAARC-TPN in Bangladesh. The FBCCI has some internal

capacity to do work in the trade facilitation area. More important, though, is its ability to call on other institutions, such as the Bangladesh Foreign Trade Institute (BFTI), for in-depth research in this area.

Bangladesh Foreign Trade Institute (BFTI): The BFTI is a non-profit research and training institution operating as a public-private partnership between the MOC and the private sector in Bangladesh. Its mandate is to provide policy support on WTO- and trade-related issues, build trade capacity and provide a policy forum. BFTI publishes "Trade Almanac," a reference source for basic trade information on countries around the world. As mentioned above, BFTI has a great deal of capacity to do in-depth research on trade facilitation issues. FBCCI has the organizational structure within SAARC and could call on BFTI for input.

South Asia Sub-Regional Economic Cooperation (SASEC) (ADB): SASEC's trade facilitation project in Bangladesh is focused on: 1) improving border clearance mechanisms; 2) strengthening automation of customs; and 3) enhancing access of information to traders. A roadmap for risk management, post-clearance audit and authorized economic operator (AEO) will be developed and implemented. The project will also facilitate implementation of the WCO SAFE framework of standards. ADB will also support the NBR in the transition from ASYCUDA ++ to ASYCUDA World and in implementing a pilot National Single Window Program.

SOCIAL DYNAMICS

The GOB has shown a serious interest in engaging in trade facilitation efforts to bring Bangladesh up to international standards with respect to customs issues. Both the MOC and the NBR under the Ministry of Finance indicated a particular interest in implementation of the WCO SAFE framework of standards and the Single Window.

Public perception of corruption is very high, with 66% of the population noting they have had to pay a bribe in the past 12 months and 46% believing that corruption has increased.⁶³ According to interviewees, not much is being done by the GOB to reduce corruption; politicians are thought to be the most corrupt part of society. Out of 183 countries and territories assessed in Transparency International's 2011 Corruption Perception Index, Bangladesh ranked 120th, with a score of 2.7 on a scale from 0 (highly corrupt) to 10 (very uncorrupt). The World Bank's Worldwide Governance Indicators (WGI) also place Bangladesh in the lowest quarter of the percentile ranks.

⁶³ See Transparency International Corruption Perceptions Index.

ANNEX 2: TRADE IN SEED – BANGLADESH



INTRODUCTION

This chapter assesses the efficiency, stability and transparency of regional trade in seed and seed-related technologies, focusing on rice, wheat, and maize, and with specific attention to what USAID could do to improve the situation. The organizations that can best manage seed and related technology trade between Bangladesh and India are private seed companies. The challenge for the GOB and GOI is to establish workable policies and regulations, allowing private companies to operate according to standard practices in the world seed industry—i.e., to identify good varieties, license varieties as necessary and then import and/or multiply seed for local sale.

Both Bangladesh and India have private seed industries able to breed and/or assess varieties and to produce and deliver rice, wheat and maize seed to farmers. Currently, private seed companies in Bangladesh introduce many maize hybrids as well as some rice hybrids from India. The situation is different for inbred (ie, non-hybrid) rice and wheat varieties. This is where the GOB, with or without cooperation from the GOI, could change some policies to allow Bangladeshi companies to sell seed of Indian varieties in Bangladesh. Similarly seed companies in India (including companies with Bangladeshi ownership) could produce and sell seed of Bangladeshi varieties in India with or without GOB action.

Farmers are ahead of policy makers, according to sources. “Farmers in both countries, especially in border areas, often consider seeds [varieties] from other sides more useful compared to seeds [varieties] available locally.” Two glaring examples are BRI I from Bangladesh Rice Research Institute (BRRI), which is grown in South Dinajpur District of West Bengal, and Swarna from India grown in Chapai Nawabganj and Dinajpur Districts of Bangladesh.⁶⁴

LEGAL FRAMEWORK

In 1977, the GOB adopted a flexible **Seed Ordinance** that leaves details to regulations.⁶⁵ As of 1989, the Ministry of Agriculture (MoA) exercised its authority under the Ordinance to control and limit varieties for all crops. From 1990, MoA implemented pro-market reforms, which were also allowed under the Ordinance. The GOB subsequently formalized these pro-market reforms in the 1993 **Bangladesh Seed Policy**.⁶⁶ The Ordinance was last amended in 2005;⁶⁷ amendments to date are consistent with the 1993 Bangladesh Seed Policy. Similarly, The Seed Rules⁶⁸ agree with the 1993 Seed Policy.

Key features of the seed regulatory framework include:

- » Registering with MoA as a seed company takes seven days and is free. This favors market entry and competition.
- » Introducing (registering) a new variety is automatic and free, except for five notified crops. This favors market entry and competition.

⁶⁴ Kabir M, Singh SP, Khan AR. 2013. Rice seed production and use in Bangladesh and India: Need for bilateral cooperation. In: Syed AKM Asadul Amin Dadon, ed. Annual General Meeting 2013. Dhaka: Bangladesh Seed Association. Pp 22-26.

⁶⁵ Government of Bangladesh (GOB). 2005. The Seeds Ordinance, 1977. Bangladesh: Bangladesh Gazette. Available at: <http://faolex.fao.org/>.

⁶⁶ GOB. 1993. Bangladesh Seed Policy for the Development of the Seed Industry. Dhaka: Bangladesh Gazette. Available at: <http://faolex.fao.org/>.

⁶⁷ GOB. 2005. The Seeds Ordinance, 1977. Bangladesh: Bangladesh Gazette. Available at: <http://faolex.fao.org/>.

⁶⁸ GOB. 1998. The Seed Rules, 1998. Dhaka: Bangladesh Gazette. Available at: <http://faolex.fao.org/>.

SEED LAWS AND REGULATIONS

- » Seed Ordinance, 1977
- » Bangladesh Seed Policy (GOB 1993)
- » The Seed Rules (GOB 1993)
- » Biosafety Guidelines, gazetted in 2008
- » National Biosafety Framework, gazetted in 2008
- » Biosafety Rules, draft or approved in 2013 (USDA 2013)
- » Bangladesh's Plant Quarantine Act 2011 (GOB 2011)
- » Destructive Insects & Pests Rules, 1966 (Plant Quarantine)(GOB 1989)

For five notified crops (rice, wheat, jute, sugarcane and potatoes) registering a new variety requires tests for VCU as well as for DUS. The Seed Rules (Article 7) invite “any seed dealer” to submit varieties of notified crops for testing and registration; even so, the MoA has not established procedures to assess private varieties of inbred (i.e., non-hybrid or self-pollinated) rice, and has not registered any variety of any notified crop other than hybrid rice. MoA practices and private companies' experiences have been different across these five crops, as follows:

- I. For hybrid rice, the MoA requires official VCU tests in six locations for two years and for DUS for one year; after tests the MoA may approve or deny registration. Registration, if approved, takes about 860 days and costs \$878 (see Table 9). According to a recent analysis, “faulty release rules” have focused on yield, ignoring farmers' desire for short-duration cultivars.⁶⁹ The MoA has not registered any inbred rice varieties from India.
- II. For potatoes, private companies submit varieties for registration after which the Bangladesh Agricultural Research Institute (BARI) tests varieties for several years at its own expense.⁷⁰

- III. Most jute area in Bangladesh is planted to an Indian jute variety (JRO-524) with jute seeds from India. Bangladesh has hundreds of registered jute seed importers and also informal importers (smugglers); importers do not label packages with their own name, but rather sell in packages naming Indian companies. Although Bangladesh has been importing Indian jute seeds for several decades, the MoA has not registered any Indian jute variety. MoA allows imports as an exception to its own Ordinance and Rules, giving import permits to companies on a case-by-case basis, listing the allowed quantity.⁷¹
- IV. No private varieties have been registered for wheat or sugarcane.
- V. Seeds of all crops, including notified crops, can be sold as truthfully labeled seed; certification is available but voluntary. This favors competition. Quality is maintained by competition and truth-in-labeling.
- VI. Seed imports require an MoA permit detailing phytosanitary conditions and must meet Bangladeshi quality standards; for five the notified crops, seeds must be of registered varieties.
- VII. Seed exports must meet quality standards.

The MoA submitted a plant variety protection (PVP) bill to the Ministry of Law in 2010.⁷² The draft proposes to establish PVP according to International Union for the Protection of New Varieties of Plants (UPOV) guidelines and appears to be suitable for GOB to join the UPOV.

GOB arrangements to regulate GMOs include Biosafety Guidelines and National Biosafety Framework, both published in 2008, and (draft or approved) Biosafety Rules⁷³. On October 31, 2013, Bangladesh approved release of several varieties of GMO brinjal, the first GMOs approved in Bangladesh.

⁶⁹ Bhuiyan MSR. 2013. Review of the parental lines of the hybrid rice used in Bangladesh. In: Syed AKM Asadul Amin Dadon, ed. Annual General Meeting 2013. Dhaka: Bangladesh Seed Association. Pp 17-21.

⁷⁰ Seed Certification Agency (SCA). 2013a. Approved Notified Crop Varieties. Gazipur: SCA. Available at: <http://www.sca.gov.bd/Downloadforms.aspx?MenuID=8>.

⁷¹ Islam MS. 2013. Indo-Bangla jute seed scenario. Syed AKM Asadul Amin Dadon, ed. Annual General Meeting 2013. Dhaka: Bangladesh Seed Association. Pp 57-59.

⁷² MoA. 2010. Plant variety and farmers' rights protection act, 2010. Dhaka: MoA (unpublished draft submitted to the Ministry of Law).

⁷³ USDA. 2013. Bangladesh Agricultural Biotechnology Annual 2013. Available at: http://gain.fas.usda.gov/Recent%20GAIN%20Publications/Agricultural%20Biotechnology%20Annual_Dhaka_Bangladesh_3-19-2013.pdf.

TABLE 8: IMPACT OF BANGLADESH'S SEED REGULATORY FRAMEWORKS ON SEED INDUSTRY ACTIVITIES

| TO START A SEED COMPANY, MOA REGISTRATION IS: | TO INTRODUCE A NEW VARIETY, VARIETY REGISTRATION IS: | | TO PRODUCE OR ACCESS SEED FOR WHOLESALE DELIVERY: | | | | TO SELL SEED: | |
|---|--|--|---|---|---|---|--|---|
| | Voluntary or automatic and low cost | Required, with discretionary approval after time and expense | MoA registration of contract farmers is: | MoA controls on seed imports are based on: | Seed certification is: | | MoA registration of seed dealers is: | MoA approvals of seed exports are: |
| | | | | | Voluntary | Required | | |
| Required but automatic (7 days, no charge) | Automatic for all but 5 notified crops | For 5 notified crops (rice, wheat, sugarcane, jute and potatoes) MoA tests varieties for 2 years (VCU and DUS) then makes a discretionary decision; when successful, registration takes circa 860 days and costs \$878 (Articles 5 and 6, Ordinance; Article 7, Rules) | Not required | (a) phytosanitary criteria; (b) seed quality; and (c) for 5 notified crops the variety must be registered (Article 17, Ordinance) | At the retail level for all species and varieties | For breeder and foundation seed produced by government agencies | Required but automatic (7 days, no charge) | Based on seed quality (Article 17, Ordinance) |

TABLE 9: TIME/COST/PROCEDURES FOR REGISTERING A PROPRIETARY STAPLE GRAIN VARIETY

| NO | PROCEDURE | TIME (DAYS) | COST (BDT) | AGENCY |
|--------------|--|-------------|------------|---------------------------------------|
| 1 | Application for registration of a new proprietary plant variety for notified crops | 10 | 0 | Seed Certification Agency (SCA) |
| 2 | Multi-location performance trials | 730 | 72,000 | SCA |
| 3 | Recommendation for release | 30 | 0 | SCA |
| 4 | Variety release by National Seed Board | 60 | 0 | National Seed Board, Seed Wing, MoA |
| 5 | Gazette notification | 30 | 0 | Government Printing Bureau (BG Press) |
| TOTAL | 5 procedures | 860 | \$878 | |

Source: USAID/EAT Project

Bangladesh's Plant Quarantine Act 2011⁷⁴ and the Destructive Insects and Pests Rules, 1966 (Plant Quarantine)⁷⁵ guide phytosanitary protections at the border. Bangladesh is a member of the APPPC, the regional grouping of members of FAO's International Plant Protection Commission (IPPC). Seed companies and others interested to trade ask the Commissions to promote science-based phytosanitary rules, focusing on quarantinable pests (present in the exporting but not the importing country). Insofar as cross-border seed trade in South Asia is concerned, phytosanitary controls have not been rationalized to focus on quarantinable pests. Governments of both India and Bangladesh (India more than Bangladesh) obstruct formal cross-border trade with time-consuming procedures; however, everyone recognizes the presence of routine informal trade that likely ensures most pests exist on both sides of the border, and are therefore not quarantinable.

Through SAARC, the GOB participates in the SAARC Seed Bank⁷⁶ and the SAARC Seed Forum.⁷⁷ Both are intended to facilitate regional trade; sections below discuss expected and potential impacts.

IMPLEMENTING INSTITUTIONS

MoA's Seed Wing advises MoA what to do with the authority it has to regulate the seed industry. The National Seed Board is an advisory body; the Secretary of MoA is the Chairman, and the head of the Seed Wing, i.e., the Director General (Seed), MoA, is the Member Secretary.⁷⁸

The GOB supported public research, including plant breeding, with a total budget of \$50 million in 2009. During 2003-12, the average annual rate of variety registration from public research was 2.8 for rice, 0.7 for wheat, and 0.8 for maize.

A recent IFPRI paper reports "diffusion of improved varieties of seed, especially for rice, has been rapid in recent years."⁷⁹ Evidence shows otherwise. In a 2010 survey, rice varieties released by the BRRI during the previous ten years covered

only 3% of rice planted area in 2010; the three most popular rice varieties from public research (BR 28, 29, and 11), released in 1994 and 1980, covered a combined total of 38% of rice planted area in 2010 (see Annex 2 and Rashid et al. 2012). BINA-7, a 2007 release from the Bangladesh Institute for Nuclear Agriculture, covered an unreported but small portion of rice planted area. In addition, BADC's rice hybrid SL-8H, registered in 2008, covered an estimated 5,000ha, 0.05% of rice planted area, in 2009-10 (calculated from BADC's reported sale of 69MT of hybrid rice seed [data from an unpublished BADC document]).

PUBLIC SECTOR SEED-RELATED INSTITUTIONS

- » **Seed Wing, MoA:** This is a small office within the MoA that advises the Minister what to do with authority granted under the Seed Ordinance as well as with funds for public sector seed-related activities.
- » **National Seed Board:** This is an advisory committee, dominated by public sector members.
- » **Bangladesh Agricultural Research Council (BARC)** coordinates agricultural research in agencies (including Bangladesh Rice Research Institute, Bangladesh Agricultural Research Institute, Bangladesh Institute for Nuclear Agriculture, and others) and with less authority in universities (especially Bangladesh Agricultural University).
- » **The Seed Certification Agency (SCA)** is responsible for seed certification (required for breeder and foundation seed of public varieties, but otherwise voluntary), for maintaining lists of registered varieties and for testing seeds upon request.
- » **Bangladesh Agricultural Development Corporation (BADC)** produces seed, almost all from public breeding, most or all of which it sells at subsidized prices.
- » **Plant Protection Wing, Department of Agricultural Extension, MoA.**
- » **SAARC Seed Bank**
- » **SAARC Seed Forum**

⁷⁴ GOB. 2011. Plant Quarantine Act 2011. Dhaka: MoA. Available at: http://www.dae.gov.bd/Dae_Acts_Regulations.aspx.

⁷⁵ GOB. 1989. Destructive Insects & Pests Rules, 1966 (Plant Quarantine), as amended through 1989. Dhaka: MoA.

⁷⁶ SAARC. 2011. Agreement on establishing the SAARC seed bank. Kathmandu: SAARC. Available at: <http://seednet.gov.in/saarc-seedbank.pdf>.

⁷⁷ Saiyed IM, Azad AK, Faruque A, Huda N. 2013. Promotion of seed sector in South Asia. In: Syed AKM Asadul Amin Dadon, ed. Annual General Meeting 2013. Dhaka: Bangladesh Seed Association. Pp 30-32.

⁷⁸ GOB. 2005. The Seeds Ordinance, 1977. Bangladesh: Bangladesh Gazette. Available at: <http://faolex.fao.org/>.

⁷⁹ Pullabhotla H, Ganesh-Kumar A. 2012. Review of Input and Output Policies for Cereal Production in Bangladesh. New Delhi: IFPRI. Pp 6.

TABLE 10: RICE, MAIZE AND WHEAT VARIETIES REGISTERED, 2003-12

| CROPS | TOTALS FOR 10 YEARS | | | ANNUAL AVERAGE |
|--|--------------------------|--------|-------|----------------|
| | Self- or open-pollinated | Hybrid | Total | |
| Rice, of which | 24 | 96 | 120 | 12.0 |
| Public | 24 | 4 | 28 | 2.8 |
| Private | 0 | 92 | 92 | 9.2 |
| Wheat (all public, self-pollinated) | 7 | 0 | 7 | 0.7 |
| Maize,* of which | 2 | 97 | 99 | 9.9 |
| Public | 2 | 6 | 8 | 0.8 |
| Private | 0 | 91 | 91 | 9.1 |

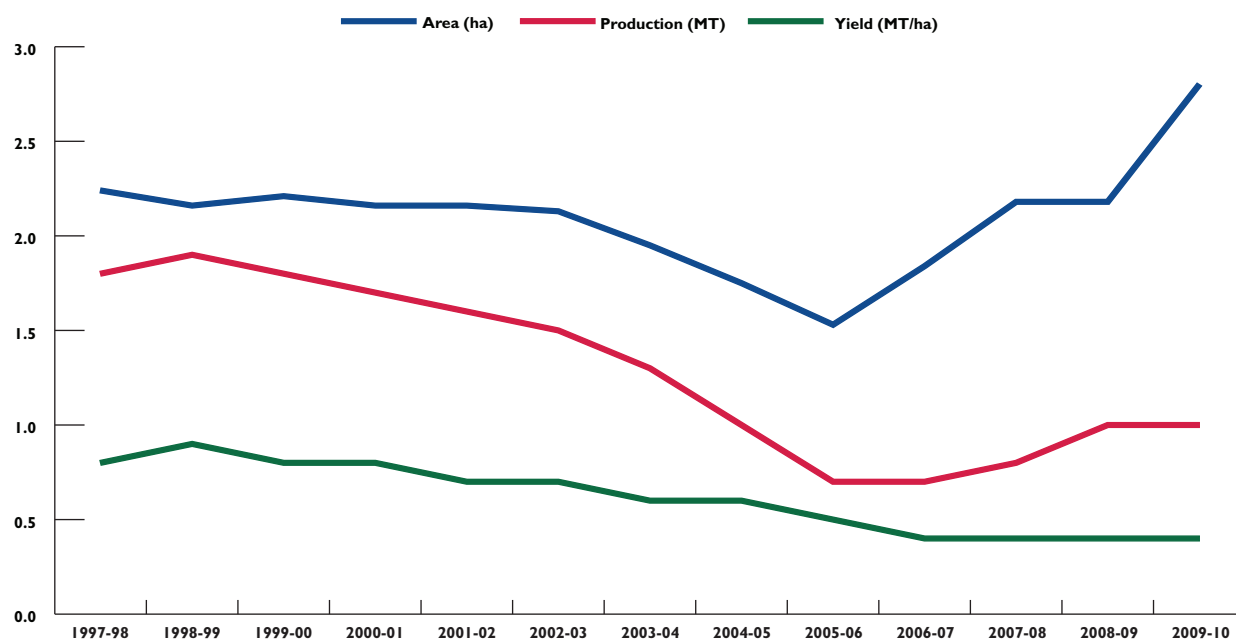
*For maize, data are for 2002-11.

Sources: Seed Certification Center 2013a, 2013b; Bangladesh Rice Knowledge Bank 2013; BINA 2013.

Similarly, wheat varieties released between 1998 and 2000 accounted for 71% and 60% of wheat planted area in Rangpur and Rajshahi, respectively (as of 2010).⁸⁰ CIMMYT has worked with BARI to breed and select wheat varieties. Nevertheless, slow release of wheat varieties left Bangladeshi farmers vulnerable to wheat rust, which cut national average yields to only 1.5/ha in 2006-07 (Figure 4).

⁸⁰ See Annex 2 for details.

Although wheat yields have since recovered with several new rust-resistant varieties, the rate of release of new varieties (only seven new varieties released from 2000 to 2012) continues to be too slow to ensure against another widespread rust attack, and also not sufficient to cater to all the agro-ecological conditions and cropping patterns for wheat cultivation in Bangladesh. Considering that much, if not most, wheat in Bangladesh is irrigated, average yields have been low.

FIGURE 4: AREA (MILLION HA), PRODUCTION (MILLION MT) AND YIELD OF WHEAT

Source: DAE

TABLE 11: RICE, WHEAT AND MAIZE AREA PLANTED TO SEEDS FROM BANGLADESH AGRICULTURAL DEVELOPMENT CORPORATION (2011-12)

| CROPS | AREA | BADC SEED SUPPLY 2011-12 | SEED RATE | AREA PLANTED TO BADC SEED | |
|----------------------|------------|--------------------------|-----------|---------------------------|-------------------|
| | ha | MT | kg/ha | ha | % of planted area |
| Hybrid rice | 660,000 | 704 | 15 | 47,000 | 7% |
| Self-pollinated rice | 11,000,000 | 91,783 | 30 | 3,060,000 | 28% |
| Wheat | 374,000 | 27,307 | 140 | 195,000 | 52% |
| Maize | 292,000 | 296 | 15 | 19,700 | 7% |

Source: Total area under each crop is approximated for 2011-12 taking rice and wheat area in 2010-11 from BBS 2011 and hybrid maize and hybrid rice area for 2012-13 from Seed Wing's unpublished data. Seed rates are author's estimates. BADC's seed supply for 2011-12 is from unpublished BADC data.

Although public varieties introduced from 2000 to 2010 covered only about 5% of rice planted area and less than half of wheat area in 2010, BADC has been selling more seed than required to extend new varieties. Apparently much of the rice and wheat seed the BADC sells consists of old varieties. As of 2007-08, seed from BADC was sufficient to plant approximately 15% of rice area and 30% of wheat area.⁸¹ In 2011-12, BADC's reported seed supply was sufficient to plant more than a quarter of rice area and half of wheat area (Table 11). BADC subsidizes this seed, charging prices that do not cover current expenses and take no account of capital costs.

The Seed Certification Agency, reporting to the MoA, is responsible, as and when requested by companies or the MoA, to test seeds for quality and to certify seeds. Seed certification is required only for breeder and foundation seed of public varieties. For the five notified crops, the Agency is responsible for official VCU and DUS tests of proposed varieties as part of the variety registration process; in practice, government research organizations often test varieties. The Agency's laboratory has not been accredited by the International Seed Testing Association (ISTA); informants say accreditation is unrealistic because the GOB routinely transfers the Agency's staff, so that it is difficult to establish and maintain the expertise required for ISTA accreditation.

Under the MoA, the Plant Protection Wing of the Department of Agricultural Extension is responsible to enforce phytosanitary controls at border points.⁸² Bangladesh has 31 plant quarantine

staff, 27 entry points (2 sea, 3 air, 21 land and 1 mail), and 13 laboratories.⁸³ Considering routine cross-border smuggling of seed and other vegetative materials, the scope of testing at land borders should be reviewed and likely revised to focus on quarantinable pests and priority protections.

The SAARC Seed Bank, a purely public sector body agreed by SAARC member countries in 2011, proposes to support food security, to boost the seed replacement rate and to maintain a regional seed security reserve.⁸⁴ The Seed Bank agreement projects that members will collaborate to facilitate variety movement across regional borders by developing a common list of varieties (Article 13); nothing has been done so far. In any case, this is arguably a misleading strategy to facilitate varietal movement; each regional government acting alone can achieve the same results for its farmers by simply reducing barriers to introduction of foreign varieties.

The SAARC Seed Forum, on the other hand, is proposed to have roughly equal representation from governments and from private seed industries in each country. The SAARC Seed Forum was established in 2010 with an ad hoc committee of 14 members from governments and private organizations.⁸⁵ As of September 2013, negotiations continue to adopt a constitution. The IFC has agreed to fund the Forum to promote harmonization of seed policies in the region, focusing on issues such as certification and seed quality standards; the project is ready to begin as soon as the

⁸¹ Jaim WMH and Akter S. 2012. Seed, Fertilizer and Innovation in Bangladesh: Industry and Policy Issues for the Future. Washington, DC: IFPRI.

⁸² APPPC and FAO. 2011. Plant protection profiles from Asia-Pacific countries (2009-2010), 3rd edition. Bangkok: APPPC and FAO. Available at: http://www.apppc.org/file_uploaded/1314093911_3rd_edition_of_ppf_from_Asia-Pa.pdf.

⁸³ APPPC and FAO. 2011. Plant protection profiles from Asia-Pacific countries (2009-2010), 3rd edition. Bangkok: APPPC and FAO. Available at: http://www.apppc.org/file_uploaded/1314093911_3rd_edition_of_ppf_from_Asia-Pa.pdf.

⁸⁴ SAARC. 2011. Agreement on establishing the SAARC seed bank. Kathmandu: SAARC. Available at: <http://seednet.gov.in/saarc-seedbank.pdf>.

⁸⁵ Saiyed IM, Azad AK, Faruque A, Huda N. 2013. Promotion of seed sector in South Asia. In: Syed AKM Asadul Amin Dadon, ed. Annual General Meeting 2013. Dhaka: Bangladesh Seed Association. Pp 30-32.

Seed Forum can be organized to do it, possibly in late 2013. Whether and to what extent this will impact variety movement—by urging member governments reduce barriers to entry—remains to be seen as the project develops.

SUPPORTING INSTITUTIONS

PRIVATE SEED COMPANIES AND SUPPORTING PRIVATE INSTITUTIONS

Implementation of pro-market seed policies from 1990 fostered the development of a competitive private industry. Bangladesh has more than 200 seed companies.⁸⁶ As of 2013, the President of the Bangladesh Seed Association reported 17,000 registered seed dealers along with 50,000 mobile seed vendors.⁸⁷ The annual value of Bangladesh's domestic seed market reached \$125 million in 2011.⁸⁸

Although almost all seed companies are locally owned, Bangladesh's seed industry is well-linked to the world seed industry. Local companies access varieties from foreign companies through licensing and other arrangements. In a 2009 survey of 30 companies, 21 reported international collaborations: nine reported collaborations with one country each; two with two countries; nine with three to five countries; and two with eight to nine countries. The 15 countries involved were: Australia, China, France, Germany, Hong Kong, India, Italy, Japan, South Korea, Nepal, the Netherlands, New Zealand, the Philippines, Taiwan, Thailand, the US and Vietnam.⁸⁹ In a 2008 survey of 18 seed companies, 13 reported research programs with a total of 91 research staff and \$10 million in annual expenditures.⁹⁰ Companies breed vegetables, maize and hybrid rice.

Private seed companies have formed the Bangladesh Seed Association. Through this trade association, the seed industry interacts with the GOB on policy issues. The Association and individual seed companies are members in the Asia and Pacific Seed Trade Association (APSA). APSA advocates policies to facilitate seed trade in the region. The SAARC Seed Forum (which was initiated in 2010 but is still in the design phase) proposes to include a representative from the Bangladesh seed industry in its governing board.

At least one seed company is working with the International Seed Testing Association (ISTA) to acquire a laboratory accredited to issue ISTA certificates, which some countries require for imported seeds.

CEREAL VARIETIES FROM THE FORMAL PRIVATE SECTOR

The government offers automatic variety registration for maize hybrids. Private companies have been introducing maize hybrids at the rate of 9.1 per year (Table 12).⁹¹ On the other hand, rice and wheat are notified crops. Despite the time-consuming and expensive system for the government to test and approve varieties of notified crops (averaging 860 days and \$878; see USAID 2012a), private companies registered 92 rice hybrids during 2003–12 at the rate of 9.2 per year.⁹² Private companies are willing to invest to register rice hybrids because they can get their money back from seed sales—selling hybrid rice seed year after year at eight to ten times the grain price. Most registered rice hybrids are from China; a small minority is from India.

...without a PVP law, companies that pay to register an inbred from India could find competing companies offering the same variety as soon as it is registered..

⁸⁶ Kabir, K. A., and M. N. Huda. 2009. *IFC-SEDF Baseline Surveys and Sector Studies in Agribusiness, Light Engineering and Textiles & Apparels Sectors in Bangladesh. Sector: Agribusiness. Subsector: Seed*. Dhaka: International Finance Corporation, South Asia Enterprise Development Fund.

⁸⁷ The Independent. 2013. Outcry over genetically modified brinjal. 29 August 2013. Available at: http://www.theindependentbd.com/index.php?option=com_content&view=article&id=183653:outcry-over-genetically-modified-brinjal&catid=129:frontpage&Itemid=121.

⁸⁸ Financial Express. 2012. Private Sector's Share in Seed Business Increasing. Dhaka: Financial Express, 19 December 2012, available at: <http://www.thefinancialexpress-bd.com/index.php?ref=MjBfMTJfMTIifMTJfMTV85MF8xNTM2MDE=>.

⁸⁹ Kabir, K. A., and M. N. Huda. 2009. *IFC-SEDF Baseline Surveys and Sector Studies in Agribusiness, Light Engineering and Textiles & Apparels Sectors in Bangladesh. Sector: Agribusiness. Subsector: Seed*. Dhaka: International Finance Corporation, South Asia Enterprise Development Fund.

⁹⁰ Rashid H, Ali M, Gisselquist D. 2012. Private-sector agricultural research and innovation in Bangladesh: overview, impact, and policy options. Washington, DC: IFPRI. Available at: <http://www.asti.cgiar.org/pdf/private-sector/Bangladesh-PS-Report.pdf>.

⁹¹ SCA. 2013b. Approved Non-notified Crop Varieties. Gazipur: SCA. Available at: <http://www.sca.gov.bd/Downloadforms.aspx?MenuID=8>.

⁹² SCA. 2013b. Approved Non-notified Crop Varieties. Gazipur: SCA. Available at: <http://www.sca.gov.bd/Downloadforms.aspx?MenuID=8>; Rashid H, Ali M, Gisselquist D. 2012. Private-sector agricultural research and innovation in Bangladesh: overview, impact, and policy options. Washington, DC: IFPRI. Available at: <http://www.asti.cgiar.org/pdf/private-sector/Bangladesh-PS-Report.pdf>.

While companies can spend the time and money to register rice hybrids from India, that does not work for rice inbreds (non-hybrid rice varieties). Because farmers can produce their own seeds for such varieties, the profit margin that companies can realize is low; companies can sell seed for inbreds at no more than about two times the grain price. Furthermore, without a PVP law, companies that pay to register an inbred from India could find competing companies offering the same variety as soon as it is registered.

CEREAL SEED FROM THE FORMAL PRIVATE SECTOR

Seed from the private sector accounts for more than 90% of planted area for both hybrid rice and hybrid maize (Table 12). The private sector has been able to dominate these markets by offering a wide choice of varieties to suit farmers' preferences.

The private sector also sells a substantial amount seed for inbred rice. Sales increased from 10,000 MT in 2008-09 (enough for 3% of planted area) to 35,000 MT in 2011-12 (enough to plant 11% of inbred rice area). All of this non-hybrid rice seed is for the same public varieties that BADC offers with subsidies; for such seed, private companies compete on the basis of quality. Private companies do not sell wheat seed. The private sector's

participation in markets for inbred rice and wheat seed is held back by the GOB's reticence to register varieties that have not come from public breeding in Bangladesh.

IMPACT OF PRIVATE MAIZE AND RICE HYBRIDS

With private companies introducing maize hybrids, national average maize yields increased from an average of less than 1 MT/ha for several decades through 1992 to more than 6 MT/ha in 2012,⁹³ exceeding yields in China and Japan.⁹⁴

Private rice hybrids seed account for approximately 6% of total paddy area (Table 12), boosting paddy yields an estimated 1 MT/ha.⁹⁵ Much of the planted seed is produced in Bangladesh from parent seed imported from China.

⁹³ Rashid H, Ali M, Gisselquist D. 2012. Private-sector agricultural research and innovation in Bangladesh: overview, impact, and policy options. Washington, DC: IFPRI. Available at: <http://www.asti.cgiar.org/pdf/private-sector/Bangladesh-PS-Report.pdf>.

⁹⁴ Bodker, I., E. Wulff, and J. Thorp. 2006. Seed Sector Country Profile: Bangladesh. Volume I: Overview of seed supply systems and seed health issues. Copenhagen: Danish Seed Health Centre for Developing Countries.

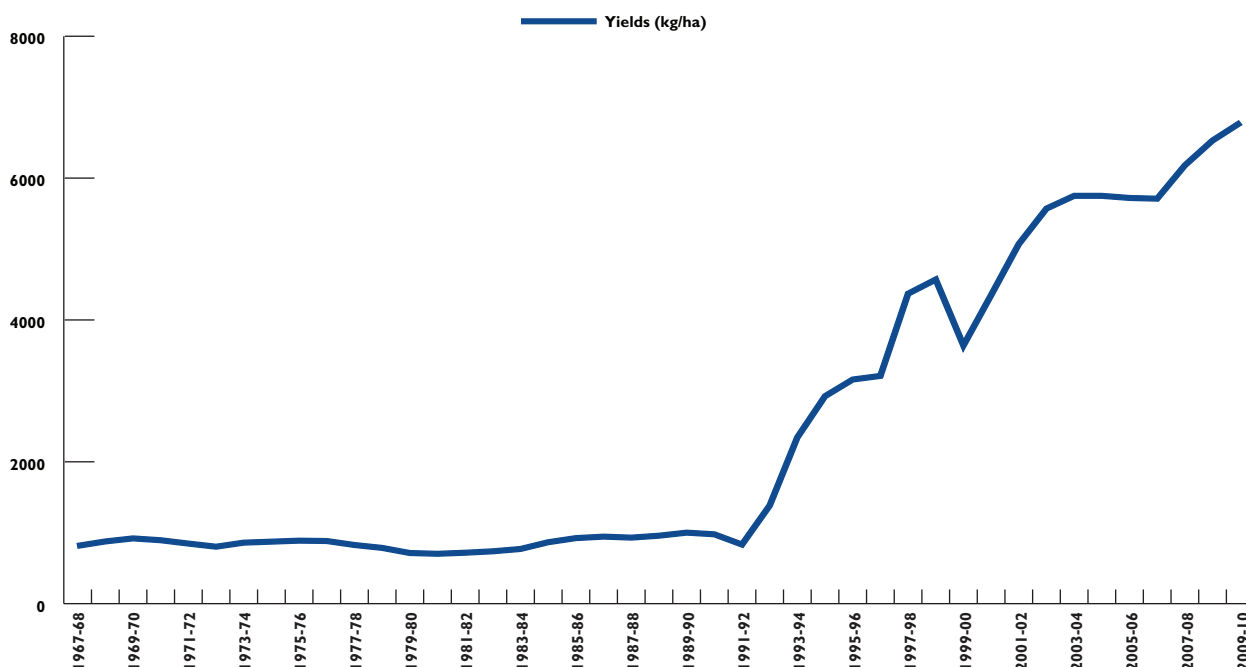
⁹⁵ Rashid H, Ali M, Gisselquist D. 2012. Private-sector agricultural research and innovation in Bangladesh: overview, impact, and policy options. Washington, DC: IFPRI. Available at: <http://www.asti.cgiar.org/pdf/private-sector/Bangladesh-PS-Report.pdf>.

TABLE 12: RICE, WHEAT, AND MAIZE AREA PLANTED TO SEEDS FROM PRIVATE COMPANIES

| CROP | AREA | PRIVATE SECTOR SUPPLY 2011-12 | SEED RATE | AREA PLANTED TO PRIVATE SEED | |
|-------------|------------|-------------------------------|-----------|------------------------------|-------------------|
| | ha | MT | kg/ha | ha | % of planted area |
| Hybrid rice | 660,000 | 9,200 | 15 | 520,000 | 93% |
| Inbred rice | 11,000,000 | 35,000 | 30 | 1,200,000 | 11% |
| Wheat | 374,000 | ~0 | 140 | 0 | 0 |
| Maize | 292,000 | 4,100 | 15 | 270,000 | 93% |

Source: Total area for each crop from Table 3, assuming that cropped area changes modestly from year to year. Private sector seed supply for hybrid maize and hybrid rice are calculated from area planted to each crop multiplied by the seed rate and subtracting BADC seed supply. Private supply of self-pollinated rice is for boro (dry season) rice only for 2012/13 from Seed Wing, unpublished data.

FIGURE 5: MAIZE YIELDS, 1967-68 THROUGH 2009-10



Source: Weidemann 2011.

RICE VARIETIES AND SEEDS FROM AND TO INDIA THROUGH INFORMAL TRADE

Although the GOB has not registered any rice or wheat inbred varieties from India, varieties from India are nevertheless able to get to Bangladeshi farmers through smuggling followed by local multiplication and informal trade. In a 2010 survey, rice inbred varieties from India covered 12% of rice area across all Bangladesh in all seasons (Annex 2). Indian rice varieties are especially popular in border regions where farmers have better access and agro-climatic conditions are similar on both sides of the border. For example, in Dinajpur District, 53% of rice during the aman (main rainy) season is planted to Indian varieties.⁹⁶ On the other hand, India's wheat growing areas are far from the border, so Bangladeshi farmers do not get Indian wheat varieties through informal trade.

In addition to informal trade bringing Indian rice varieties to Bangladeshi farmers, informal trade also facilitates the movement of seed and varieties from Bangladesh into India. Farmers in India plant varieties released by the Bangladesh Rice Research

Institute, including BR 11 (released in 1980), BR 28 and BR 29 (released in 1994). In addition, Indian farmers plant seed of Chinese hybrids smuggled from Bangladesh.⁹⁷

SOCIAL DYNAMICS

This section considers stakeholders' positions on several possible initiatives to improve cross-border movement of seeds and varieties, i.e., relaxing GOB controls on variety introduction, and rationalizing phytosanitary controls.

STAKEHOLDERS' POSITIONS ON GOB'S CONTROLS ON PRIVATE INTRODUCTION OF RICE AND WHEAT VARIETIES

This is the key challenge to allow Bangladesh farmers to benefit from rice and wheat breeding in India and other countries.

Farmers clearly appreciate Indian and other illegal rice varieties, as demonstrated by their planting such varieties on a substantial percentage of their paddy land.

⁹⁶ Kabir M, Singh SP, Khan AR. 2013. Rice seed production and use in Bangladesh and India: Need for bilateral cooperation. In: Syed AKM Asadul Amin Dadon, ed. Annual General Meeting 2013. Dhaka: Bangladesh Seed Association. Pp 22-26.

⁹⁷ Information from seed company managers and from Kabir M, Singh SP, Khan AR. 2013. Rice seed production and use in Bangladesh and India: Need for bilateral cooperation. In: Syed AKM Asadul Amin Dadon, ed. Annual General Meeting 2013. Dhaka: Bangladesh Seed Association. Pp 22-26.

...private seed company executives were unanimous in asking for the GOB to de-notify all crops, allowing automatic variety registration for rice, wheat, jute, potatoes and sugarcane, as it does for all other crops.

The Bangladesh seed industry is in favor of de-notifying all five notified crops. On September 21, 2013 16 seed company owners and managers met the study team to discuss their experiences and concerns related to regional trade. During this meeting, private seed company executives were unanimous in asking for the GOB to de-notify all crops, allowing automatic variety registration for rice, wheat, jute, potatoes and sugarcane, as it does for all other crops.

Government regulators have been in favor of continuing controls on variety introduction for five crops and even extending notification to more crops (which may be unrealistic, considering the success of the 1993 Bangladesh Seed Policy). On September 28, 2013, MoA with the IFC's Bangladesh Investment Climate Fund, organized a meeting of roughly 200 stakeholders to solicit comments on a draft Seeds Act 2013 which, among other things, proposed to extend MoA variety tests and approvals beyond the current five notified crops. (Toward the end of the meeting, the Director, Seed Wing, MoA, committed to establish a committee of roughly 15 members, with approximately equal representation from public and private sectors, to review and revise the draft.)

According to September 2013 discussions with staff of IFC's Bangladesh Investment Climate Fund, the Fund agrees with seed companies, urging de-notification of crops to facilitate private variety introduction.

Public sector researchers are a potential swing vote. Most researchers seem to endorse government controls on variety introduction (up until the researchers retire and move to the private sector). The GOB allayed opposition to liberalizing reforms by government scientists in the early 1990s by allowing them to control variety introduction for five notified crops. Although the subsequent trajectory of yield gains in non-notified maize vs. rice and wheat illustrates the benefits of liberal policies, government scientists continue to endorse irrational controls (e.g., refusing to register Indian rice and jute varieties widely planted by farmers).

STAKEHOLDERS' POSITIONS ON RATIONALIZATION OF PHYTOSANITARY CONTROLS

Bangladeshi seed companies are frustrated by India's controls on seed imports from Bangladesh. The GOI does not allow seed from Bangladesh to enter through any land crossing; seed must go through Kolkata port or by air. At the port, GOI impounds imported seeds for 50 days, waiting for results from grow-out tests. Bangladeshi companies rely on smugglers get vegetable seeds to India. Hybrid rice seeds from Bangladesh are also regularly smuggled to India. On the other hand, the GOB easily allows seed imports from India.

As the above scenarios indicate, the relationship and the behavior of the two governments are unequal when it comes to seed trade. Both governments irrationally focus on formal trade, while smuggling accounts for a significant amount of the market. Furthermore, this informal trade negates the value of any attempt to block pest movement through phytosanitary controls on formal trade. A strict pest risk analysis could guide formulation of rational controls.

Informants also noted that some of Bangladesh's phytosanitary rules are long out of date and impractical. For example, imported rice seed is supposed to be treated with hot water to kill fungus. Although this rule was reasonable for imports of small quantities of seed for breeding, it is not reasonable for the hundreds of tons of rice hybrid and hybrid parent seed which have been imported annually over the last decade.

During meetings in September 2013, SAARC staff welcomed the suggestion that the SAARC Seed Forum could manage a donor-funded project to propose steps to rationalize phytosanitary controls across South Asia to facilitate seed trade as well as strengthen protection from extraregional pests. Representatives of seed companies were skeptical, however, about whether such a project could reduce the GOI's obstruction to seed imports from Bangladesh as well as seed trade through India between Bangladesh and Nepal.

ANNEX 3: TRADE IN FERTILIZER – BANGLADESH



INTRODUCTION

Despite playing a strong catalytic role in raising crop yields and boosting agricultural production in the past, fertilizer subsidies in South Asia are widely considered to be an inefficient allocation of public investments and a major drain on agricultural resources under the present realities of agriculture. The history of fertilizer subsidy in South Asia follows a very similar path. Up until the mid-1990s, these countries (Nepal, Bangladesh and India) provided heavy subsidies on fertilizer followed by a decline in fertilizer subsidies during a period of deregulation, but in recent times, they have all reintroduced fertilizer subsidies in order to tackle the issue of food security. It is evident, particularly in Bangladesh, that unbalanced use of fertilizers is a common and serious concern. The relatively high subsidies given to urea, compared to triple super phosphate (TSP), DAP and MOP has led to unbalanced fertilizer use which can depress yields and adversely affect soil health. One of the most contentious issues surrounding fertilizer subsidies is just how much benefit “trickles down” to the farmers and how much is absorbed by fertilizer companies and other participants in the distribution chain.⁹⁸

Fertilizer marketing, promotion and distribution go back for more than 50 years in Bangladesh. Early on, the GOB was responsible for distributing and marketing fertilizer. This system had a host of difficulties which led to market based system where fertilizer traders were allowed to sell fertilizers competitively. However, the GOB continued to stay involved in distribution and storage. With the passage of time, privatization of the distribution system proved successful and in 1993-94 fertilizer sales rose to 2,218,000 MT. Unfortunately at that same time, due to a number of untimely fertilizer shortages, the GOB re-entered the fertilizer sector. Over the past two decades, the GOB has continued its involvement through a system of subsidies and regulatory controls such as import quotas. This system has provided significant barriers to free trade.

Unlike Nepal, Bangladesh has a strong private sector influence on fertilizer policy and trade via the Bangladesh Fertilizer Association (BFA). With over 7,000 members, the BFA engages in local, national and regional fertilizer trade and marketing issues. The BFA could play a significant role in promoting the understanding and use of the 4-R Nutrient Stewardship Approach to nutrient use. The concept promotes using the Right Source of fertilizer, at the Right Rate, at the Right Time, and placing it in the Right Place. This concept is a perfect platform for promoting a balanced crop nutrient program through extension education and soil testing. The 4R Nutrient Stewardship Approach has been widely promoted for several years by the International Plant Nutrition Institute (IPNI), The Fertilizer Institute, International Fertilizer Association, agricultural universities and other agricultural organizations internationally. Already well recognized in India, this concept must be embraced by the fertilizer industry in both Nepal and Bangladesh. Harmonizing communications and research across the region will ultimately lead to enhanced fertilizer efficiency and trade in South Asia.

⁹⁸ Mujeri MK. 2012. Improving the Effectiveness, Efficiency and Sustainability of Fertilizer Use in South Asia. Global Development Network, New Delhi, India.

LEGAL FRAMEWORK

From the 1970s until end of 1992, the BADC, under the MoA, progressively transferred fertilizer trade to the private sector. By end of 1992, the MoA and BADC were out of the fertilizer business and a competitive private sector imported and traded fertilizers without subsidies.⁹⁹ However, the GOB maintained a dominant position in the sector through fertilizer production by the Bangladesh Chemical Industries Corporation (BCIC), a parastatal. Taking advantage of surplus stocks and good international prices, BCIC oversold urea exports in 1994 which led to a serious shortage in 1995, with spiking prices, riots and deaths. Responding to the crisis, the GOB re-entered into fertilizer distribution. From 1996, the GOB reintroduced subsidies on urea (most of which came from BCIC's factories) and from 2006 the GOB subsidized other major, mostly imported fertilizers.¹⁰⁰

Current MOA regulation of fertilizer trade is based on the **Fertilizer (Control) Order, 1999**,¹⁰¹ which is based in turn on the Control of Essential Commodities Act, 1956. Other legislation includes the Fertilizer Management Act, 1995, and subsequent amendments. Today, importers, manufacturers and suppliers (wholesale and retail) must be registered with the MoA. Fertilizers must be registered and to date, 74 products have been registered. The process to register a new product requires two years of tests in Bangladesh followed by discretionary decisions; the process takes 850 days and costs almost \$488.¹⁰² This is a significant barrier to the introduction of new products.

Currently, the GOB sets and subsidizes retail prices for the four major fertilizer products. For urea, the fixed retail price across Bangladesh was Tk 20/kg during 2011 to August 2013. During much of this period, the exchange rate was near \$1 = Tk 80, so that farmers paid approximately \$250/MT for urea.

⁹⁹ Roy RN, Farid ATM. 2011. Bangladesh. In: Case Studies on Policies and Strategies for Sustainable Soil Fertility and Fertilizer Management in South Asia. Rome: FAO; Barkat A, Faridi R, Wadood SN, Sengupta SK, Hoque SNME. 2010. A quantitative analysis of fertilizer demand and subsidy policy in Bangladesh. Dhaka: Manob Sakti Unnayan Kendro.

¹⁰⁰ Barkat A, Faridi R, Wadood SN, Sengupta SK, Hoque SNME. 2010. A quantitative analysis of fertilizer demand and subsidy policy in Bangladesh. Dhaka: Manob Sakti Unnayan Kendro.

¹⁰¹ GOB. 1999. Fertilizer (Control) Order, 1999. Available at: http://www.moa.gov.bd/ordinance_act/Fertilizer_Acts.pdf.

¹⁰² USAID EAT Project, Agribusiness Regulation and Institutions (AGRI) Index. Pilot Report. 2013.

TABLE 13: PRICES FOR SUBSIDIZED FERTILIZER IN BANGLADESH, 2013

| PRODUCT | TAKA/MT | TAKA/50KG BAG | DEALER PRICE | FARMER PRICE TAKA/KG |
|-------------------|---------|---------------|--------------|----------------------|
| Urea/factory | 14,000 | 700 | 14 | 16 |
| Urea/buffer stock | 14,700 | 735 | 14.7 | 16 |
| TSP | 20,000 | 1,000 | 20 | 22 |
| DAP | 25,000 | 1,250 | 25 | 27 |
| MOP | 13,000 | 650 | 13 | 15 |

The subsidy behind this price, which varied depending on the world price of urea, averaged about \$260/MT in 2012-13.¹⁰³ As of August 25, 2013, by comparison, farmers are paying approximately \$200/MT. Table 13 reflects the new price of subsidized fertilizer across Bangladesh.

IMPLEMENTING INSTITUTIONS

The **Department of Agricultural Extension (DAE)**, under the MoA, registers importers, manufacturers and traders at all levels; the DAE also registers fertilizer products. For the four major fertilizer products in Bangladesh (UREA, TSP, DAP and MOP), the DAE controls internal trade at all levels. Tightly controlled by DAE, private traders support retail trade of these four major products. The DAE appoints one dealer per union (Bangladesh has about 4,500 unions) and also sub-dealers (roughly allotted according to about nine wards per union).¹⁰⁴ The dealer for a union must get permission from an upazila committee chaired by a DAE officer each time he or she wants to take fertilizers from a BCIC factory or specific warehouse. Each permission granted states how much can be received at that time.

Dealers then buy fertilizers at set subsidized prices and sell them at slightly higher set subsidized prices which are the same across Bangladesh. Obviously, a more streamlined process would facilitate efficient trade.

The method for paying subsidies is complicated and bureaucratic... the entire process involves 15 distinct and time-consuming steps.

Besides registering all fertilizer products, importers, manufacturers and traders, the DAE is responsible for all public agricultural education. The DAE has over 27,000 employees, but it is challenged to reach out to over 30 million farmers. Even so, the DAE recognizes the need to promote and better educate farmers on the use of soil testing and crop stubble management, as well as systems for producing high yielding, profitable crops. Unfortunately, the DAE is understaffed and undertrained for the mission.

Several recent reports describe problems with fertilizer quality.¹⁰⁵ Although it does not operate laboratories, the DAE is responsible for collecting fertilizer samples and monitoring quality control. Because the MoA is responsible for the four major fertilizers up to the point where they are delivered to appointed retail dealers, any problems with fertilizer quality become the responsibility of the MoA. Quality control issues have also been reported with secondary and minor fertilizers that are handled by the private sector from import through retail sales, particularly for zinc sulphate from China.

The method for paying subsidies is complicated and bureaucratic, involving a variety of different committees, e.g. the information cell, storage enquiry subcommittee, price fixing subcommittee, price fixing and monitoring committee and the steering committee under which prices are eventually decided.¹⁰⁶ The entire process involves 15 distinct and time-consuming steps. Although the intent of the subsidy payment process is to make sure that only high-quality fertilizer products are purchased and delivered to farmers, it presents a significant trade barrier to providing fertilizer in a timely and affordable fashion.

The private sector firmly believes that the subsidy process needs to be revised and made more efficient. As private sector participation gradually decreases, there is a danger that the private traders will lose interest in importing fertilizer because of the bureaucratic process associated with it. The responsibility will then fall back on the GOB.

SUPPORTING INSTITUTIONS

The **Bangladesh Chemicals Industry Corporation (BCIC)**, a parastatal, produces about half of all chemical fertilizers used in Bangladesh. BCIC has six factories producing urea from Bangladesh's natural gas and two factories producing phosphate fertilizers from imported materials. In recent years, insufficient gas for urea production has been a periodic problem for BCIC plants, thus restricting production and requiring additional urea to be imported. BCIC manages 29 buffer stock go-downs to assist with timely in-season demand.

Interestingly, despite increasing crop yields and adequate fertilizer supplies in the system, BCIC's urea distribution fell more than 20% from 2.82 million MT in 2009-10 to 2.42 million MT in 2012-13. Most likely, because the subsidized price of urea in India has been lower than in Bangladesh, some of the

¹⁰³ Gisselquist D. 2013. Mid-term performance evaluation [for the Accelerated Agricultural Productivity Improvement project, Cooperative Agreement Number AID 388-A-10-00002]. Muscle Shoals: IFDC. Unpublished.

¹⁰⁴ Jaim WMH and Akter S. 2012. Seed, Fertilizer and Innovation in Bangladesh: Industry and Policy Issues for the Future. Washington, DC: IFPRI.

¹⁰⁵ Roy RN, Farid ATM. 2011. Bangladesh. In: Case Studies on Policies and Strategies for Sustainable Soil Fertility and Fertilizer Management in South Asia. Rome: FAO.

¹⁰⁶ Roy RN, Farid ATM. 2011. Bangladesh. In: Case Studies on Policies and Strategies for Sustainable Soil Fertility and Fertilizer Management in South Asia. Rome: FAO.

400,000 MT shortfall in BCIC's urea distribution may have been balanced by illegal trade from India. Similarly, because the GOI subsidizes sulfur fertilizers whereas the GOB does not, there are potential opportunities for illegal ammonium sulfate trade across the border which would provide some of the nitrogen replacement. Another contributor to reduced urea use is the gradual increase of DAP in many farming systems. This positive trend shows a more balanced crop nutrient approach.

One company with international and GOB ownership, KAFCO, produces urea from natural gas. KAFCO has produced as much as 680,000 MT/year.¹⁰⁷ The GOB allows KAFCO to sell urea as it wishes to the world market. When BCIC buys urea from KAFCO, KAFCO receives a price based on prices in international trade.

About 50 small companies produce zinc sulfate from imported materials. Bangladesh has about 140 private fertilizer importers. Taking subsidies from the GOB, private traders import most of the DAP and TSP used in Bangladesh. The DAE calculates and pays the difference between the importer's cost and the government's fixed wholesale price the importer receives when he/she sells the fertilizer into specified warehouses or

upazila dealers. Private traders, on their own accounts, import minor amounts of fertilizers, mostly secondary and micronutrients. India is the source for private imports of gypsum and single super phosphate.¹⁰⁸

The **Bangladesh Agricultural Development Corporation (BADC)** imports some of the TSP and DAP, and the all of the MOP used in Bangladesh. Private traders are concerned that the GOB totally excludes them from importing MOP; they see it as one more step toward excluding the private sector from importing any fertilizer:

Presently, the GOB sets allocations for importing fertilizers and allows the BADC, BCIC and the private traders to take quotas against the allocation. Traders can make a profit with the current system, importing fertilizers against government orders for delivery to approved dealers at subsidized prices. Furthermore, traders are paid for 120 days interest (14-16%) on operating loans, with the government paying subsidies against dealers' reported costs.

Table 14 shows the demand, production and imports for fertilizer in Bangladesh in 2013-14.

¹⁰⁷ Roy RN, Farid ATM. 2011. Bangladesh. In: Case Studies on Policies and Strategies for Sustainable Soil Fertility and Fertilizer Management in South Asia. Rome: FAO.

¹⁰⁸ Barkat A, Faridi R, Wadood SN, Sengupta SK, Hoque SNME. 2010. A quantitative analysis of fertilizer demand and subsidy policy in Bangladesh. Dhaka: Manob Sakti Unnayan Kendro.

TABLE 14: DEMAND, PRODUCTION AND IMPORTS FOR FERTILIZER, 2013-14. ('000S MT)

| FERTILIZER | DEMAND | OPENING STOCK | BCIC PRODUCTION | IMPORT BADC | IMPORT PRIVATE SECTOR | IMPORT BCIC |
|------------|--------|---------------|-----------------|-------------|-----------------------|-------------|
| TSP | 675 | 135 | 60 | 225 | 255 | 0 |
| DAP | 650 | 100 | 50 | 100 | 400 | 0 |
| MOP | 800 | 350 | 0 | 450 | 0 | 0 |
| Urea | 2,450 | 550 | 1,000 | 100 | 0 | 13,500 |

Source: BADC

Private importers and traders at all levels are organized in the **Bangladesh Fertilizers Association (BFA)**, a trade association. The organization's objective is to develop, support and promote all measures and steps toward an open and free competitive market. BFA focuses on trade and manufacture of all fertilizers and plant nutrients. BFA has about 7,000 members. The organization's overall purpose is to bring together and to represent all sectors of fertilizer trade including distributors, merchants, importers and exporters, supply agencies and manufacturers.¹⁰⁹

The BFA is represented in numerous government committees related to policy making and other agricultural activities. In fact, the GOB has made BFA membership compulsory for fertilizer manufacturers, importers and dealers for better monitoring of their performance. The organization has participated internationally on FAO projects and collaborated with IPNI on high yield crop nutrient research. For example, a new research project entitled "Maximizing Crop Production through Potassium Management" is a joint project between BARI, IPNI and BFA. The BFA also publishes a professional research journal entitled "Bangladesh Journal of Agriculture and Environment" on a semi-annual basis.

Demonstrating strong leadership, the BFA continues with a tradition of promoting appropriate fertilizer use and advocacy with the GOB. Producers, who are in great need of plant nutrient extension education, would benefit if the BFA played a more active role in this area. During the team's research, interviewees noted that because soil testing is so important to proper crop nutrition the GOB needs to consider strong incentives for farmers to test their soil before planting a crop. For government mandated or incentivized soil testing to become a reality, it must be made much more available and heavily promoted to farmers.

The **Bangladesh Agricultural Research Council (BARC)** was established in 1973 under the MoA. Its mission is to strengthen and mobilize research capabilities of the institutes of the **National Agricultural Research System (NARS)**, universities, private sectors and other stakeholders in partnerships which generate appropriate technologies and information for the development of the agricultural sector. There are 12 active institutes under the NARS.

The largest of the institutes which directly impacts fertilizer use and crop nutrient management is the **Bangladesh Agricultural Research Institute (BARI)**. It is mandated to carry out research on a wide variety of crops. BARI is organized into three sections: Research, Support Services and Training and Communications. The BARI headquarters are hosted on 176 ha of land, of which 126 ha are experimental fields. In addition, BARI has six regional stations and 28 substations.

The **Bangladesh Sugarcane Research Institute** conducts research to develop high yielding, high sugar and disease- and pest-resistant sugarcane varieties. Being a high yielding, crop nutrient demanding crop, sugarcane research must especially focus on crop nutrient management and fertilizer use.

Since rice is such an important crop for food security, the **Bangladesh Rice Research Institute (BRRI)** research is critical for the sustainability of rice ecosystems. Although the improved varieties (old, stable varieties) and crop management systems demonstrated by BRRI are better than most farmers' systems, the BRRI must continue focusing on high yielding, more profitable production systems. The BRRI has a tendency to focus on cost and average yields, rather than overall profitability. The team found that the public sector in Bangladesh holds a general belief that farmers can't afford high yielding systems. Yet, in reality, numerous interviews indicated that the most profitable farmers produce twice the average yield. Focusing on average yields in research and extension creates a glass ceiling for improving crop production, ultimately putting food security at risk.

The **Accelerating Agriculture Productivity Improvement (AAPI)** project is a priority agriculture sector project of the USAID FTF program and the International Fertilizer Development Center (IFDC) in Bangladesh. The project is designed to strengthen and reorient agricultural production systems in Bangladesh. The overall goal is to improve food security and accelerate income growth in rural areas by increasing agricultural productivity on a sustainable basis.

The AAPI project supports the MoA in accelerating the use of fertilizer deep placement (FDP) technology. In recent years there has been a significant increase in use of FDP throughout the rice growing areas. In fact, the USAID Administrator Rajiv Shah stated at the 2012 World Food Conference that "the deep placement of urea briquettes has helped transform

¹⁰⁹ Bangladesh Fertilizer Association (BFA). 2013. Bangladesh Fertilizer Association at a glance. Available at: <http://www.bfa-fertilizer.org/AtAGlance.html>

627,000 ha of land...leading to the first-ever rice surplus in Bangladesh's poorest state, home to more than 2.2 million people." Although FDP technology has been shown to increase yields and reduce the use of urea through improved efficiency (thus improving profitability), implementation of the technology has slowed due to challenges in precise placement of the briquettes in the field. New applicators are still under evaluation. Additional field research should focus on maximizing yields through better balanced crop nutrition, improved varieties and improved water management, as well as nutrient efficiency.

Established in 2009, the **Cereal Systems Initiative for South Asia (CSISA)** which includes Nepal, Bangladesh and India, supports regional and national efforts on improving cereal production. This broad-based initiative involves more than 300 public and private sector partners. Although the main focus of CSISA is improving crop varieties and dissemination of improved cropping systems, a research commitment to the role of crop nutrients in high yield production could provide a platform for a regional dialogue on the role of fertilizer.

Another important institute under the BARC is the **Soil Resource Development Institute (SRDI)**. The primary role of SRDI is to run the national soil testing program and develop the Fertilizer Recommendation Guide for BARC and other stakeholders. The challenge is to provide scientific, timely information to over 15 million farmers. To that end, USAID recently provided financial support (\$687,000) for the development and implementation of a project entitled "Online Fertilizer Recommendations, and Automation of Data Processing and Data Updating."

Across Bangladesh, the SRDI has 16 permanent soil testing laboratories and 12 mobile soil testing units. The SRDI processes about 10,000 farmer soil samples per year and trains another 20,000 farmers per year on the value of soil testing and the proper collection of samples. Also, at five of the permanent laboratory facilities, the SRDI analyzes approximately 5,000 fertilizer samples per year for the DAE.

In recent years, Bangladeshi farmers have been using approximately 4 million MT per year of chemical fertilizers on 8 million hectares¹¹⁰ of cropped area (about 500 kg/ha). However, with a cropping intensity of around 1.90 crops/ha/year, the use per hectare of gross cropped area is roughly half that amount, or 4 million hectares. The **International Food Policy Research**

Institute (IFPRI) in Bangladesh recognizes the important role of balanced fertility programs, improved varieties and irrigation in managing intensified agriculture and multi-cropping systems on a limited land base. IFPRI also supports crop diversification whereby fruit and vegetable crops, such as onions, can enhance food security.

A recent USAID program in Bangladesh is the **Agro-Inputs Project (AIP)**. The focus of this project is to improve the availability and use of quality agricultural inputs by farmers in southern Bangladesh. This five-year project is funded by USAID as part of the FTF initiative and is being implemented by CNFA, a Washington, D.C. international development organization. Concerning fertilizer distribution, the AIP and other projects should consider quality issues for both the supply and demand side of fertilizer at the farmer level.

SOCIAL DYNAMICS

Intensive farming practices and depletion of organic residues has led to high levels of soil depletion across agricultural lands of Bangladesh. While the challenge differs across different parts of the country, phosphorus, sulphur and organic matter deficiency is reported to be severely limiting crop production. Approximately 1.8 million, 0.4 million and 1 million hectares of land are severely deficient in phosphorus, potassium and sulphur, respectively.¹¹¹ It is widely understood amongst researchers and industry in Bangladesh that if this problem is not addressed, the soil will not be able to sustain the remarkable gains in agricultural productivity gained in the recent past.

Input-output measures reflect a large net removal of nutrients from Bangladeshi soil, with organic matter content declining between 20-46% over the last twenty years.¹¹² This is a serious threat to the sustainability of agricultural productivity. Other threats to increasing or even maintaining productivity are the salinity and acidity of the country's soils. Soil salinity is increasingly found in low-lying coastal areas and inland areas where irrigation is prevalent. Acid soils are a growing problem, particularly in the northern regions. Since Bangladesh apparently has no mineable limestone deposits, agricultural dolomite lime is imported from Bhutan to address this acidity. If Nepal would develop its agricultural liming industry, it could export it to both India and Bangladesh, thus increasing regional trade, as well as supporting sustainable agriculture at home and across South Asia.

¹¹⁰ Ministry of Agriculture. (MoA) 2013. Urea price reduction. Available at: <http://www.moa.gov.bd/>.

¹¹¹ FAO. "Case studies on policies and strategies for sustainable soil fertility and fertilizer management in South Asia. 2011.

¹¹² Hossain, Zahid. "Farmer's view on soil organic matter depletion and its management in Bangladesh". Nutrient Cycling in Agro-ecosystems. 2001.

Although Bangladesh has natural gas that can be used as a raw material in the production of urea, demands for gas from other sectors of the economy limit what is available to produce fertilizer.¹¹³ From April-June 2013, for example, the KAFCO plant was forced to shut down due to lack of gas.¹¹⁴ GOB subsidies have tended to support fertilizer products that were historically important, rather than support fertilizers that balance fertilization practices and increase yields. This tendency has tilted fertilizer consumption towards the use of nitrogen, increasing demand for natural gas as a result, and creating additional supply imbalance in this critical market. Motivated by spiking world fertilizer prices in 2007-08, the GOB urged farmers to shift from broadcasting small granules of urea on wet or flooded rice fields to placing 1 cm diameter urea briquettes (known as Goti) into the soil between rice plants; under conditions common in rice fields, “urea deep placement” cuts nitrogen losses and doubles plant uptake of applied nitrogen.¹¹⁵

Besides the difficult, bureaucratic process for importing and distributing fertilizer in Bangladesh, the distribution of fertilizer is challenging. Most imported product is offloaded from larger vessels at the ports to smaller 500 – 2000 MT vessels and transported up river 300-400 km to secondary storage (in the form of go-downs or bulk outside storage). From inland go-downs, the fertilizer is either trucked to retailers or moved farther up river on small river vessels. Due to a heavy silting load in the upper reaches of many Bangladesh’s rivers, the result of erosion problems in India, distribution by the river systems tends to be limited.

¹¹³ Roy RN, Farid ATM. 2011. Bangladesh. In: Case Studies on Policies and Strategies for Sustainable Soil Fertility and Fertilizer Management in South Asia. Rome: FAO.

¹¹⁴ Dastider P. Gas supply suspended: KAFCO halts urea production for 2 months. The Financial Times, 6 June 2013. Available at: <http://www.thefinancialexpress-bd.com/index.php?ref=MjBfMDZfMDZfMTNfMV84OV8xNzE4NTk=>.

¹¹⁵ Gisselquist D. 2013. Mid-term performance evaluation [for the Accelerated Agricultural Productivity Improvement project, Cooperative Agreement Number AID 388-A-10-00002]. Muscle Shoals: IFDC. Unpublished.

ANNEX 4: TRADE IN GRAINS – BANGLADESH

INTRODUCTION

India's decision to ban the export of ordinary rice in October of 2007 added fuel to an already growing fire in the Bangladeshi rice market. Despite a declining dependence on imports of rice, Bangladeshi markets were substantially disrupted during the 2007-08 food price crisis. Contrary to the common narrative of India's export ban driving this disruption, recent analyses reveal a more complicated story of the rising grain costs across Bangladeshi markets in 2007-08. These factors included increased demand from strong GDP growth and rising remittances, two natural disasters (a flood and a cyclone), market expectations, the April 2007 increase in the local cost of petroleum and, of course, the export ban on Indian rice, cutting Bangladesh off from years of subsidized Indian product.¹¹⁶



Commentators familiar with the histories of Bangladesh and Nepal draw a stark comparison; while Bangladesh has made great strides in enabling the growth of agricultural activity, Nepal has not. Not surprisingly, the benefits of internal and external liberalization have been far greater in Bangladesh. In addition to creating a policy environment that supports improved access to knowledge, technology and finance, Bangladesh has achieved greater integration of markets through enhanced physical infrastructure leading to substantial improvements in the country's food security.

The nature of Bangladeshi trade in staple grains has fundamentally changed in recent years. No longer bound by a restrictive trade environment or limited to government activity, the private trade in grains, especially rice, has fundamentally changed from the farm to fork in Bangladesh. Yields of rice, wheat and maize have increased by 155%, 141% and 658%, respectively, between 1993 and 2011.¹¹⁷ Bangladesh is the fourth-largest producer of

rice in the world after China, India and Indonesia; of these, it's the only country not yet self-sufficient in rice production. Bangladesh is nearing self-sufficiency in rice; although relatively large volumes have been imported over the last five years, domestic production has substantially limited imports in recent years compared to historical averages.

TRADE IN GRAINS, A SNAPSHOT

Bangladesh, substantially more able to feed its own population than it was only two decades ago, still imports substantial quantities of its annual grain requirements. Rice imports over the last five years averaged nearly 800,000 MT¹¹⁸ and wheat imports averaged approximately 2.7 million MT, while maize imports averaged some 340,000 MT/year.¹¹⁹ With India playing a dominant role in the supply of Bangladeshi grain, policy shifts, even short-term in nature, tend to have a significant impact on large numbers of Bangladeshis. Political parties in Bangladesh are, therefore, very sensitive to the policy decisions originating in India.

¹¹⁶ Raihan, Selim and Towfiqul Islam Khan Impact of Indian Policies on Rice Price in Bangladesh" CPD-CMI Working Paper 4.Dhaka. 2013.

¹¹⁷ FAOSTAT

¹¹⁸ Note that there is a fairly wide variation of import/export figures depending on sources used. UN COMTRADE is used for this report to be consistent across years and across countries.

¹¹⁹ UN COMTRADE

Bangladesh has always been a net importer of rice, the most important staple across the country. With increased production, however, imports of rice have decreased dramatically over the last ten years. By 2013, 85% of the rice imports were limited to high quality Basmati or equivalent varieties.¹²⁰ An estimated 56% of the rice imported over the last five years originated in India.¹²¹ While India is the historical supplier of first resort for Bangladeshi rice importers, the 2007 Indian export ban compelled the country to establish other supply channels, including Vietnam and Thailand. The move to alternative suppliers of rice had important implications for the price of rice paid by Bangladeshi consumers. A recent analysis of Bangladeshi rice imports shows that Bangladesh had been relying on imports of subsidized Indian “Below Poverty Line” (BPL) rice between 2002–07. When India blocked exports of rice in 2007, access to this BPL rice ended, drastically increasing the price paid in Bangladeshi markets. While wholesale rice prices rose rapidly in Bangladesh (see Figure 6), they fell far short of import parity with rice from Thailand, an indicator of continued rice flows across a relatively porous border.¹²²

¹²⁰ USDA GAIN Grain and Feed Annual Report, 2013.

¹²¹ Chowdhury, Nuimuddin. “Price Stabilization, Market Integration and Consumer Welfare in Bangladesh.” Bangladesh Rice Foundation. 2010.

¹²² Paul Dorosh and Shahidur Rashid. “Trade subsidies, export bans and price stabilization: Lessons of Bangladesh–India rice trade in the 2000s.” Food Policy 41 (2013) 103–111.

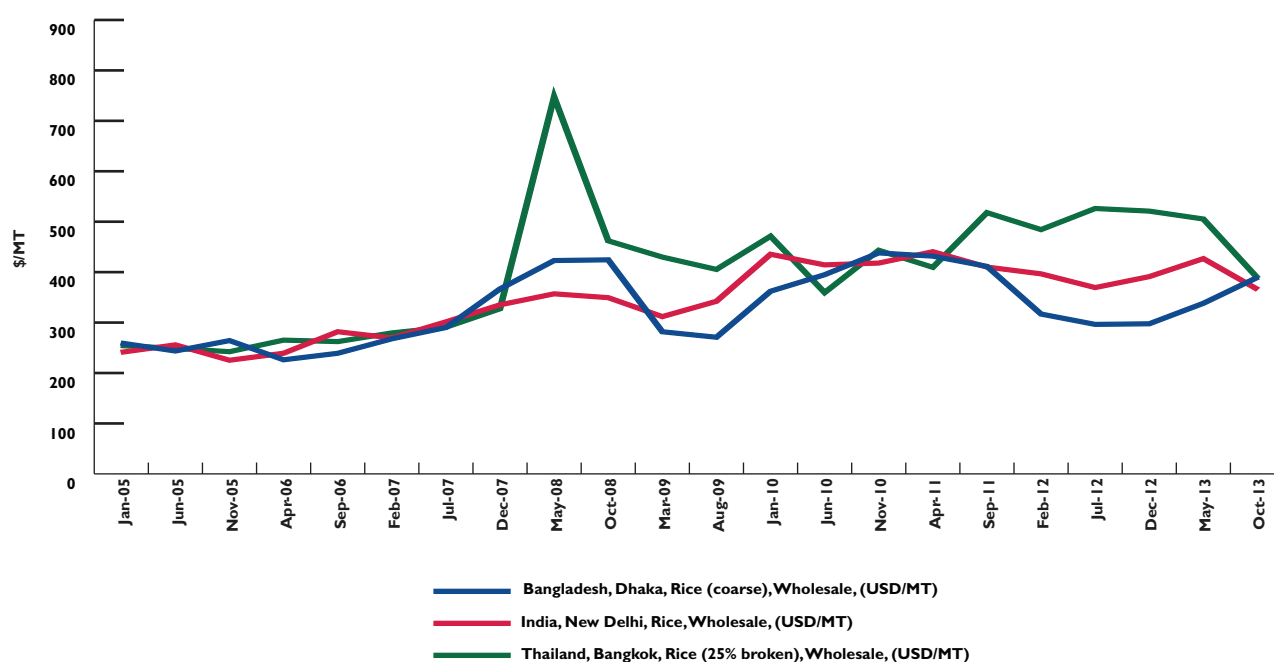
The majority of wheat consumed in Bangladesh is imported from abroad. Lower quality wheat for chapatti and roti tends to come from India and to a lesser extent Russia and Ukraine. Higher quality wheat tends to come from Australia and Canada.¹²³ Approximately three quarters of the wheat imported during the 2013 market year was sourced in India.¹²⁴ Despite increased demand for wheat, due to increased urbanization, farmers are moving towards more profitable maize production for animal and fish feed. Food aid, historically a large part of Bangladesh’s wheat supply, is now imported in lower volumes mostly to supply the Public Foodgrain Distribution System (PFDS).

Maize constitutes approximately 50% of poultry feed, according to local millers, with much of it coming from India. In recent years demand for maize has grown for poultry and aquaculture feed, leading to a general trend of increasing prices. Despite a doubling of local maize production in the last five years, and continued strong import flows, interviewees reported illegal exports to Nepal and India where prices for maize are higher than domestic prices in Bangladesh. With a poultry sector weakened by bird flu and increasing prices of maize across the region, producers are likely to continue

¹²³ USDA GAIN Grain and Feed Annual Report, 2013.

¹²⁴ USDA GAIN Grain and Feed Annual Report, 2013.

FIGURE 6: COMPARISON OF BANGLADESH AND WORLD RICE PRICES



Source: <http://www.fao.org/giews/pricetool/>

moving from wheat to maize while aquaculture and poultry operations continue to struggle due to high input costs. As farmers adopted private maize hybrids, annual maize production expanded from less than 3,500 MT through 1991-92 to 120,000 MT in 1999-2000 and 2.36 million MT in 2007-08. By coincidence, record maize production in 2007-08 coincided with an epidemic of bird flu, which cut domestic demand for maize. Traders began to export maize to India at circa Tk 22/kg (\$310/MT). However, the government almost immediately blocked exports to reduce the cost of feed to chicken farms; this drove maize prices as low as Tk 8/kg (\$110/MT).

LEGAL FRAMEWORK

The Control of Essential Commodities Act (1956) and The Essential Commodities Act (1957) together define food as an essential commodity and provide a legal basis for the GOB to intervene at all points in the supply chain, including production, price, storage, transport, procurement and distribution.

Other relevant legislation and policy concerning trade in agricultural commodities includes **The National Agriculture Policy (1999), Plan of Action for the National Agriculture Policy (2003), National Food Policy (2006), National Food Policy Plan of Action (2008-15), Bangladesh Accreditation Act (2006), Fish Feed and Animal Feed Act (2010), Public Procurement Act (2006) and Public Procurement Regulations (2008)** and the **Bangladesh Standards and Testing Institution Ordinance (2003)**. The draft **National Agriculture Policy 2013** was approved by cabinet in June 2013, but not yet available in English for this team to review as of October 2013.

Together, these laws, regulations, plans of action and policies emanating out of historical periods of food crisis constitute a web of rules that individuals and companies within the agricultural sector must learn to navigate.

Together, these laws, regulations, plans of action and policies emanating out of historical periods of food crisis constitute a web of rules that individuals and companies within the agricultural sector must learn to navigate. Companies and government representatives, not surprisingly, noted wide-ranging compliance burdens, overlapping Ministry level mandates, and challenges with coordination related to key government services and enforcement functions. Somewhat discouragingly, interviewees noted limited analytical background as a cross-cutting theme across many of these policy instruments.

Of particular note is the **National Food Policy, 2006**. The Policy builds upon the National Food Policy of 1988, the goal of which was to ensure food security for all people by increasing food production and attaining self-sufficiency.¹²⁵ The 2006 Policy builds upon these elements of food security to add greater emphasis to the inter-relationships between availability, access and utilization. The Policy is broken down into three objectives: 1) Objective 1 (food availability and supply stability); 2) Objective 2 (physical, social and economic access to food); and 3) Objective 3 (nutrition/utilization of food). The contents of this report relate to two points under Objective 1: 1) efficient food markets; and 2) non-distortionary foodgrain market intervention for price stabilization.

While the proliferation of policy instruments is considered a burden by some in the private sector, pricing, marketing and import/export policies tend to operate in a liberal policy space. The principle exceptions to this statement are the export ban on rice (excluding high-value rice) and the minimum export price set for maize. While the minimum export price for maize is having the intended effect of being a boon to the poultry sector, the rice ban was described by interviewees as being “on paper only.” A government official interviewed for this report confirmed that Customs agents do not enforce the current rice export ban and that minimal amounts of rice are exported to Bangladeshis living abroad.

¹²⁵ National Food Policy Plan of Action 2008-2015.

COMMODITY PROCUREMENT AND DISTRIBUTION

The overriding objectives behind the PFDS are feeding priority channels, price stabilization, poverty reduction and maintaining security stocks.¹²⁶ Public procurement of grains (domestic and international) has been on the decline in Bangladesh; from the 1980s to the late 2000s, public distribution of the marketed food grain supply decreased from 13% to 4.3%.¹²⁷ There appears to be a growing consensus that public distribution of food is far more equitable now than it was in the early 1990s, and far more concentrated on the task of benefitting the poor.

Food stock policies have been the source of much debate within Bangladesh since the 2007-08 food price crisis. The question of optimizing the size of the government's stock and the timing/extent of stock release are unresolved questions amongst local and international policy experts. The high cost of grain storage infrastructure and stock management¹²⁸ are being weighed against the benefits of insulation from spikes in international prices and the uncertainties of trade in food grains post-food price crisis. A recent IFPRI analysis presents a compelling case for a relatively minimalist government grain reserve strategy, promotion of private sector trade, monitoring of grain markets and significant planning: the authors' model suggests that an additional 300,000 MT (on top of the approximately 700,000 MT that was distributed by the government) would have been sufficient to stabilize prices during the most volatile period of the food price crisis, resulting in a real price increase of no more than 10%.¹²⁹ Government storage capacity (suitable for grain storage) is currently estimated at 1.8 million MT—which is more than the government's stated target of 1.5 million MT in public grain stocks, and substantially more than what other analysts consider necessary to respond appropriately to a food price crisis similar in magnitude to 2007-08.

Interviewees familiar with international norms noted that Bangladeshi standards tend not to align well with those of neighboring countries, making arm's-length trade a risky venture for private sector players.

GRADES AND STANDARDS

Most modern grades and standards systems rely on a mix of voluntary and mandatory standards to achieve public objectives. In Bangladesh, the Standards Law focuses principally on mandatory standards (or technical regulations as they are more widely known), neglecting the importance of voluntary standards. Moreover, there doesn't seem to be any guiding framework within the government on whether a standard should be mandatory or voluntary. Interviewees noted an arbitrary process of developing grades and standards, often lacking industry input and/or a direct connection to the policy concern that the government is trying to regulate in the first place. Trade standards (e.g., grades), which tend to be voluntary in most countries, are often conflated with health and safety standards, which tend to be mandatory in most countries. Interviewees familiar with international norms noted that Bangladeshi standards tend not to align well with those of neighboring countries, making arm's-length trade a risky venture for private sector players.

Interviewees noted that the BSTI grades and standards that do exist for rice and paddy are not widely known or used in the market due to a lack of common understanding between producers, traders, millers and the government. Interviewees noted that most rice is traded based on an informal understanding of what constitutes quality without confirmation through technical analysis to confirm that understanding. The absence of widely used paddy and rice grades and/or standards continues to result in millers procuring material of low quality and generally results in a non-uniform supply in the market, reducing the opportunities for international trade. More than one interviewee noted that Bangladeshi food policy has historically tended to focus on food security because of the country's experience with famine, leaving food-related trade policy and food safety priorities as tasks "to take on another day."

Wheat tends to be more widely segmented by grade, owing to the large imports of the product (mostly by the government). Unfortunately, the wheat grade specified in government procurement documents is reportedly well out of date, and generally specifies what would now be considered feed grain, which is not permitted in Bangladesh according to one source interviewed for this report.

In July of 2013 the cabinet approved a new draft Food Law. The law envisions the creation of a unified food authority under the Bangladesh Food Safety Authority and national Pure Food Management Advisory Council, with mixed representation from public and private representatives. Under these new

¹²⁶ Chowdhury, Nuimuddin, et al. "Food Policy Liberalization in Bangladesh: How the Government and Markets Delivered." IFPRI. 2006.

¹²⁷ Chowdhury, Nuimuddin. "Price Stabilization, Market Integration and Consumer Welfare in Bangladesh." Bangladesh Rice Foundation. 2010.

¹²⁸ For example, Dorosh and Rashid, in a recent IFPRI publication, estimate that the Public Food Distribution System food subsidy bill increased from \$174 million in 2001-2002 to \$437 million in 2009-2010 due the increase in public stock.

¹²⁹ Dorosh, Paul., and Shahidur Rashid. "Trade subsidies, export bans and price stabilization: Lessons of Bangladesh-India rice trade in the 2000s". IFPRI. 2013.

bodies will be formed specific “food courts” to tackle the widespread problem of food adulteration. The new law is not expected to have a significant impact on trade in grains.

Authorities require large consignments to be split into two vessels: one going to Mongla port, and the other going to the principal port of Chittagong. As one interviewee put it, without the law no one would use Mongla. Interviewees noted that this rule adds about \$3-4/MT to the cost of imported grain. People familiar with importing grain through Mongla note that it continues to be a second-best option to using Chittagong because silos are not yet completed, making offloading cumbersome and time consuming. Upon arrival at Chittagong or Mongla, grain must be certified fit for human consumption, a process that takes at least two days and requires “facilitation payments” to get through in a reasonable amount of time. Interviewees noted that the Chittagong lab is not yet capable of measuring protein content in the grain; note that protein content measurements are an essential part of the international wheat trade.

IMPLEMENTING INSTITUTIONS

Food policy and planning in Bangladesh is coordinated at the Cabinet level by the **Food Planning and Monitoring Committee**, at the inter-ministerial level by the **Food Policy Working Group** and within the **Ministry of Food** by the **Food Planning and Monitoring Unit** (FPMU). The **Directorate General of Food** (DGF), also under the Ministry of Food and Disaster Management MoFDM, is responsible for the country’s food reserves through local procurement of rice and import of wheat. As noted in the section above, interviews for this rapid assessment reflected a policy making process and policy implementation process that are challenged by overlapping institutional mandates and unclear responsibilities.

Poor data and an absence of analytical capacity within ministries continues to reverberate throughout government policy making. For example, despite long-term donor involvement in food and agriculture data and planning, the GOB’s data on cereals production has become increasingly inconsistent with data on consumption; in 2007-08 reported food grain availability exceeded consumption by more than 5 million MT,¹³⁰ equivalent to more than 20% of estimated consumption. Reconciliation of these important time series requires significantly scaling down production estimates or boosting consumption

estimates or both. In addition to poor production data, there seems to be a consensus that other necessary data for policy making is often unavailable or subject to doubt.

PUBLIC PROCUREMENT AND DISTRIBUTION OF FOOD

The DGF procures rice from mills and wheat from traders at national procurement prices fixed by the government each season. Public procurement of rice ranges from 1 million to 1.5 million MT annually, or 3-5% of total production. By comparison, Indian government agencies procure about one-third of all rice production, and Thailand’s government procures almost two-thirds of annual rice production to support farmer incomes.¹³¹ Because of the modest volumes procured, public procurement of rice has little impact on domestic prices. The DGF discharges cereals—mostly from procurement with some from food aid—to safety-net and other distribution programs and through open market sales. Over the last four years, the GOB has constructed 400,000 MT of grain storage and expects to build an additional 1 million MT with World Bank funds beginning in 2014. Government officials interviewed for this report were unable to explain how an additional 1 million MT of storage was decided upon, in line with the general theme that policy decisions still lack meaningful analysis.

FOOD INSPECTION AND CONTROL

Approximately 80% of food and agriculture imports enter Bangladesh through the Chittagong seaport and Benapole land port.¹³² Sanitary and phytosanitary issues pertaining to grain are managed by the Ministries of Agriculture and Livestock. Food safety standards are set by BSTI, which uses Codex Alimentarius standards as a reference point.

BSTI is charged with the regulation and implementation of mandatory food standards. Fifteen ministries are responsible for managing the food safety system, with ten of these directly responsible for food inspection and enforcement. Private and public stakeholders reported a lack of coordination and uncertainty of roles and responsibilities attributable to the web of laws, regulations and rules associated with each activity. While national coordination for food safety and food control falls to the National Food Safety Advisory Council, Customs is responsible for border food inspection. Interviewees noted that all food imports are inspected and that these inspections do not seem to follow any particular procedure or practice.

¹³⁰ Pullabhotla, Hemant and A. Ganesh-Kumar Review of Input and Output Policies for Cereal production in Bangladesh”. IFPRI. 2012. Figure 2.4.

¹³¹ www.davidmckee.org

¹³² FAO Food Inspection and Enforcement in Bangladesh: Current Arrangements and Challenges” 2010.

GRADES AND STANDARDS

BSTI is responsible for standardization, quality, certification, technical regulation and metrology in Bangladesh. BSTI is responsible for the implementation of mandatory standards, the Pure Food Rules and import consignment approval for 39 items. BSTI plays a lead role in the formulation and adoption of mandatory standards while also accruing the financial benefits from testing, inspection and certification against these mandatory standards. This is inconsistent with international best practice separating regulatory authority from testing, inspection and certification.¹³³ Interviewees noted a general lack of concern for standards, and noted that officials consistently viewed standards as something needing to be mandatory and driven by the State (i.e. technical regulation) as opposed to industry driven or voluntary standards popular internationally. Owing to the low capacity of BSTI, reports indicate that India still does not accept BSTI certification, slowing down and raising the costs for Bangladeshi exports to India. Interviewees across the country noted that there tends to be substantial quality and quantity discrepancies with product coming from India. While the product tends to be inspected by a private operator (e.g., SGS), Bangladeshi importers widely criticized the quality of their inspections, suggesting that Bangladesh and India need to jointly invest in a grain inspection service with quality standards similar to the American Federal Grain Inspection Service (FGIS). Bangladesh's private sector needs help standardizing rice in order to compete with Vietnam and Thailand.

SUPPORTING INSTITUTIONS

Increase in rice output over the last twenty years has dramatically changed food security dynamics within Bangladesh, and to some degree, the trade patterns regionally. A number of crucial variables have led to the increase in output, including: expansion of irrigation, adoption of high-yielding varieties and growth in use of fertilizers, pesticides and farm machinery. With Bangladesh moving closer to full self-sufficiency in rice production and yields increasing at 3% annually, producing some 45 million MT per year, and rice consumption expected to level off in the near future, Bangladesh is well positioned to be an exporter of some significance assuming farmgate prices are allowed to rise and exports of rice are permitted.¹³⁴

Given the growth in rice production, policymakers are increasingly worried about the risks of surplus rice production (i.e., low prices) instead of the risks of too little rice production.

After the GOB allowed private imports of rice and wheat, private importers progressively expanded their share of cereal imports. By 1997-98, private imports exceeded government imports. During 2002-03 through 2009-10, private imports ranged from 2.2 to 3.0 million MT, while GOB imports (mostly food aid) ranged from 0.2 to 0.8 million MT.¹³⁵

FARMERS

As rice production has expanded dramatically, wheat production has declined by nearly 50%, with wheat farmers shifting to maize for poultry and aquaculture feed. The biggest changes at the production level, however, have occurred amongst the many rice farmers in Bangladesh. Along with increased yields, rice farmers are facing a very different market today than they were only ten years ago. Increased yields driving increased surpluses has reoriented large numbers of rice farmers away from subsistence and towards commercial agriculture, from selling to local-end consumers toward selling to the big cities, and from selling to village traders toward selling to wholesale market traders and mills¹³⁶. Farmers continue to dry paddy on farm, selling it to millers at specified levels of moisture content (~14%). Some commentators expect increased pressure on farm labor to drive up the cost of on-farm labor, making it more attractive to sell rice to larger millers with the capacity to efficiently dry the rice, further spurring the expansion of the milling sector.¹³⁷

TRADERS

The GOB has a long history of limiting private storage of grains in any large volumes. As a result of numerous legal instruments (e.g., Control of Essential Commodities Act, The Hoarding and Black Market Act, etc.) bank regulators have limited access to finance for traders. While the most severe elements of the limiting legislation has been rescinded or revised, a tradition of not lending to the trading class continues to today.

¹³³ Diagnostic Trade Integration Study, 2013.

¹³⁴ <http://www.davidmckee.org/2012/11/17/bangladesh-road-to-self-sufficiency/>.

¹³⁵ Bangladesh Director General of Food 2013.

¹³⁶ Thomas Reardon, et al., "The Quiet Revolution in Staple Food Value Chains Enter the Dragon, the Elephant, and the Tiger". (IFPRI, 2012).

¹³⁷ <http://www.davidmckee.org/2012/11/17/bangladesh-road-to-self-sufficiency/>.

MILLERS

The milling sector continues to benefit from the growing volumes of rice and wheat produced in Bangladesh, assuring sufficient volumes of raw material for year-round production. Rice mills that make up the vast majority of mills in operation continue to use outdated milling technology, resulting in relatively low-quality product and a high loss rate. Moreover, interviewees noted that the lack of grading system results in a low-quality and non-uniform product for the milling sector. On the other hand, the rise of branded products in a rice market typically characterized by informality is beginning to push millers, and even farmers, to focus more on quality and consistency in product. The lack of finance for millers was also a frequently cited constraint to their growth—many noted the importance of having government connections in order to access finance. Millers reported tremendous recent growth in investment in the sector. The GOB procures rice directly from millers because the GOB doesn't want to procure paddy. This puts millers in a position of power vis-à-vis farmers.

RETAIL

The retail sector is maturing quickly according to interviewees and recent analysis of the sector.¹³⁸ Looking for rice in Dhaka increasingly means going to a well-organized and competitive marketplace. Differentiation through packaging and type are now possible and increasingly the norm in city centers. That notwithstanding, retailers still check 100% of the rice they receive for quality issues.

SOCIAL DYNAMICS

Interviewees noted a widespread sentiment of government's inability to deal with food crises, in contrast with the private sector's unique ability to deal with such crises. Widely understood corruption in foodgrain procurement, distribution and trade compared with increasing farmer yield and efficient marketing have turned the calculus of Bangladeshi grain markets on its head. No longer does the public see the government as the only source of relief during times of crisis. In fact, interviews with government officials for this report reflect a change of attitude such that they, too, view the private sector as the lead in handling supply/demand imbalances, expecting a smaller role for government ministries that dominated this process just ten years ago.

“Another 2008 will not come soon to Bangladesh. The private sector and government, together, are much more prepared to deal with such a situation.”

— Bangladeshi government official

Changing sentiments notwithstanding, the price of rice remains central to Bangladeshi politics and a driver of government action, where it has the means. As one government official put it, “Each government wants to limit the price of rice, if they don't focus on this, the government will collapse.” Despite the political importance of rice in Bangladesh, it's unlikely that the government has the means to manage the price according to its own desires. One economic advisor to the GOB suggested that one-third of the rice harvest would need to be procured by the government to prop up the price—“but we are too poor to do this with only 1.8 million MT of storage capacity (400,000 MT of which was built in last four years). At the time of this report, rice prices continued to fall, coinciding with government releases of stocks from last year's harvest. Government and private sector storage needed to be emptied in order to procure grain in the upcoming season. “Government's issue isn't animosity towards the private sector; it's that they don't fully think through their decisions, making government policy almost whimsical.”

Because Bangladesh has been a consistent rice and wheat importer, and because GOB leaves much of the importing to private traders, rice and wheat prices have been, with some exceptions, guided by import parity prices. The GOB has demonstrated little interest in allowing cereals exports to support domestic producer prices, at times allowing maize and rice prices to drop below export parity levels. If Bangladesh is facing frequent or persistent surpluses, the GOB has new decisions to make with respect to desired rice prices and how to sustain them. Low prices—below export parity—could motivate farmers to shift land or resources out of rice, cutting rice production and bringing back higher import parity prices. “The medium-term solution to maintaining real rice prices at moderate levels...continues to be investments in agriculture to increase production...”¹³⁹

Moving grain efficiently within Bangladesh and across the region is another significant challenge on the road to a vibrant grain trade. For example, silting of Bangladesh's rivers is

¹³⁸ Thomas Reardon, et al., “The Quiet Revolution in Staple Food Value Chains Enter the Dragon, the Elephant, and the Tiger”. (IFPRI, 2012).

¹³⁹ Dorosh, Paul, and Shahidur Rashid. “Trade subsidies, export bans and price stabilization: Lessons of Bangladesh-India rice trade in the 2000s”. IFPRI. 2013. PpV.

becoming such an issue that transporters can no longer use historical trade routes, instead needing to revert to roads, a much more expensive transportation option. Under current budget assumptions, the government reported they don't believe it's a good investment to dredge the rivers in question. Railways would be the next best transport option, but they too suffer from underinvestment (too few locomotives) and gauge mismatch with India. The latter issue of gauge mismatch with India causes consignments to be stopped at the border, increasing demurrage and creating conflicts amongst partners as it's unclear who should pay these additional costs. Another commonly cited problem is the congestion at the Chittagong and Mongla ports, driven in part by the tender process. Interviewees noted the need to revise the tendering schedule such that the port could handle the flow of ships, without making others wait and incur costs in the process. To help relieve some of the congestion at Mongla, interviewees reported an ambitious new project to build dedicated grain terminals to help ease pressure on Chittagong and to provide a second option for logistical reasons.

Corruption within the trade is substantial and widely cited as an intransigent yet fixable part of the regional trade process. Interviewees noted the substantial amount of low-quality and underweight grain consignments imported into Bangladesh under the cover of higher quality and "certified" lots from India. Across the board, interviewees noted the high likelihood of corruption driving falsified certifications and pilferage at border posts. Procurement of grain for government was widely reported as a corrupt process. High-level officials are alleged to be behind such schemes, requiring \$50/MT in bribes in order to win any particular tender. Additional measures such as a "demurrage and disperse" clause might also be a way to tamp down corruption—Given the high cost of demurrage costs, private shippers/importers tend to be taken advantage of and required to pay bribes to government officials within ports. Without the high demurrage costs, government officials would lose their leverage to ask for bribes.

ANNEX 5: NEPAL – TRADE OVERVIEW



LEGAL FRAMEWORK

The legal and regulatory structure for trade in Nepal is relatively good. There is a modern Customs Law (2007), which is in compliance with the Revised Kyoto Convention requirements for customs procedures. The biggest constraint to trade is that Nepal is a landlocked country and, as a result, it has very high trade costs. Goods from third countries must transit through India (from the port of Kolkata), incurring significant shipping costs and delays. Nepal and India share a long border with 26 border points. This makes India Nepal's natural trading partner. Over 60% of Nepal's imports and exports are traded with India. Customs clearance has also improved somewhat due to trade facilitation efforts. Revenue still depends heavily on taxes collected at the border. Nepal's tariff is relatively simple; the average applied MFN tariff decreased from 13.8% in 2002-03 to 12.2% in 2011-12. The only remaining other duty and charge (ODC) is the agriculture reform fee (5%), applied to imports from India and Tibet. Agricultural imports from those two countries are otherwise free of duty.

Export taxes are applied on some products to protect the environment, ensure food security and discourage trade diversion to India. However, this is not the best method for accomplishing those purposes; levying export tax on goods can encourage illegal exports. The GON promotes exports through lower tax rates, special economic zones and export processing zones.

Nepal's **Trade Integration Strategy (NTIS) 2010** and three-year **National Development Plan 2010-13** prioritize the need to promote trade and improve the country's export competitiveness.

MAIN TRADE-RELATED LEGISLATION

CUSTOMS

- » Customs Act (2007)
- » Customs Rules (2007)

EXPORT AND IMPORT LICENSING

- » Export and Import Control Act (1957, as amended in 2006)
- » Export and Import Rules (1978)

TECHNICAL BARRIERS TO TRADE

- » Nepal Standards (Certification Mark) Act (1980, as amended)
- » Nepal Standards (Certification Mark) Regulations (1982, as amended)

SANITARY AND PHYTOSANITARY MEASURES

- » Nepal Seeds Act, 2045 (1988)
- » The Seeds Regulation, 2054 (1997)
- » Plant Protection Act, 2064 (2007)
- » Plants Protection Rules, 2066 (2010)
- » The Food Act, 2023 (1966)
- » Food Regulation, 2027 (1970)
- » Feed Act (Animal Concentrate), 2023 (1966)
- » Animal Health and Livestock Services Act (1998)

COMPETITION POLICIES

- » Competition Promotion and Market Protection Act (2007)
- » Competition Promotion and Market Protection Regulation (2007)
- » Consumer Protection Act (1998)
- » Consumer Protection Regulation (2000)

Source: WTO Secretariat

Some of the documents' goals are to strengthen the capacity of Nepal's trade institutions, strengthen export industries and improve coordination among the trade-related institutions. There are also objectives related to meeting WTO, SAFTA and bilateral agreements with India, including transit issues and eliminating NTMs (particularly technical and sanitary and phytosanitary inspections, and cumbersome customs clearance procedures).

Nepal and India have had a long history of cooperation on trade and transit. The two countries meet regularly at several levels to discuss these issues. Increasing trade between India and China over the next several years could mean that Nepal becomes an important transit country.

Nepal made the argument, in connection with acceding to the WTO, that because it is a small, poor country it cannot immediately comply with WTO requirements regarding subsidies. Nepal needs to protect major food commodities through subsidies. Furthermore, the argument was made that public sector outlays on research and extension are not subsidies, but Green Box measures that should be allowed.

Nepal participates in two regional agreements: the SAFTA (Afghanistan, Bangladesh, Bhutan, India, the Maldives, Pakistan and Sri Lanka), and the BIMSTEC (Bangladesh, Bhutan, India, Myanmar, Sri Lanka and Thailand). In addition, Nepal has signed 17 bilateral trade agreements, notably with China and India.

Tariffs have been reduced under SAFTA, but Nepal has failed to benefit much from the agreement, primarily due to supply-side constraints, but also due to transport issues. Tariff reductions under BIMSTEC are still being negotiated. The prospects for success of both SAFTA and BIMSTEC are hindered by the lack of political stability in the region and by the lack of trust among the countries.

BILATERAL AGREEMENT BETWEEN INDIA AND NEPAL

India and Nepal have a bilateral agreement that includes the Transit Treaty, the Treaty of Trade, and the Agreement on Cooperation to Control Unauthorized Trade. The Transit Treaty allows Nepal to trade with other countries through the Kolkata/Haldia ports; it was renewed in March 2006 for seven years. The current trade treaty is the Trade Treaty of 2009. The Treaty opened an additional four land border routes between India and Nepal.

IMPLEMENTING INSTITUTIONS

The Ministry of Commerce and Supplies (MoCS) has primary responsibility for trade policy formulation and implementation, in coordination with other ministries. These include the Ministry of Industry, the Ministry of Finance, the Ministry of Agriculture and Cooperatives, the Ministry of Labour and Transport Management, the Ministry of Energy, the Ministry of Forests and Soil Conservation, other ministries, the National Planning Commission, and the Central Bank (Nepal Rastra Bank). MoCS gets input from the private sector either directly or through the Federation of Nepalese Chambers of Commerce and Industry (FNCCI) and the Nepal Chamber of Commerce (NCC). MoCS is currently looking at para-tariffs and NTMs.

The Department of Customs, which is part of the Ministry of Finance, has primary responsibility for the customs aspects of trade facilitation. It is headed by the Director General of Customs, who has the final authority for deciding the valuation and classification of goods. There are two Deputy Director Generals, six directors, 13 officers and a number of subordinate staff. The Department has six divisions: the Tariff and Classification Division; the Valuation and Review Division; the Inspection, Law and International Relation Division; the Information and Technology Division; and the Textile and Laboratory Division.

The new customs law provides for modernization of customs procedures in line with the requirements of the RKC, including risk management, post-clearance audit and preclearance. However, according to interviewees from the private sector, the procedures are not being followed by customs officers. This is due to a lack of capacity rather than a lack of will. Donors could help by assisting Nepal to implement the RKC provisions for risk management, an authorized economic operator program, a preclearance program and more automation. A robust risk management system would allow Customs to focus on high-risk shipments and speed up the processing of the majority of goods.

The time it takes to process customs entries is improving with implementation of ASYCUDA, but there are still too many documents to handle, and customs officers still need more training. There is also a need for more storage warehouses and more laboratories for inspecting goods. Visits to customs ports (airport in Kathmandu, Nepalgunj and Birgunj) revealed that although progress has been made with the implementation of ASYCUDA, much remains to be done to improve customs processing and minimize delays.

In all of the ports, the customs broker is able to enter the information about the shipment in ASYCUDA. However, in every case, the resulting documents are printed in hard copy and reviewed by customs officers. In addition, there is virtually 100% inspection of goods. This means that although Customs claims to be using a risk management system with red (inspect documents and goods), yellow (inspect documents) and green (no inspection) channels, in reality risk management techniques are not being applied. For example, at Birgunj, 70% of shipments are processed through the red channel.

In all of the ports, the customs broker is able to enter the information about the shipment in ASYCUDA. However, in every case, the resulting documents are printed in hard copy and reviewed by customs officers.

In some cases, the whole truck must be unloaded for inspection. This is done manually as there are no forklifts for unloading the goods.

Food imports require a quarantine certificate and most agricultural goods require inspection of a sample at a laboratory. Food needs a quarantine certificate; if the food goes to the lab, it takes seven days (the goods are unloaded in a warehouse to wait). This can be very time consuming, as the laboratories are located some distance from the ports.

Duties must be paid before the goods can be released from the warehouse. Goods must remain on the truck if there is insufficient warehouse space available. Indian trucks may enter Nepal, but they must return to India the same day. Nepalese trucks cannot enter India. This requires a time-consuming transfer of the goods from one truck to another at the border.

SUPPORTING INSTITUTIONS

SASEC (ADB)

ADB is providing technical assistance to aid Nepal in acceding to the RKC. It will also assist in developing the customs automation system, provide training and assist with publication of trade and customs regulations, procedures and documentation. Interviewees had mostly positive comments about the work done by ADB and SASEC.

FEDERATION OF NEPALESE CHAMBERS OF COMMERCE AND INDUSTRY (FNCCI)

FNCCI is the umbrella organization for business in Nepal and serves as the lead institution for the SAARC-TPN. It promotes private sector-led economic growth. Activities include:

1) providing services to exporters, importers and investors; and 2) facilitating participation in trade fairs and promoting entrepreneurship. FNCCI set up the Agro-Enterprise Center (AEC) to strengthen private sector agro-enterprises in order to promote the production of high-value products to trade. FNCCI-AEC is involved in improving agriculture production, trade and marketing.

IFC

The IFC is looking at trade logistics in Nepal. Some IFC initiatives include harmonizing customs hours, reducing export charges, reducing the number of agencies at the border, improving cooperation between Customs and Agriculture on inspection issues and reducing the number of documents needed to import and export (thus reducing time and cost to trade).

DFID

DFID is working on coordinating the trade programs of the various donors. It is assisting the GON with the NTIS 2010.

SOCIAL DYNAMICS

The fact the Nepal is landlocked is constraint to increasing trade. But it is by no means the only constraint, and probably not even the most serious constraint. The poor state of the country's physical infrastructure, high transport costs and inefficient administrative procedures at borders and ports continue to drive Nepal's isolation from the global trading community. Despite bilateral, regional and multilateral trade agreements to liberalize the flow of goods and services, transaction costs involving Nepalese trade remain some of the highest in the world.

The GON recognizes the need to increase trade in order to reduce poverty and improve the living standards of its people. It is working to create a more friendly business environment and to assist exporters to become more competitive. The GON's commitment to international trade can be witnessed by the establishment of the Trade and Export Promotion Centre (TEPC) in 2006. The goal is to promote foreign trade, particularly export trade. High-level dedication will be required to overcome obstacles to integration of the other border agencies into the Customs-led trading system.

FNCCI, representing the private sector through the Agro Enterprise Center, attempts to influence the government through a variety of forums to promote increased efficiencies and lower costs of trade. Private sector efforts to increase border efficiency or trade related policies tend to be overshadowed by political deadlock, or a general distrust of private sector intentions. Interviewees blamed the private sector for inaction as much as they did the government; the private sector in Nepal would like to be able to have an influence on trade issues, but it is widely reported to lack the capacity to do so. Moreover, the lack of trust between the public and private sectors limits their ability to affect change.

ANNEX 6: TRADE IN SEED – NEPAL

INTRODUCTION

Nepal's farmers are fortunate to have access to a large and steady flow of new varieties of field crops and vegetables from public and private breeding in India. Currently, due to ill-advised policies by GON, most varieties from India reach Nepal's farmers through smuggling. Policies that force seed into informal channels undermine the development of Nepal's seed industry and leave farmers to rely on anonymous traders selling seed that cannot be traced to a company registered in Nepal—a company that farmers could hold responsible for the information on the label (variety, germination, purity etc.).



LEGAL FRAMEWORK

The key documents that establish Nepal's legal framework for seeds are the Seeds Act 2045 [1988] as revised through 2010¹⁴⁰ and seed regulations. The current seed regulations were adopted within the last one to two years and are not yet available in English.

The Plant Protection Act, 2059¹⁴¹ directs the MoA to prevent import of plant pests and diseases through phytosanitary controls on seed and other vegetative materials. The GON participates in the APPPC, which organizes discussions among countries to establish science-based phytosanitary controls on imports of seed and other vegetative materials. The APPPC is the regional group reporting to the IPPC,¹⁴² which reports to FAO.

GON is a member of the World Trade Organization and, as such, is committed to establish a system for companies to register ownership of varieties (PVP or plant breeders' rights (PBR)). The GON has yet to do so, but this is a minor issue considering that companies will introduce hybrids with or without PVP while non-hybrids are effectively blocked by time and cost to register new varieties (which exceed companies' expected

returns from selling non-hybrid seed because the price of such seed is restrained by farmers' ability to produce seed for own use and informal sale). If time and costs to register varieties were zero or minimal, companies could be expected to introduce non-hybrid varieties from India and other countries, even without PVP protection (as has been observed in Turkey). In any event, Nepal is making progress: a draft Plant Variety and Farmers' Rights Protection Bill is in Parliament.

REGULATORY INSTRUMENTS AFFECTING SEED TRADE

- » **Seeds Act 2045 [1988] as revised through 2010¹⁴⁴ establishes the framework for the GON to regulate the seed industry. See details in Table I.**
- » **The current seed regulations were adopted within the last one to two years (see details in Table I).**
- » **The Plant Protection Act, 2059¹⁴⁵ directs MoA to prevent import of plant pests and diseases through phytosanitary controls on seed and other vegetative materials**
- » **A Plant Variety and Farmers' Rights Protection Bill is in Parliament, but has not passed. If and when this is passed, it would require regulations to guide implementation.**

¹⁴⁰ GON. 2010. Seeds Act, 2045 (1988). Available at: <http://faolex.fao.org/>.

¹⁴¹ GON. 2002. Plant Protection Act, 2059 (2002). Available at: <http://faolex.fao.org/> (accessed 28 August 2013).

¹⁴² Asia & Pacific Plant Protection Commission (APPPC). 2013. About the APPPC. Available At: <http://www.apppc.org/index.php?id=1110810&L=0> (accessed 27 August 2013). The list of NPPO [National Plant Protection Organization] contact points is available at: [http://www.apppc.org/index.php?id=1110802&tx_publication_pi1\[showUId\]=2182202&frompage=1110805&type=publication&subpage=&L=0#item](http://www.apppc.org/index.php?id=1110802&tx_publication_pi1[showUId]=2182202&frompage=1110805&type=publication&subpage=&L=0#item).

¹⁴³ GON. 2010. Seeds Act, 2045 (1988). Available at: <http://faolex.fao.org/>.

¹⁴⁴ GON. 2002. Plant Protection Act, 2059 (2002). Available at: <http://faolex.fao.org/>.

¹⁴⁵ Gisselquist D, Pray C. 1997. The Impact of Turkey's 1980s Seed Regulatory Reform. In: Gisselquist D and Srivastava J, eds. Easing Barriers to Movement of Plant Varieties for Agricultural Development. Washington, DC: World Bank

TABLE 15: IMPACT OF NEPAL'S SEED REGULATORY FRAMEWORKS ON SEED INDUSTRY ACTIVITIES

| LEGAL INSTRUMENT | TO START A SEED COMPANY, MOA REGISTRATION IS: | TO INTRODUCE A NEW VARIETY, VARIETY REGISTRATION IS: | TO PRODUCE OR ACCESS SEED FOR WHOLESALE DELIVERY: | | | TO SELL SEED: | |
|---|--|--|---|--|--|--|---|
| | | | MoA registration of contract farmers is: | MoA controls on seed imports are based on: | Seed certification is: | MoA registration of seed dealers is: | MoA approvals of seed exports are: |
| Seed law | Required, with no specified criteria | Articles 11b and 13 allow several interpretations. Registration could be voluntary, required but automatic, or required with time, expense, and uncertain approval (see text). | Not required | (a) phytosanitary concerns; (b) whether the variety might damage Nepali agriculture (Article 15) | Voluntary for all crops (Article 12) | Required (Articles 11A and 13) | Required, and can be based on “any specific reason” (Article 15). |
| Regulations (no English version available) | Not clear; some informants said companies that produce seeds must own processing equipment | Informants report that current regulations (in Nepali only) ask for 2 years of official multi-location tests for VCU | Not clear | The variety must be registered ¹⁴⁷ | According to informants: voluntary for all crops | According to informants, this is not a problem | According to informants, this is not a problem |

In many respects, Nepal's regulatory framework is workable¹⁴⁶ for the private seed industry to develop. Nepalis can get into the seed business as growers, seed companies (wholesaling own-produced or imported seed), distributors and dealers with little or no difficulty; this favors competition. Importantly, seed certification is voluntary; the Act, regulations and policies allow sale of truthfully labeled seed for all crops, which favors competition. This also allows companies, at least theoretically, to produce seed of public varieties without repeatedly buying the GON's breeder seed (to produce truthfully-labeled seed with not more than the allowed percentage of off-types, companies can rogue (uproot off-types) fields planted with later generation seed).

The one aspect of the regulatory framework that is most problematic for Nepal's seed industry to develop and to work with Indian companies is the MoA's control on variety introduction; this aspect of the regulation obstructs competition. The Act requires that all traded seeds be “notified” according to “Type or variety” (Article 11) and that seed packets name the variety (Article 13). The Act could be interpreted to allow the MoA to register (and notify) varieties automatically and at no cost, asking companies only to describe the variety (as in Bangladesh for all but five crops); this would present no obstacle to variety introduction.

However, the MoA has used the Act with supporting regulations to stop private companies from introducing new varieties (selling seed of varieties) that the MoA has not reviewed and approved. The logic of MoA control has been to protect farmers from varieties that do not perform (this logic ignores overwhelming evidence that government controls inflict large costs in foregone gains, with no evidence for prevented losses). The process of MoA control has been to

¹⁴⁶ USAID. 2012. Agribusiness Regulations and Institutions (Agri) Index Pilot Report Available at: <http://eatproject.org/agri.aspx>; See also: Annex 1: Data from pilot countries (Bangladesh, Kenya, Nepal, Uganda, and Zambia). Available at: <http://eatproject.org/docs/EAT%20AGRI%20Pilot%20Annex%201.pdf>.

arrange for an MoA committee to consider the varieties' value in VCU based on in-country trials managed by either the MoA or companies.

Some years ago, seed regulations required official VCU tests as a condition for registration. Around 2011, a USAID contractor drafted and proposed a "user-friendly Seed Registration System [which]... gives greater freedom to seed importers to handle their material themselves, either for multilocation testing or for deciding the time and cost for their test";¹⁴⁷ no details are available. Whether USAID advice had any influence, it appears to have been consistent with the views of at least some MoA regulators around that time. The MoA, during 2010, approved (registered) hundreds of new varieties.¹⁴⁸ Most varieties registered in 2010 were vegetable hybrids, whereas for the previous decade the MoA had not registered any vegetable

varieties.¹⁴⁹ As of 2013, the MoA appears to have returned to a more restrictive posture. In 2013, companies submitted data from their own in-country trials on 257 vegetable varieties; the MoA registered only 34.

Registration has been more difficult for field crops. A 2012 study of barriers to doing business in agriculture reported the process to register a new variety takes more than 1,250 days and costs more than \$2,000 (Table 16).

Through SAARC, Nepal has committed to participate in the SAARC Seed Bank (a public sector body) and the SAARC Seed Forum (a public-private body, with roughly equal numbers of voting members from public and private institutions). Both organizations could be venues for governments to discuss arrangements to facilitate movement of varieties from one to other South Asian countries. Sections below consider what these organizations could do to help.

¹⁴⁷ Shrestha HK. 2012. Seed Registration and Compensation System. Kathmandu: USAID.

¹⁴⁸ GON. 2012. Statistical information on Nepalese Agriculture 2011/12. Kathmandu: GON, Ministry of Agricultural Development. Available at: http://www.moad.gov.np/downloadfile/yearbook2012_1363677455.pdf; see also Annex I.

¹⁴⁹ Regmi SK, Gauchan D. 2012. National Seed Vision: seed sector development strategy. Kathmandu: MoA and Swiss Agency for Development and Cooperation.

TABLE 16: TIME/COST/PROCEDURES FOR REGISTERING A PROPRIETARY STAPLE GRAIN VARIETY

| NO | PROCEDURE | TIME (DAYS) | COST (NPR) | AGENCY |
|--------------|--|----------------------|---|---|
| 1 | Import Permit for Seed Sample | 7-30 | 100 | Seed Quality Control Center (SQCC) |
| 2 | Application for New Variety Registration | 1 | 0 | SQCC |
| 3 | Recommendation for Field Trials | 30 | 0 | National Agricultural Research Council SQCC |
| 4 | Field Trials | 730 | 200,000 for ≤5 varieties of one cereal crop | Technical Committee, SQCC |
| 5 | Technical Committee Review | 60 | 0 | Government Printing Bureau (BG Press) |
| 6 | Variety Approval | 60, highly variable | 0 | National Seed Board, MoA |
| 7 | Variety Approval | 365, highly variable | 0 | Department of Printing |
| TOTAL | Gazette Notification | 1,253-1,276 | \$2,249 | |

Source: USAID/EAT Project 2012.

IMPLEMENTING INSTITUTIONS

Through various government institutions and donor-supported programs, the public sector releases varieties and produces seed. The flow of varieties coming from the public sector is too small to support acceptable rates of agricultural growth. The production of seed from the public sector and semi-public sector (farmers' groups and cooperatives assisted with subsidized seed and often bulk purchase of produced seed) is sufficient to get seed of new and old public varieties of rice and wheat to farmers. For these self-pollinated crops, farmers are able to multiply seed for own use and local sale, so that varieties are exchanged even if there is little formal production and trade (e.g., rice seed from the formal public and private seed sector is sufficient to plant about 5% of rice area (see Table 18) whereas farmers plant more than 90% of rice area to improve varieties.¹⁵⁰ For maize, however, seed supply from public or semi-public sources is insufficient to allow Nepali farmers to plant hybrids or even to sustain varietal purity with non-hybrid varieties (maize open-pollinated varieties (OPVs) deteriorate due to unintended cross-breeding with maize in adjacent fields).

NATIONAL SEED BOARD, SEED QUALITY CONTROL CENTER, AND CENTRAL SEED TESTING LABORATORY

The Seed Act established a National Seeds Board to advise the MoA and mandated the MoA to establish a SQCC and a Central Seed Testing Laboratory. The MoA's SQCC, with its Central Seed Testing Laboratory, is headquartered in Kathmandu with several laboratories around Nepal. The SQCC is the contact point for companies to ask for registration of new varieties (Section 2.4, below, discusses farmer and company frustration with the SQCC's and the MoA's obstruction to private variety introduction). The SQCC is also responsible for seed certification; because certification is voluntary, and because Nepali companies—like others around the world—rely on brand name to assure farmers that seeds are good, the SQCC does not certify or test much seed for the private sector:

In 2012, ISTA accredited the SQCC's Central Seed Testing Laboratory to issue ISTA certificates of seed quality, such as Orange International Certificates (OIC). Some countries ask for OICs on imported seed; aside from assisting in seed export volumes (which are currently minimal), having an ISTA-accredited laboratory is of little value regarding imports in Nepal's seed sector.

¹⁵⁰ GON. 2012. Statistical information on Nepalese Agriculture 2011/12. Kathmandu: GON, Ministry of Agricultural Development. Table 3. Available at: http://www.moad.gov.np/downloadfile/yearbook2012_1363677455.pdf.

GOVERNMENT INSTITUTIONS INVOLVED IN THE SEED SECTOR

- » *National Seed Board*: The Board, established by the Seed Act,¹⁵² is a public sector advisory body with token private sector representation (two seed entrepreneurs and two seed growing farmers selected by the government).
- » *Seed Quality Control Center (SQCC) with Central Seed Testing Laboratory*: The Seed Act¹⁵³ authorized MoA to establish the SQCC to be responsible for seed certification, laboratory tests for seed quality and maintenance of the list of approved varieties.
- » *Nepal Agricultural Research Council (NARC)*: NARC coordinates publicly-funded breeding and other agricultural research. Government breeding focuses primarily on open-pollinated varieties for food field crops (see text and table 3 for Nepal's public research budget and breeding output).
- » *NARC's Seed Science and Technology Division*: NARC's Seed Science and Technology Division has been coordinating NARC's production of breeder and foundation seed for varieties released by NARC. Aside from this coordinating role, the Division has responsibility and some skills (one PhD scientist, two MSc scientists, and two technicians) to advise companies on how to produce good seed.
- » *National Seed Company Ltd*: In 2002, the GON divided its Agricultural Inputs Company Limited (AICL) into two parastatal companies, NSCL to produce and sell seed and AICL to import and distribute fertilizers. At its inception, NSCL produced 2,000 MT of seed per year, increasing to 4,500 MT in 2013. Wheat seed accounts for 70-80% NSCL's sales by volume and rice for 20%, with some seed for lentils, rape, and vegetables. During 2009, 2010, and 2011, NSCL had 73 employees with annual net income ranging from losses of \$80,000 to profits of \$70,000.¹⁵⁴
- » *Plant Quarantine Department, MoA*: As of 2005, Nepal directed seed imports through seven border points with India, one with China, and one at Kathmandu's airport. At the time, the Department was preparing to open four more border points with India and two more with China.
- » *SAARC Seed Bank*: SAARC established the Seed Bank in 2011 (see discussion in this section and in Section 3).
- » *SAARC Seed Forum*: The SAARC seed forum was provisionally established in 2010 (see discussion in this section and in Section 3).

¹⁵¹ GON. 2010. Seeds Act, 2045 (1988). Available at: <http://faolex.fao.org/>.

¹⁵² GON. 2010. Seeds Act, 2045 (1988). Available at: <http://faolex.fao.org/>.

¹⁵³ WTO. 2011. Trade policy review, report by the secretariat: Nepal. Report WT/TPR/S/257. Pp.46. Brussels: WTO.

¹⁵⁴ Bhatta DR. 2005. Country Presentation (Nepal) on National Information Exchange. Powerpoint presentation at International Plant Protection Workshop, Kuala Lumpur; 3-6 May 2005.

PUBLIC SECTOR BREEDING

Annual spending for public sector agricultural research was \$7 million in 2009. Most of this was the GON's budget for NARC; but this also included donor-funded research in two NGOs: Local Initiatives for Biodiversity Research and Development (LI-BIRD) and the Center for Environmental and Agricultural Research and Development (CEAPRAD).¹⁵⁵ Only a portion of these research expenditures went towards breeding. Nepal's public research has been assisted for many years by the IRRI and by CIMMYT.

In a 2008 survey, not more than 10% of rice area was planted to public varieties released in the previous ten years, showing a replacement rate of less than 1% per year.

The contribution of breeding to agricultural growth depends on replacement of old seed varieties by new seed varieties. This calls attention to two statistics: 1) the rate of registration (release) of new seed varieties; and 2) the rate at which farmers shift planted area from old to new varieties.

On both measures, public research in Nepal falls short of what is required to sustain acceptable rates of agricultural growth. Over the most recent ten years for which data are available (2003-12),

public research agencies in Nepal released 20 new varieties of rice, 7 of maize, and 5 of wheat; during this period, the average annual rate of varietal release from public research was only 2.0 for rice, 0.7 for maize, and 0.5 for wheat (Table 17). The other (and considered more accurate) measure of public breeding's contribution to agricultural growth—area planted to new varieties—shows clearly the inability of Nepal's public research to support adequate rates of agricultural growth. In a 2008 survey, not more than 10% of rice area was planted to public varieties released in the previous ten years, showing a replacement rate of less than 1% per year; the varieties with the largest percentages of planted area were Janaki, released in 1979, and Masuli, released in 1973.¹⁵⁶ Similarly, 80% of wheat seed produced in the formal sector is for varieties released before 1995.¹⁵⁷

Farmers continue to plant most of their rice and wheat area to old varieties. A small flow of new varieties from public research with slow turnover of varieties—too slow to support acceptable yield increases—is common for countries that block private variety introduction, and even more so for small countries.

¹⁵⁵ Rahija M, Shrestha HK, Stads G-J, Bhujel RB. 2011. Nepal: Recent Developments in Public Agricultural Research. Washington, DC: IFPRI. Available at: <http://www.asti.cgiar.org/pdf/Nepal-Note.pdf>.

¹⁵⁶ Gauchan D, Panta HK, Gautam S, Nepali MP. Patterns of adoption of improved rice varieties and farm-level impacts in stress-prone rainfed areas of Nepal. 2012. In: Pandey S, Gauchan D, Malabayabas M, Bool-Emerick M, Hardy B, eds. Patterns of adoption of improved rice varieties and farm-level impacts in stress-prone rainfed areas in South Asia. Los Banos: IRRI. Available at: http://books.irri.org/9789712202872_content.pdf.

¹⁵⁷ Joshi KD, Conroy C, Witcombe JR. 2012. Agriculture, seed, and innovation in Nepal: Industry and policy issues for the future. Washington, DC: IFPRI.

TABLE 17: RICE, MAIZE AND WHEAT VARIETIES REGISTERED, 2003-12

| CROPS | TOTALS FOR 10 YEARS | | | ANNUAL AVERAGE |
|--|--------------------------|--------|-------|----------------|
| | Self- or open-pollinated | Hybrid | Total | |
| Rice, of which | 20 | 17 | 37 | 3.7 |
| Public | 20 | 0 | 20 | 2.0 |
| Private | 0 | 17 | 17 | 1.7 |
| Wheat (all public, self-pollinated) | 5 | 0 | 5 | 0.5 |
| Maize, of which | 6 | 17 | 23 | 2.3 |
| Public | 6 | 1 | 7 | 0.7 |
| Private | 0 | 16 | 16 | 1.6 |

Sources: GON 2012; see also Annex 1 of this report.

TABLE 18: RICE, WHEAT AND MAIZE AREA PLANTED TO SEEDS FROM NATIONAL SEED COMPANY

| CROP | AREA (2009/10–2011/12 AVERAGE) | NSCL SEED SALES 2013 | SEED RATE | AREA PLANTED TO NSCL SEED | |
|-------|--------------------------------------|----------------------------|-----------|------------------------------|----------------------|
| | ha | MT | kg/ha | ha | % of planted area |
| Rice | 1,500,000 | 1,200 | 35 | 35,000 | 2.3% |
| Wheat | 750,000 | 3,500 | 120–140 | 27,000 | 3.6% |
| Maize | 880,000 | 0 | 20 | 0 | 0 |

Source: GON 2012, author's estimates from discussions with informants.

PUBLIC SECTOR SEED PRODUCTION BY THE NATIONAL SEED COMPANY LTD (NSCL)

NSCL's current production is sufficient to plant approximately 3.6% of wheat area and 2.3% of rice area (Table 18). According to informants, NSCL is planning to buy 3,300 MT of wheat seed in 2013 from all private companies producing wheat seed, which NSCL will then sell to farmers at subsidized prices. This would bring NSCL's total wheat seed sales to approximately 7% of planted wheat seed.

Through various programs, the MoA and donors assist farmers to produce seed for own use and local sale. For example, in the District Seed Self-Sufficiency Program (DISSPRO), the MoA's District Agricultural Development Offices distribute seed to cooperatives to multiply. Through the Community Based Seed Production program, CIMMYT's Hill Maize Research Project (with funding from USAID and the Swiss Agency for Development and Cooperation) supports farmers' groups to produce maize seed; in a recent year, 207 groups produced 1,276 MT of seed. This amount is sufficient to plant 60,000 ha, approximately 7% of Nepal's maize area.

PLANT QUARANTINE PROGRAM, MOA

MoA's Plant Quarantine Department is responsible for phytosanitary controls at border points according to the Plant Protection Act, 2059.¹⁵⁸ Insofar as preventing import of seed-borne pests is concerned, many of Nepal's phytosanitary control efforts are irrational, slowing formal trade while ignoring and even promoting informal seed imports from India. Department staff defend such policies by pointing to India's similar behavior; such excuses undermine effective plant protection.

The MoA's Plant Quarantine officers participate in meetings of the APPPC. The APPPC provides a forum for countries to discuss phytosanitary protections, with an objective to resolve trade disputes by basing phytosanitary control on scientific principles—e.g., to focus on quarantinable pests, i.e., pests present in the exporting but not the importing country. The SAARC Agricultural Centre and its associated SAARC Seed Forum provides other venues for South Asian countries to coordinate phytosanitary measures to protect the region from imported pests.

As a member of SAARC, the GON participates in the SAARC Seed Bank, established by SAARC in 2011, and the SAARC Seed Forum, provisionally established in 2010. The SAARC Seed Bank is projected to “contribute to the objective of harmonized seed testing and certification” and “facilitate seed trade within the region.”¹⁵⁹ The Seed Forum has similar objectives. Neither are functioning at the time of writing; thus, as of late 2013 neither has had any impact on variety approvals or other regulatory processes in Nepal (or other regional country).

DONOR-SUPPORTED PROGRAMS

Several USAID programs in Nepal assess, at least in part, seed production and/or trade. The Hill Maize Research Project supports community-based seed production. The Knowledge-Based Integrated Sustainable Agriculture and Nutrition (KISAN) project buys seed from local companies to use in its extension activities. Other donors involved in Nepal's seed sector include: the Swiss Agency for Development and Cooperation, which supports the Vegetable Seed Project; Research Into Use, a UK NGO, which supports Community Based Seed Production; and the World Bank, which supported seed production through the

¹⁵⁸ GON. 2002. Plant Protection Act, 2059 (2002). Available at: [http://faolex.fao.org/Asia & Pacific Plant Protection Commission \(APPPC\). 2013. About the APPPC. Available At: <http://www.apppc.org/index.php?id=1110810&L=0>.](http://faolex.fao.org/Asia%20Pacific%20Plant%20Protection%20Commission%20(APPPC).2013.About%20the%20APPPC.Avaliable%20At%20http://www.apppc.org/index.php?id=1110810&L=0)

¹⁵⁹ SAARC. 2011. Agreement on establishing the SAARC seed bank. Kathmandu: SAARC. Available at: <http://seednet.gov.in/saarc-seedbank.pdf>.

MoA, ending in September 2013¹⁶⁰. These programs give USAID and other donors contact with seed sector stakeholders and an entry into seed policy discussions.

SUPPORTING INSTITUTIONS

PRIVATE SEED COMPANIES

Nepal has about 35 private seed companies in the formal sector; this number includes all private organizations wholesaling seed from own production or import. The value of annual seed sales at the retail level from the formal private sector (excluding NSCL) is roughly \$10 million, of which vegetables account for about three-fourths by value. About half of vegetable seeds by volume are imported, while the rest are locally produced. However, because hybrids account for a large portion of imported seed, while almost all local production is for OPVs, the value of imported vegetable seed far exceeds the value of local production. Seed for only one vegetable hybrid—a tomato hybrid bred in Nepal—is produced in Nepal.

SEED DEALERS (AGRO-VETS)

Nepal has an articulated network of seed dealers available to retail seed to farmers. This allows companies to reach farmers with minimal expense in staff to distribute and sell seed at the wholesale level. As of 2012, the MoA had registered more than 1,854 seed entrepreneurs (the source for this information does not say what they do) and 829 seed traders; the numbers are increasing.¹⁶¹ Another source reports 897 “registered seed entrepreneurs who are mostly seed dealers and traders.”¹⁶²

SEED ENTREPRENEURS

ASSOCIATION OF NEPAL (SEAN)

Nepal's seed association has about 200 members, including less than 20 seed companies and mostly dealers (agro-vets). The Association has a small office and limited programs.

PRIVATE INTRODUCTION OF NEW VARIETIES

The GON registered hundreds of varieties—primarily hybrids—submitted by private companies in Nepal from foreign breeding during 2010, some in 2011, and one maize hybrid in 2012. This total includes 17 rice hybrids and 16 maize hybrids

(see Table 17),¹⁶³ but no private self-pollinated varieties for rice or wheat or OPVs for maize. Most varieties are for vegetables. Many varieties came from Japan, Korea, China and Thailand.

The requirement for registration applies equally to varieties from all sources. Varieties from India, which can be more easily delivered by smuggled seed, are less often registered than varieties from other countries. Although some newly registered varieties come from India, this is only a small minority of the varieties from India reaching farmers, primarily through smuggled seed. For a seed company, the time and expense to register a variety from countries other than India cannot be avoided, because seed is imported by air or sea (through Kolkatta). Still, spending time and money to formally register a variety from India seldom makes sense, because farmers can get the variety from traders smuggling seed through Nepal's long border with India. In introducing varieties from India, Nepali seed companies compete with traders who lower their overheads by eschewing variety registration.

PUBLIC-ASSISTED PRIVATE

PRODUCTION OF CEREAL SEEDS

Approximately 20 Nepali companies produce rice and/or wheat seeds. According to standard practices in developing countries in which governments control variety introduction, these companies produce seed of varieties from public breeding. Companies depend on public institutions (e.g., research stations and the NSCL) to provide breeder and/or foundation seed every year, which companies then multiply by one or two generations. The total volume and value of rice and wheat seeds produced by private companies in Nepal is roughly similar to NSCL's production; i.e., sufficient for 2-4% of planted area, worth about \$4 million per year.

Most of the companies producing cereal seeds are weak, relying not only on a year-to-year government supply of early generation seeds but also on occasional or frequent sales to government programs or donor projects. In 2013, NSCL will reportedly buy most—if not all—wheat seed produced by private companies for subsidized resale through NSCL outlets. Evidently, few of Nepal's private seed companies have established sustainable markets for cereal seed.

¹⁶⁰ Regmi SK, Gauchan D. 2012. National Seed Vision: seed sector development strategy. Kathmandu: MoA and Swiss Agency for Development and Cooperation.

¹⁶¹ Regmi SK, Gauchan D. 2012. National Seed Vision: seed sector development strategy. Kathmandu: MoA and Swiss Agency for Development and Cooperation.

¹⁶² Pullabhotla H, Shreedhar G, Ganesh-Kumar A, Gulati A. 2011. A Review of Input and Output Policies for Cereals Production in Nepal. IFPRI discussion paper no. 01114. Pp 9. Washington, DC: IFPRI.

¹⁶³ GON. 2012. Statistical information on Nepalese Agriculture 2011/12. Kathmandu: GON, Ministry of Agricultural Development. Available at: http://www.moad.gov.np/downloadfile/yearbook2012_1363677455.pdf.

As already noted (Section 2.2), through programs such as DISSPRO and Community Based Seed Production (CBSP), government and donors support cooperatives and farmers' groups to produce seed for own use and local sale. Such seed production is semi-public (government and donors provide early generation seed to multiply) and semi-private (cooperatives and farmers' groups sell some seed through mostly informal local trade).

INFORMAL (ILLEGAL) SEED IMPORTS FROM INDIA

According to informants, farmers in the Terai (plains) plant a significant portion of their maize area to unregistered Indian hybrids using smuggled seed. In western Nepal, the most popular maize hybrid is a non-registered Pioneer hybrid, 31Y45. Some Indian maize hybrid seed reaches farmers in Nepal's hills.

Something similar happens for self-pollinated and hybrid rice. "[M]any of the popular Indian [non-hybrid rice] varieties...are not even registered, for example Sarju-52...which is very popular in mid and far-western Terai region and farmers have been growing this variety for more than ten years," says one study.¹⁶⁴ A 2008 survey found private unregistered rice hybrids from India covering 15%, 7% and 0% of rice planted area in three communities in Nepal.¹⁶⁵

Seed production for export: In years past, some foreign companies contracted seed production in Nepal for bulk export. For various reasons, including lack of skills and political upsets, this business has not progressed as could be expected given Nepal's good climate for growing healthy seeds (cold winters and thin air) as well as the country's low wages. At least one seed company in Bangladesh has talked with a company in Nepal about producing vegetable seed. Nepal's private CEAPRAD has encouraged discussions between Nepali and foreign companies about seed production for export.

SOCIAL DYNAMICS

Among donors and MoA staff, several seed-related issues that have received significant attention include: production of seed in-country for public varieties; GON controls on variety introduction; and ensuring that seed companies deliver quality seed

...if policies allowed, private companies could provide many new varieties as well as the necessary seed without any government or donor attention or aid; despite Nepal's regulatory barriers, much of this is already underway through informal (illegal) seed import from India.

PRODUCING SEED OF PUBLIC VARIETIES

A common refrain among MoA and project staff is that NSCL, private companies, cooperatives and farmer groups should produce more seed of public varieties to accelerate adoption and to allow farmers to replace seed more often. Based on the team's findings, it appears as if this concern may be gathering more attention than it deserves. Although production and supply of cereal seed through the legal formal sector—public and private combined—supplies less than 10% of planted seed (see above),¹⁶⁶ this is arguably sufficient for the varieties involved. Several factors contribute to this assessment. First, all varieties currently produced are from Nepal's public research system; if the GON welcomed foreign and private varieties, varieties from in-country public research could be expected to cover not more than half of rice and wheat planted area and much less for maize. Second, if policies allowed, private companies could provide many new varieties as well as the necessary seed without any government or donor attention or aid; despite Nepal's regulatory barriers, much of this is already underway through informal (illegal) seed import from India. Third, farmers can produce rice and wheat seed that is almost as high in quality as what they could buy on the market. Fourth, the high cost of transport in much of Nepal favors locally grown and informally traded seed, especially for rice and wheat.

As described above (Sections 2.2 and 2.3) donors, the MoA, and NGOs are investing sufficient money and effort to supply seed of public varieties, at least for self-pollinated cereals. These activities should and will continue. Such programs provide seed and builds skills, but do not address the core challenge for Nepal's seed sector—assuring farmers' access to a sufficient flow of new varieties from world breeding. Any yield gains from expanding the supply of seed for Nepal's public varieties beyond current programs are likely to be very, very small.

¹⁶⁴ Devkota HC. 2013. Assessment of seed sector in project districts. Kathmandu: Knowledge-based Integrated Sustainable Agriculture Nepal (KISAN) project.

¹⁶⁵ Gauchan D, Panta HK, Gautam S, Nepali MP. Patterns of adoption of improved rice varieties and farm-level impacts in stress-prone rainfed areas of Nepal. 2012. In: Pandey S, Gauchan D, Malabayabas M, Bool-Emerick M, Hardy B, eds. Patterns of adoption of improved rice varieties and farm-level impacts in stress-prone rainfed areas in South Asia. Los Banos: IRRI. Available at: http://books.irri.org/9789712202872_content.pdf.

¹⁶⁶ Joshi KD, Conroy C, Witcombe JR. 2012. Agriculture, seed, and innovation in Nepal: Industry and policy issues for the future. Washington, DC: IFPRI.

REGISTRATION OF VARIETIES PROPOSED BY PRIVATE COMPANIES

The second issue that has received significant attention is whether and how the MoA controls the introduction of new varieties by private companies. The team's research indicated that most parties accept or assume that the MoA will register varieties before seed sale is allowed, but there have been conflicting views on what the MoA should require before approving (i.e., registering) each variety.

During 2010 and continuing into 2011, the GON registered hundreds of private varieties. At about this time, a USAID consultant recommended registration to be based on one year of data from companies' own trials.¹⁶⁷ During 2013, informants reported that the MoA now requires two years' of official VCU tests before deciding to accept or deny registration. Thus, it appears as if Nepal has temporarily retreated to a more burdensome process for variety registration over the last one to two years.

Advocates for GON controls on variety introduction are:

- 1) regulators, who receive power from such controls; and
- 2) public sector breeders, who gain power and prestige by being the gate-keepers for introduction of new varieties.

Both groups have obvious conflicts of interest that obstruct their duty to serve farmers.

Advocates for more GON controls on variety introduction—official tests followed by government decisions—seized on an incident in 2009 in which unusually cold weather led to seed performance failure. In seven hybrids planted during late October-early November in seven districts, more than 60% of seeds were undeveloped (sterile).¹⁶⁸ There was no problem with seed qualities such as germination; the problem was that some hybrids performed poorly in what was unusually cold weather. The GON asked foreign companies that produced the seed in India to pay compensation to the affected farmers; these companies did not pay, and the GON eventually did.

In September 2013, a similar incident occurred: rain interfered with fertilization of hybrid rice in some parts of Nepal, leading to sterile (empty) seeds. Farmers approached the MoA, seeking compensation.

Field research indicated that some informants are aware that Nepal's variety registration system is more stringent than in some other regional countries—e.g., that Bangladesh has automatic variety registration for most crops; that India has voluntary variety registration for all crops; that Thailand has voluntary registration; etc.

Several seed company managers noted that restrictions on introduction of varieties can protect monopolies or oligopolies for companies with approved varieties. This was notable—the private sector, not MoA staff, were warning about excessive profits from high prices, and were reasonably pointing out that allowing competition would reduce the risk.

Field and desk research performed by the team indicated that farmers were unaware of most registration and agricultural policies. Although farmers interviewed didn't outline particular policies they'd like to see created or enforced, their actions—buying large amounts of smuggled seed and preferring to buy Indian varieties—clearly indicate how they would like to see the seed market change.

¹⁶⁷ Shrestha HK. 2012. Seed Registration and Compensation System. Kathmandu: USAID.

¹⁶⁸ Timilsena R. Problem of sterility in maize. Nepal Seed Bulletin, October-November 2009.

ANNEX 7: NUMBER OF VARIETIES REGISTERED IN NEPAL – 2003-12



| CROPS | TOTALS FOR 10 YEARS | | | ANNUAL AVERAGE |
|----------------------------|---------------------|--------|-------|----------------|
| | Private | Public | Total | |
| GRAINS | | | | |
| Rice, of which | 17 | 20 | 37 | 3.7 |
| Early rice | 0 | 3 | 3 | 0.3 |
| Main season rice, of which | 17 | 17 | 34 | 3.4 |
| Self-pollinated | 0 | 17 | 16 | 1.6 |
| Hybrid | 17 | 0 | 18 | 1.8 |
| Maize, of which | 16 | 7 | 23 | 2.3 |
| Open pollinated | 0 | 6 | 6 | 0.6 |
| Hybrid | 16 | 1 | 17 | 1.7 |
| Wheat | 0 | 5 | 5 | 0.5 |
| Barley | 0 | 0 | 0 | 0 |
| Finger millet | 0 | 0 | 0 | 0 |
| Oat | 0 | 2 | 2 | 0.2 |
| OTHER FIELD CROPS | | | | |
| Lentil | 0 | 3 | 3 | 0.3 |
| Chick pea | 0 | 2 | 2 | 0.2 |
| Soybean | 0 | 2 | 2 | 0.2 |
| Pigeon pea | 0 | 0 | 0 | 0 |
| Black gram | 0 | 0 | 0 | 0 |
| Cowpea | 0 | 1 | 1 | 0.1 |
| Mungbean | 0 | 2 | 2 | 0.2 |
| Rape/mustard | 0 | 2 | 2 | 0.2 |
| Sesame | 0 | 0 | 0 | 0 |
| Niger | 0 | 0 | 0 | 0 |
| Groundnut | 0 | 2 | 2 | 0.2 |
| Sugarcane | 0 | 0 | 0 | 0 |
| Jute | 0 | 0 | 0 | 0 |
| Ginger | 0 | 0 | 0 | 0 |
| Cotton | 0 | 0 | 0 | 0 |
| Tobacco | 0 | 0 | 0 | 0 |
| Potato | 0 | 2 | 2 | 0.2 |

| VEGETABLES | | | | |
|--------------------|----|---|----|-----|
| Cauliflower | 40 | 0 | 40 | 4.0 |
| Radish | 11 | 0 | 11 | 1.1 |
| Broad leaf mustard | 2 | 0 | 2 | 0.2 |
| Turnip | 1 | 0 | 1 | 0.1 |
| Onion | 6 | 0 | 6 | 0.6 |
| Tomato | 22 | 1 | 23 | 2.3 |
| Carrot | 4 | 0 | 4 | 0.4 |
| Cabbage | 27 | 0 | 27 | 2.7 |
| Asparagus bean | 1 | 0 | 1 | 0.1 |
| Pole bean | 1 | 0 | 1 | 0.1 |
| Peas | 0 | 0 | 0 | 0 |
| Capsicum | 2 | 0 | 2 | 0.2 |
| Chilli | 12 | 0 | 12 | 1.2 |
| Brinjal | 5 | 0 | 5 | 0.5 |
| Sponge gourd | 4 | 0 | 4 | 0.4 |
| Cucumber | 32 | 0 | 32 | 3.2 |
| Squash pumpkin | 10 | 0 | 10 | 1.0 |
| Swiss chard | 0 | 0 | 0 | 0 |
| Bitter gourd | 16 | 0 | 16 | 1.6 |
| Lady's finger | 1 | 0 | 1 | 0.1 |
| Spinach | 3 | 0 | 3 | 0.3 |
| Broccoli | 11 | 0 | 11 | 1.1 |
| Watermelon | 2 | 0 | 2 | 0.2 |
| Pumpkin | 1 | 0 | 1 | 0.1 |
| Bottle gourd | 4 | 0 | 4 | 0.4 |
| Ridge gourd | 3 | 0 | 3 | 0.3 |
| Coriander | 2 | 0 | 2 | 0.2 |
| Snake gourd | 2 | 0 | 2 | 0.2 |
| Asparagus/kurilo | 1 | 0 | 1 | 0.1 |
| Parsley | 3 | 0 | 3 | 0.3 |
| Knol khol | 2 | 0 | 2 | 0.2 |
| Pak choy | 3 | 0 | 3 | 0.3 |
| Lettuce | 3 | 0 | 3 | 0.3 |
| Sugarbeet | 1 | 0 | 1 | 0.1 |
| Chinese cabbage | 5 | 0 | 5 | 0.5 |

Source: GON 2012

ANNEX 8: TRADE IN FERTILIZER – NEPAL



INTRODUCTION

Fertilizer prices and trade in Nepal are dominated by illegal imports from India. If Nepal can bring such trade into the formal sector, it would reduce illegal activities and improve fertilizer supply and use, both in Nepal and in bordering regions of India. In addition, there are opportunities for India to trade with Nepal to access phosphate rock for fertilizer production and lime for agriculture. For food and fertilizer security, Nepal should also invest in fertilizer production in India.

Historically, fertilizer policy in Nepal has focused on supplying high-quality, affordable fertilizer to farmers. Unfortunately, over the years, this policy has led to an imbalanced use of crop nutrients, often over fertilizing with nitrogen while under fertilizing with other macronutrients, secondary nutrients and micronutrients.

In the past, Nepal fertilizer policy was focused primarily on fertilizer supply rather than fertilizer demand, which has led to an imbalance of available crop nutrients. However, successful Nepal farmers still base their crop production decisions on site-specific facts which assure optimum return on their investment. Since farmers expect a return on their investment, their profit is linked to higher yields and improved crop quality. Higher yields and improved crop quality are directly linked to balanced fertility programs, and ultimately to food security.

LEGAL FRAMEWORK

Nepal is landlocked and has few natural raw materials, particularly natural gas, from which to make fertilizer. Therefore, fertilizer was introduced into Nepal in the early 1950s with the introduction of a small quantity of ammonium sulphate (AS) from India, imported by private traders. This was followed by the National Trading Limited importing AS from Russia up to the mid-1960s. Until then, the level of fertilizer use was quite low.

Significant systematic efforts of importation and distribution of fertilizers began with the establishment of the Agriculture Input Corporation (AIC) under then Ministry of Agriculture in 1966. AIC, as a public sector enterprise, was responsible for procurement and distribution of chemical fertilizers in the country. Initially, it imported fertilizers from India. Later on, it

began importing fertilizers from the international market. After the introduction of AIC into the fertilizer industry, demand for and use of fertilizer started to increase. From 1966 until 1972, a “cost plus basis” of pricing was adopted. With that concept, the price of fertilizers in the Hills was fixed higher than that of Terai because of the transportation costs which were incurred while transporting fertilizers to the Hills. Later on, with the increase in international market prices, the policy was slightly altered to adopt a more uniform pricing system. With this new pricing system, the Hills farmers received fertilizers below the actual cost, whereas the farmers in Terai region paid more than the actual cost to offset the cost of transportation.

With the rise in international fertilizer prices in 1973-74, the government elected to introduce a price and transportation subsidy program in selected Hill districts. The subsidy policy aimed to encourage farmers to use fertilizers by providing it at a relatively low price, and also to discourage outflow of fertilizers from Nepal to India by keeping the price 15-20% higher than that of India. The AIC paid the difference between the actual cost and selling price.

With the growing demand for fertilizer and the continuous rise in international fertilizer prices, the government was forced to bear an increasing financial burden as a subsidy allocation. Being a politically sensitive issue, the government was also hesitant to make price adjustments. As a result, this situation aggravated the AIC's losses. The AIC became unable to import fertilizers as per the demand, resulting in short supply. To partially offset the fertilizer shortages during this period, Nepal obtained additional fertilizer via foreign aid from several countries including Japan, Germany and Finland.

CHEMICAL FERTILIZER CONTROL ORDER (FCO) 1998

In order to regulate the liberalized fertilizer trade, the GON issued the Chemical Fertilizers (Control) Order 1998 by using the authority under the Essential Commodities Control (Authority) Act, 1961. The Ministry of Agriculture and Cooperatives (MoAC) was given the responsibility of implementing this order. To assist the implementation, a Fertilizer Unit was established in the ministry. The major objectives and the features of the Order were:

- » Control the quality and regulate the production, import and trading of chemical fertilizers.
- » Define the specifications of fertilizers.
- » Appoint fertilizer inspectors to inspect the quality of the fertilizers in the markets so that quality fertilizers are made available to the farmers.
- » Register the factories for internal production.
- » Register the traders and importers.
- » Document fertilizers being traded in the country and monitor and regulate quality.
- » Provision for designating the authorized analyst of fertilizers.
- » Provision for a Fertilizer Advisory Committee under the chairmanship of the Secretary of MoAC for formulating policies and priorities and for prescribing specifications and quality standards.

After the subsidy was withdrawn in 1999, local market prices for fertilizer were determined by international import prices. When international prices increased rapidly, the prices for fertilizers in the Nepali market often were more than 100% higher than in Indian markets. Therefore, because of a porous border and a very weak regulatory management of fertilizers, informal trade of imports from India to Nepal flourished at an unprecedented scale.¹⁶⁹

CHEMICAL FERTILIZER DIRECTIVES 2000

As provisioned by the Chemical Fertilizer (Control) Order, 1998, MOAC issued the Directives mainly to regulate the registration and renewal of fertilizer traders and to organize the analysis of chemical fertilizers. Main points of the Directives include:

- » Any trader intending to carry out fertilizer business in Nepal is mandated to register with the concerned District Agriculture Development Office (DADO).
- » The traders and the importers are required to report about their business and import of the fertilizers to this office periodically.
- » The DADO is authorized to renew the registration of the traders or cancel if the trader is selling fertilizers of poor quality or poor standards.
- » The DADO is authorized to monitor and supervise supply of fertilizers at the local level (Clause 12). If, during the monitoring, sub-quality fertilizer is discovered, it should be reported to Fertilizer Inspector for further action. But as per the Fertilizer (Control) Order, 1998, the Fertilizer Inspector is nominated by the MoAC and the Department of Agriculture is to issue the Identity Card to the Fertilizer Inspector for the Concerned District.

THE NATIONAL FERTILIZER POLICY 2002

The objective of the GON's 2002 National Fertilizer Policy was to enhance agricultural productivity through improvement in soil fertility. The following strategies were adopted to achieve the objectives:

- » **Ensuring availability of fertilizers:** Making fertilizer imports reliable, competitive and transparent. Equal opportunity was provided to all fertilizer importers (public, cooperatives and private).
- » **Pricing policy and subsidy:** Market competition was relied upon to set the selling prices of fertilizers. The GON would not provide price subsidies on chemical fertilizers, but committed that it could provide fertilizers at concessionary rates in targeted geographic areas.
- » **Provision of buffer stocks:** About 20% of the estimated annual fertilizer consumption will be held as buffer stock.

¹⁶⁹ Hoyum R.A. 2012. Nepal Fertilizer and Plant Nutrient Assessment. USAID.

- » **Domestic production:** The establishment of a fertilizer plant in the country as well as investment in fertilizer plants in other countries were encouraged.
- » **Making the fertilizer distribution system transparent, competitive and effective.**
- » **Ensure quality of fertilizer:** Laboratories and monitoring of fertilizer imports were acknowledged as necessary to ensure quality.
- » **Encourage management of an integrated plant nutrients system.**
- » AICL is reimbursed at a rate of the difference between actual cost price of importing fertilizers and the sale price at import points;
- » Farmers' price to be fixed on the basis of sale price at the import points, plus transportation costs up to the delivery point;
- » Eligibility for the subsidy to be limited to farmers with land holdings of 0.75 ha or less in the hills, and 4 ha or less in the Terai;
- » Subsidized fertilizers to be provided for the technically required amounts for three crops a year;
- » Subsidized fertilizers to be sold through the offices of AICL and cooperative institutions;
- » Fertilizer supply, distribution and management committee headed by the chief district officer of the respective district to look after the various aspects of distributing subsidized fertilizers at the district level.

Between 2002 and 2009, legal free trade continued to diminish due to highly subsidized fertilizer products entering Nepal illegally from India. Therefore, since there was a huge difference in price and quality of fertilizer through legal and illegal channels, the GON reestablished a limited subsidy on fertilizer in 2009.

NATIONAL FERTILIZER POLICY REVISITED 2009

Due to increases in price, small and marginal farmers lost access to quality fertilizers in 2009. The high price of fertilizer affected the profitability of its use, from the farmers' perspective. It also impacted the competitiveness of the farmers to sell their produce. Overall, the supply situation in the Hills and remote areas remained precarious because of high transportation costs.

However, a special program did allow the GON to provide a subsidy for transport of fertilizers in 26 districts in the mountain and hill areas. This program allowed the GON to reintroduce the fertilizer subsidy on a limited scale in 2009, targeting small and marginal farmers. The program had the following key features:

- » Annual legal subsidized imports of 100,000 MT of fertilizers;
- » Sales price fixed between 20% and 25% higher than that of India for five import points—Biratnagar, Birgunj, Bhairahawa, Nepalgunj and Dhangadi;
- » AICL as the sole agency to import fertilizers to be distributed at subsidized rate;
- » Being a landlocked country with no, or limited, sources of mineral fertilizer or natural gas, the country offers limited options in terms of providing feedstock for local manufacturers.
- » Having a porous border with India, a country that provides considerable fertilizer subsidies to its own farmers.
- » The dominance of the distribution system by a parastatal (AIC Limited) that has recently been given exclusive rights to distribute subsidized fertilizer to cooperatives.

By this arrangement, fertilizer was imported and distributed by AICL. With the availability of more financial resources after the re-establishment of the subsidy on fertilizer, the subsidy program helped increase the country's fertilizer imports. However, as a result of this policy change, private traders limit imports because they cannot compete with the subsidized fertilizers.

FERTILIZER SINCE 2009

The Nepali government struggles to meet the fertilizer needs across the agricultural sector. The GON faces a number of critical challenges in setting appropriate fertilizer policies for the country. These challenges include:

- » An uncertain policy regarding fertilizer subsidies. The duration of the recently re-established fertilizer subsidies, financed by the central budget, remains unclear.
- » A very limited knowledge about the current situation about fertilizer use and demand, given the absence of regular and recent surveys on fertilizer use in Nepal.
- » The lack of enforcement of existing fertilizer policies, particularly with respect to adulterated fertilizer distribution.

In Nepal, new fertilizer products still must be approved before being sold on the market. As of 2012, 28 new fertilizer products had been approved. Approving a new product can take one to two years. Because N-P-K fertilizers are subsidized and handled only by the AIC, private traders are excluded from receiving subsidies. These traders focus on secondary nutrients and micronutrients, as well as organic fertilizers.

Private traders can import fertilizers without an import permit. However, in addition to a customs inspection, an MoA inspection is required at the point of import. The inspection may take several days, during which time trucks may proceed but fertilizer may not be sold. From personal interviews, it was unclear what exact process exists for products which fail to pass the MoA inspection. Regardless, the MoA inspection appears to be an unnecessary barrier and could be eliminated. Unlike other agricultural products or inputs, there is no duty on fertilizer imports into Nepal.

Although illegal cross-border trading is a major social and political problem in Nepal, as of 2013 there has been little effort to address the issue and harmonize fertilizer trade (or any agricultural trade, for that matter) in the region. The team suggests that Nepal open discussions with India to explore long-term solutions to alleviate illegal cross-border trade of highly subsidized fertilizers, thus improving the availability and quality of fertilizer for Nepali farmers.

IMPLEMENTING INSTITUTIONS

The GON issued the Chemical Fertilizers (Control) Order 1998 by using the authority under the Essential Commodities Control (Authority) Act, 1961. The MoAC was given the responsibility of implementing this order. To assist the implementation, the **Agriculture Inputs Company (AIC)** was established in the ministry.

AIC, as a public sector enterprise, had a monopoly in fertilizer trade for a long time before the government decided to deregulate the fertilizer trade in 1997-98. Prior to this time, the AIC had full control for procurement and distribution of fertilizers. In addition, the sale prices of fertilizers were regulated by the government. Again in 2009, subsidized fertilizer was imported and distributed only by AIC.

As stated earlier, the availability of more financial resources after the re-establishment of the subsidy on fertilizer has increased imports. However, it still only provides about 20% of the country's total demand for fertilizer. Under this policy change, the private traders are now limiting imports of N-P-K fertilizers because they cannot compete with the subsidized fertilizers.

Whereas India and Bangladesh have had significant research programs for years, the lack of a similar program in Nepal has seriously constrained agricultural development efforts.

In recent years, international fertilizer prices have risen to new highs. In addition, sea freight, port clearance and the cost of transportation from the Kolkata port have all risen. Based on conversations with private traders, the cost of transporting fertilizer from the port in Kolkata to Nepal can account for as much as 20% of the cost of delivered fertilizer. On top of this, the Nepalese currency has devaluated steadily against the US dollar. As a result, fertilizer prices in Nepal are very high.

This scenario has encouraged market actors to bring in large volumes of illegally imported, highly subsidized fertilizer from India. Presently, it has been estimated that nearly 70-80% of the 600,000-800,000 MT of fertilizer consumed in Nepal are improperly imported¹⁷⁰. However, the AIC's goal was to import 200,000 MT of fertilizer in 2012.

¹⁷⁰ Hoyum R.A. 2012. Nepal Fertilizer and Plant Nutrient Assessment. USAID.

TABLE 19: ENTRY POINT SELLING PRICES BY AIC (USD/MT) IN 2012

| PRODUCT | SUBSIDIZED PRICE | AIC COST PRICE | GON ESTIMATED COST |
|-------------|------------------|----------------|--------------------|
| Urea | 180 | 350 | 34,000,000 |
| DAP | 320 | 520 | 40,000,000 |
| MOP | 200 | 380 | 36,000,000 |

Table 19 shows the entry point selling prices by AIC for urea, DAP and MOP at Biratanagar, Birguni and Bhairahawa in 2012.

As stated earlier, the GON reintroduced fertilizer subsidies in 2009, after phasing them out in 1997; this resulted in significant market changes. As of 2013, the retail fertilizer price for farmers through the AICL was set at 20-25% above Indian prices at the border, plus the cost of transportation. After the **National Fertilizer Company (NFCL)** imports fertilizers, the AICL distributes them through 41 regional outlets and 1,200 cooperative retail locations.¹⁷¹

The basic infrastructure for sustainable agriculture begins with a viable agricultural research program. Whereas India and Bangladesh have had significant research programs for years, the lack of a similar program in Nepal has seriously constrained agricultural development efforts. The **Nepal Agricultural Research Council (NARC)** is the principal agency undertaking research in Nepal. It is the responsibility of NARC to provide fertilizer recommendations.

However, research from the perspective of crop response to nutrients has been limited. In fact, in many cases, the soil conditions have not been evaluated from a crop nutrition standpoint in more than 20 years. Scientists are increasingly concerned that the agricultural soils of Nepal are becoming more acidic. In fact, it has been estimated that more than 75% of the farmers are not aware of the need for lime.¹⁷² Note that liming soils is one of the most basic soil management practices available to farmers; it's perhaps the most important consideration in soil fertility management, and even more important than fertilizer.

The team also found that many interviewees felt that NARC is not responsive enough to farmers' emerging needs or the demands of the private sector in a very competitive environment.

In recent years, the NARC budget has eroded, leading to decreased research and subsequent staffing problems. For NARC to participate in regional research and dialogue, it must be able to receive more funds and become more efficient. With proper funding and a clear vision for high yielding agriculture, NARC could offer significant opportunities for faculty and graduate student exchanges with other academic organizations throughout the region and around the world.

As noted earlier, soil testing is a very important tool for farmers in managing high yielding and profitable cropping systems. Unfortunately, many farmers in Nepal do not have access to soil testing. There are only six soil testing laboratories in Nepal; one in Kathmandu and five scattered across other regions. Together, these labs process about 5,000 samples per year. Considering the millions of small farms in Nepal, 5,000 soil samples is only a small fraction of the country's total agricultural area. The soil testing facilities are managed by the **Soil Management Directorate (SMD)** under the Department of Agriculture. The SMD is also responsible for the national Soil Fertility Map Project. To date, 32 districts are complete in the Map Project, but 43 districts remain to be mapped. These maps are a valuable management tool and educational resource which could also improve with increased funding and more coordination with NARC and Agricultural Extension.

Another valuable Directorate for developing and maintaining sustainable agriculture is the Agricultural Extension Directorate. Like many other agencies within Nepal, the Agricultural Extension Directorate undergoes a restructuring every few years. Such frequent organizational changes make it difficult to undertake long-term programs. Like NARC, the public extension system has been hindered by a lack of resources, especially trained staff. Currently, extension activities relating to crop cultivation practices are carried out through the Department of Agriculture (DoA) district offices in all 75 districts of the country. Each district office operates through a network of four to five service centers, each of which covers two to four

¹⁷¹ Pullabhotla H, Shreedhar G, Ganesh-Kumar A, Gulati A. 2011. A Review of Input and Output Policies for Cereals Production in Nepal. IFPRI discussion paper no. 01114. Washington, DC: IFPRI

¹⁷² Goletti F. 2003. Nepal Fertilizer Use Baseline Study – Volume I; Agrifood Consulting International.

Village Development Committees (VDCs).¹⁷³ Considering the country's difficult terrain, physiographic situation, limited transport facilities and physical infrastructure, extension workers certainly appear to be stretched thin in terms of their workload.¹⁷⁴

There is evidence that some of the extension education and field demonstration work is being handled by the private sector. In particular, with the government's recent support and focus on organic fertilizers, the private sector has educated farmers, in at least some districts, on the need for balanced crop nutrition involving both chemical and organic fertilizers.

...the private sector has educated farmers, in at least some districts, on the need for balanced crop nutrition involving both chemical and organic fertilizers.

SUPPORTING INSTITUTIONS

Although the public sector is primarily involved in implementing fertilizer policy, it is supported by two other pillars of national economic development: cooperatives and the fertilizer private sector. In recent years, the **Cooperative System in Nepal** has been instrumental in carrying forward national policies and programs to strengthen cooperatives for inclusive, equitable and sustainable agricultural development. In a regional context, Nepal cooperatives have engaged with international cooperatives, particularly in India and China.

Where Nepal's cooperatives have been active at both the national and international level, the private fertilizer sector in Nepal is, as of 2013, just beginning to organize the **Nepal Fertilizer Association**. This is a significant step toward becoming a stronger voice in the shaping of fertilizer policy and implementation. The private sector has had little public policy influence thus far; for example, in the development of the 2002 National Fertilizer Policy, the private sector was basically excluded. With such important issues as free trade and fertilizer subsidies at stake, it's crucial that the fertilizer industry organize itself locally, nationally and internationally.

Trade organizations in both Bangladesh and India are well developed and have had significant influence on policy and trade issues. In Nepal, open communications between the public and private sectors concerning fertilizer trade must be

a both a short- and long-term goal. Having a viable fertilizer trade organization in Nepal will promote regional harmonization with Bangladesh and India.

When legal fertilizer imports by AIC (or NFCL from 2010) and the private sector decreased from 174,000 MT in 2002-03 to 15,000 MT in 2008-09, open communications between the public and private sectors were critical.¹⁷⁵ Unfortunately, the government reintroduced fertilizer subsidies in 2009, yet made no arrangements to pay subsidies to private companies. This negatively effected the private companies by reducing their ability to compete in the market. Heavily subsidized, legal imports of fertilizer recovered to 100,000 MT in 2009-10 and 180,000 MT in 2010-11.¹⁷⁶ Note that all public statistics and discussions focus only on the legal import of fertilizer products which ignores 80% of the real fertilizer market. For example, fertilizer use was estimated to have grown from 300,000 MT in 2002 to over 800,000 MT in 2012.¹⁷⁷ By all accounts, smugglers provide most of the fertilizer reaching farmers in Nepal, accounting for as much 80% or more of fertilizer imports over the past decade. Although the annual quantity of smuggled fertilizer from India to Nepal is significant, it is still less than 1% of the NPKS fertilizer distributed in India (500,000 MT vs. 65,000,000 MT).

Unfortunately, although illegal fertilizer imports provide a somewhat dependable supply to Nepali farmers, smuggled fertilizer is often highly priced and adulterated. Nepal has a long, open border and very few inspectors; thus, there are basically no controls over the amount of fertilizer smuggled into the country or the quality of fertilizer smuggled into the country.

From a recent farm-level survey, average fertilizer use on rice and maize is over 200 kg/ha.¹⁷⁸ Across Nepal's 3.2 million ha of cultivated land, this would indicate that fertilizer use exceeds 700,000 MT. Fertilizer use is projected to increase to 1,500,000 MT in 2022;¹⁷⁹ this would provide just over 400 kg/ha, comparable to current fertilizer use in Bangladesh. Note, however, fertilizer use in kg/ha is only one measurement of value.

¹⁷³ IFPRI 2010. Ensuring Food Nutritional Security in Nepal; Prepared for USAID Nepal.

¹⁷⁴ Chapagain D. 2010. Background paper on Enduring Food and Nutritional Security in Nepal – A stocktaking exercise

¹⁷⁵ Shrestha RK. 2010. Fertilizer policy development in Nepal. Journal of Agriculture and Environment. 2010: vol 11, pp 126-137.

¹⁷⁶ Joshi KD, Conroy C, Witcombe JR. 2012. Agriculture, seed, and innovation in Nepal: Industry and policy issues for the future. Washington, DC: IFRPI.

¹⁷⁷ Hoyum R.A. 2012. Nepal Fertilizer and Plant Nutrient Assessment. USAID.

¹⁷⁸ Joshi KD, Conroy C, Witcombe JR. 2012. Agriculture, seed, and innovation in Nepal: Industry and policy issues for the future. Washington, DC: IFRPI.

¹⁷⁹ Hoyum R.A. 2012. Nepal Fertilizer and Plant Nutrient Assessment. USAID.

Not only is the total amount of fertilizer (NPK) consumption low in Nepal, but the N:P:K ratio is also very imbalanced, as mentioned previously. Blended fertilizers for different crops under different soil conditions are not available in Nepalese markets; furthermore, most farmers in Nepal are uneducated and have little or no knowledge of balanced fertilization. Most Nepali farmers prefer to apply more nitrogenous fertilizer, as it shows a quick response to the crops. However, continuous and heavy use of nitrogen fertilizer application has, over time, adversely influenced soil fertility, crop yields and crop quality, as well as the sustainability of crop production. A widening in the ideal ratio of NPK is against the principle of balanced fertilizer use, and thus a matter of concern for sustainable soil fertility. The NPK use ratio has improved in recent years in Nepal. According to NARMA, a local consultancy, in 2006 it was 4.7:2.8:1. The NPK use ratio in India is 9:3:1. The assumed ideal NPK ratio is 4:2:1.

Because of Nepal's constraints to supply quality chemical fertilizers on time, the production and use of organic manures including compost, farm yard manure (FYM) and other bio-fertilizers need to be promoted. In this context, the GON has started providing subsidies for bio-fertilizer production and use. In fiscal year 2011, a total of \$100,000 was allocated for subsidizing organic fertilizer, particularly vermin compost, and AICL purchased about 4000 MT vermin compost. The sale and distribution of bio-fertilizer continues at present; currently, six vermin compost production plants receive support, four to five other plants are in the process of registration and eight to ten production plants are in the pipeline.

Two guidelines; "Organic and Bio-Fertilizer Monitoring" and "Organic Fertilizer Subsidy" are supported by the MoA. The GON has also prioritized the Integrated Plant Nutrient Management System (IPNMS) as a strategic tool to increase crop production in a sustainable way. Although a worthy program, IPNMS has yet to be broadly accepted by farmers.

For years, nutrient management systems worldwide have been guided by soil testing and plant analysis. Although soil testing is available in Nepal on a limited basis, plant analysis is presently not available to Nepali farmers. In developing countries like Nepal, potassium-induced Mg deficiencies have frequently been reported and remain a critical variable for policy makers to understand to fully develop incentive systems that address the needs of farmers. This antagonistic effect of K on Mg adsorption is a major reason for including Mg in fertilization programs. In Nepal, dolomite lime is a good source of Mg. Unfortunately, in today's production cropping systems the

focus has primarily been on N-P-K management, rather than on secondary nutrients and micronutrients. However, more recently, there has been a growing interest in Nepal for supplying adequate amounts of S and Mg, as well as certain micronutrients. An often overlooked effect in nutrient management is the role of nutrients interacting with each other. These effects can be either antagonistic or synergistic and they can have very important implications with respect to plant nutrition. As previously mentioned, potassium exerts a strong antagonistic effect on the uptake of Mg. In fact, this is one of the strongest and most frequently encountered antagonisms in plant nutrition worldwide.

Therefore, farmers must be careful to properly balance crop nutrients as they increase nutrient applications to enhance yield. Because policy choices affect farmers' fertilization decisions through the use of incentives (e.g., subsidies), it's essential that the GON and donors carefully consider the effects of the policies they promote—taking into account the critical element of nutrient pricing on eventual nutrient usage.

As mentioned earlier, fertilizer use in Nepal has, historically, depended on the importation certain fertilizer products rather than focusing on nutrient needs of crops. This has resulted in an imbalance of nutrient use and degradation of soils. To encourage a positive change, the GON and donors should consider the 4R Nutrient Stewardship approach as a basis to future policy decisions. The concept is using the **Right Source** of fertilizer, at the **Right Rate**, at the **Right Time**, and placing it in the Right Place. This concept is a perfect platform for promoting a balanced crop nutrient program through extension education and soil testing. The 4R Nutrient Stewardship Approach has been widely promoted for several years by IPNI, The Fertilizer Institute, International Fertilizer Association, agricultural universities and other agricultural organizations internationally. Already well recognized in India, this concept must be embraced by the fertilizer industry in Nepal in order to help Nepal's agricultural sector keep pace with development in the region.

SOCIAL DYNAMICS

The fertilizer subsidy program in Nepal is broken, and needs to be redesigned to better target real needs of farmers, particularly in the Hill country. For example, sources suggested that a better use of the fertilizer subsidy budget would be to develop the liming industry which is so badly needed by farmers across Nepal. The long overuse of urea has acidified soils on many farms.

From a 2012 survey of farmers and other stakeholders, it was found that 88% of cooperative managers reported “the lack of available fertilizer at the right time” the most important reason they did not have adequate fertilizer supplies.¹⁸⁰ This is also a major reason for the significant rise in recent years of illegal/informal fertilizer trade from India.

The team found a general consensus that this level of subsidy is neither affordable nor sustainable in Nepal. Another study sponsored by the Global Development Network recommends “diplomatic discussions and negotiations between India and Nepal for making subsidized fertilizers from India available for sale to Nepal, with the subsidy treated as aid to Nepal, should be seriously undertaken.”¹⁸¹ Several experts have proposed that collaborative ventures between Nepal and India to develop Nepal’s phosphorus rock reserve and/or the agricultural lime industry be part of the discussions¹⁸².

Rather than compete with Indian subsidized fertilizer and its illegal movement into Nepal, Nepal should explore ways to legalize it and promote freer trade along the open border with India.

Rather than compete with Indian subsidized fertilizer and its illegal movement into Nepal, Nepal should explore ways to legalize it and promote freer trade along the open border with India. This free trade approach would promote agricultural development on both sides of the border, as well as reduce food insecurity in the region. Legal trade could also promote improved fertilizer quality since much of the product would be routinely sampled and analyzed. Again, some of the subsidy budget could be redirected for enhancing border

security and quality control. Furthermore, being legal and freely traded, fertilizer prices would gradually stabilize as the private sector increased its participation in the marketplace.

It would be envisioned that a Nepal fertilizer subsidy program would remain in place during the transition toward a more free market society. However, sources suggested that the existing subsidy program be redesigned to better support a growing agricultural environment, as well as to support a bilateral free trade agreement with India. An additional benefit of a free trade agreement would be to provide additional opportunities for formal cross-border trade by women. This has the potential to generate economic growth and increase food security while reducing poverty among vulnerable households.

Presently, traders are only allowed to import fertilizer at the Kolkata and Haldia ports in India. Both ports are heavily congested and port charges are high, resulting in significant non-tariff trade barriers.

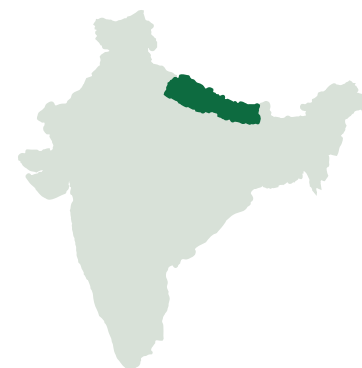
Apparently, it takes about one month to get a berth for a vessel on arrival. Labor costs are high and labor unions make change to operational plans difficult. It has been recommended that the Governments of Nepal and India discuss additional port and transit opportunities, such as allowing fertilizer to be imported at the Paradeep and Vizag ports. Transit opportunities should also include the Jogbani, Raxaul and/or Nautanwan railroads which are connected to Nepal’s border towns. Another option for importing fertilizer could be through Bangladesh and with a regional trade agreement. Fertilizer could be imported at Chittagong and then transported to Nepal through a combination of waterways, overland trucks and/or by the Rohanpur/Singabad rail routes connecting to Jogbani, Raxaul and/or Nautanwan railways in India. Having additional import options should provide traders opportunities for improved efficiency and economies of scale.

¹⁸⁰ Hoyum R.A. 2012. Nepal Fertilizer and Plant Nutrient Assessment. USAID.

¹⁸¹ Mujeri MK. 2012. Improving the Effectiveness, Efficiency and Sustainability of Fertilizer Use in South Asia. Global Development Network, New Delhi, India.

¹⁸² Misra RV. 2011. Nepal. In: Case Studies on Policies and Strategies for Sustainable Soil Fertility and Fertilizer Management in South Asia. Rome: FAO; Hoyum R.A. 2012. Nepal Fertilizer and Plant Nutrient Assessment. USAID.

ANNEX 9: TRADE IN GRAINS – NEPAL



INTRODUCTION

While Nepal is nearly self-sufficient in grain production,¹⁸⁴ localized food shortages occur in 28 out of 75 districts on an annual basis.¹⁸⁵ The ability of Nepali households to access food is not only a function of income but also of geography. The concept of national food self-sufficiency, a goal unto itself for many policy makers, is of limited value in Nepal where intra-regional trade is often not possible and where households often lack the financial means to buy from markets even where food is available.¹⁸⁶

The ability to freely trade grains across borders, informally and formally, primarily with India, is an important component of Nepal's food supply. At the height of the food price crisis in 2007, India banned the export of non-basmati rice to Nepal. The policy, if enforced, would have had potentially devastating effects for Nepal. Despite the significant political turmoil that ensued, the 7,000 km of porous border between the two countries permitted grains to flow freely into Nepal despite the policy. Four months after the imposition of the ban, Indian

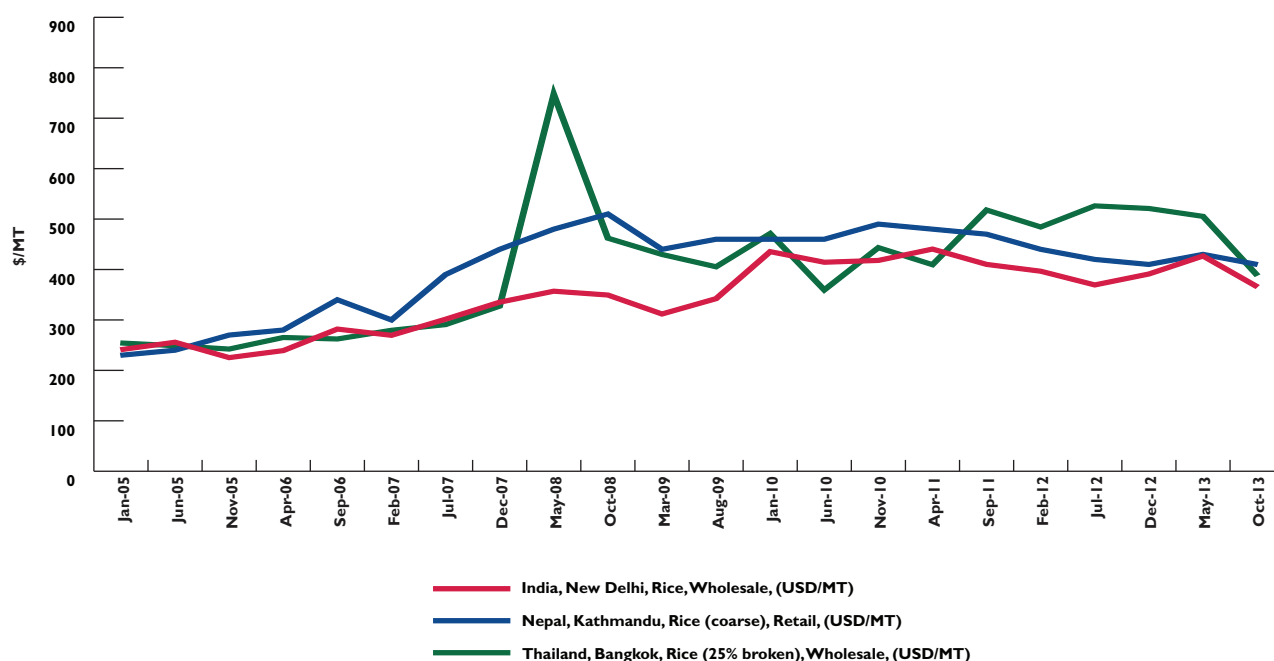
authorities lifted the ban (for Nepal only) causing price volatility to increase, with only short-term deviation from New Delhi prices. Nepal never experienced the dramatic price spike seen throughout the world as part of the international food price crisis, shown dramatically in Figure 7.

¹⁸³ Government of Nepal, 2012, *Statistical Information on Nepalese Agriculture*.

¹⁸⁴ Interview with WFP representatives.

¹⁸⁵ WFP, 2012. Nepal Crop Situation Update.

FIGURE 7: COMPARISON OF NEPAL AND WORLD RICE PRICES



Source: <http://www.fao.org/giews/pricetool/>

The FCI's large role in Indian production and marketing of grains, rice and wheat in particular, has a profound effect on dynamics across the Nepali grain market. Consistently rising government GOI procurement prices (i.e., the MSP) combined with subsidized fertilizer, irrigation and electricity have lowered the cost of Indian grain production, and thus increased India's export competitiveness vis-a-vis Nepal's. While the lower prices remain a boon to Nepali consumers, producers and millers in Nepal continue to struggle against the tide of cheap Indian imports.

TRADE IN GRAINS – A SNAPSHOT

While the relatively cheap rice and wheat imports help reduce the burden of food security in Nepal, mechanisms to protect the poor from seasonal scarcity and price increases are severely limited. There is no meaningful social safety net program, the National Food Corporation (NFC) handles too little grain to make the market and the World Food Program (WFP) is left shouldering a disproportionate share of the food-related social safety net burden.

Official statistics show a pattern of meeting basic national grain consumption needs some years but not others (see Figure 8). For example, from 2002-12, national grain consumption was insufficient to meet consumer needs four out of ten years.¹⁸⁶

¹⁸⁶ Government of Nepal, 2012, *Statistical Information on Nepalese Agriculture*.

In 2008 Nepal introduced a ban on the export of rice in the midst of the global food price crisis and a national grain deficit estimated at 179,910 MT. The temporary export ban was lifted following a national production surplus¹⁸⁷ of 886,387 MT in 2012, allowing the GON to export consignments of rice officially for the first time in more than five years.

Nepal officially imported 386,220 MT of rice in its fiscal year 2011-12, the vast majority (96%) of it coming from India.¹⁸⁸ Official statistics need to be taken with a grain of salt given the widely acknowledged informal trade flows along the 7,000 km porous border the country shares with India. Officials reported that 20-30% of the total rice imports are likely to be informal. Other market actors estimated informal rice imports could be as high as 60% of available rice in the market. One thing is for sure: India is a critical supplier of Nepali rice markets, dominating the market during about half the year each year.

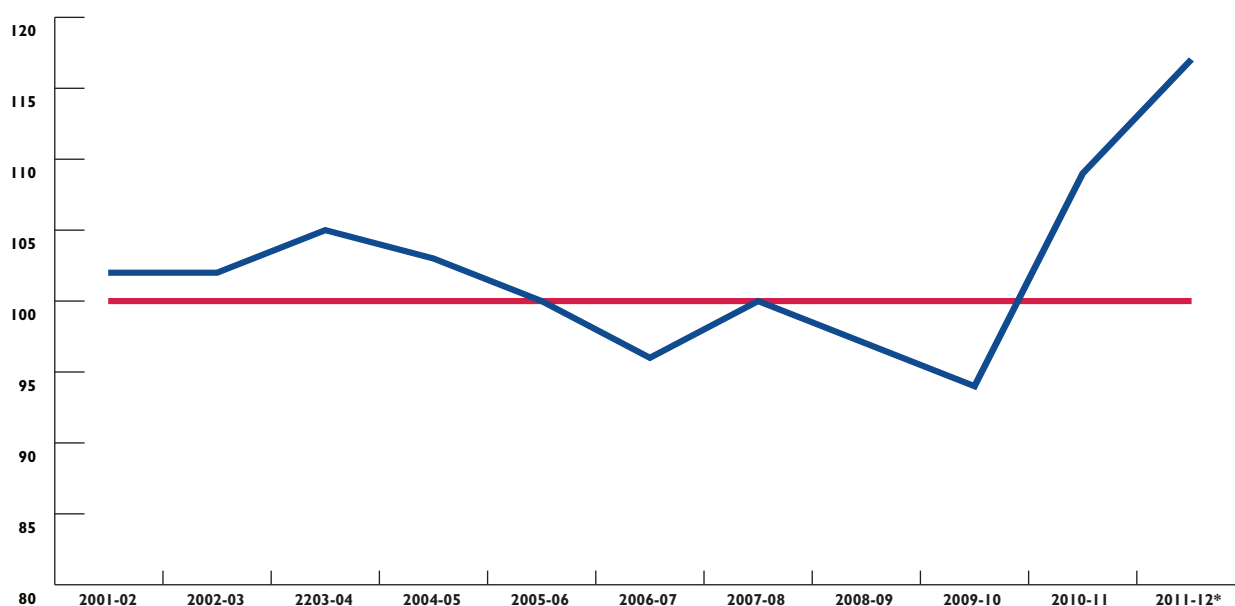
Grain prices tend not to be well correlated across districts of Nepal (due to the excessively high transaction costs) but are well correlated across border points between Nepal and India.¹⁸⁹

¹⁸⁷ Using GON estimates.

¹⁸⁸ Government of Nepal, 2012, *Statistical Information on Nepalese Agriculture*.

¹⁸⁹ Sanogo.Issa. "Spatial Integration of the Rice Market: Empirical Evidence from Mid-west and Far-west Nepal, and the Nepalese-Indian Border". *Asian Journal of Agriculture and Development*, Vol. 4, No. 1. 2008.

FIGURE 8: NEPAL GRAIN SELF-SUFFICIENCY (% OF REQUIREMENT)



Source: Government of Nepal, 2012, *Statistical Information on Nepalese Agriculture*.

Poor or non-existent road networks limit the trade of grains from surplus producers in the Terai to deficit areas in the Hill and Mountain areas, often leaving traders in the Terai more connected with northern India than other parts of Nepal. Based on these observations, Nepali markets tend to be as affected by Indian food and agriculture policies, if not more affected, than they are by their own domestic policies. Three particularly notable examples of such policies include India's minimum support price system, minimum export pricing and input subsidies.

LEGAL FRAMEWORK

Nepal has a well-developed set of national policy frameworks outlining the nation's agricultural strategy, including the production and trade in grains. At the highest level, the GON is finalizing the **Agricultural Development Strategy to guide policy direction for the next twenty years, following twenty years of implementation under the Agricultural Perspective Plan. The Nepal Agriculture and Food Security Country Implementation Plan** and the **National Agriculture Sector Development Priority**, together, create the country's medium-term plan to coordinate policy and priorities.

Despite an ostensibly open trade regime, the GON imposes restrictions on the trade of staple grains in the name of food security. The **Essential Commodities Control (Authorization) 2017 Act (1961)** provides the GON a legal basis to control the production, distribution, or trade of "essential commodities," including rice, wheat and maize. The only duty on agricultural imports is a 5% "agricultural reform fee. Despite the legal basis to do so under the Essential Commodities Control Act, given Nepal's long open border with India, the GON has little opportunity to influence domestic cereals prices through import or export policies.

GRADES, STANDARDS AND SPS MEASURES

Grades and standards are established by The **Nepal Standard Act 2037 BS (1980 AD)** and the **Standard Weights and Measures Act 2025 BS (1968 AD)**, also providing for the establishment of the Nepal Bureau of Standards & Metrology (NBSM). While grains tend not to be graded or inspected against prevailing standards, this is mostly reserved for Nepal's exports. Interviewees noted that the country has a long way to go before having a fully functional system of grades and standards that facilitate trade and provide for human and plant health generally.

RELEVANT LEGAL FRAMEWORK

- » Relevant Legal Framework
- » **Essential Commodities Control (Authorization) 2017 Act (1961)**
- » **The Food Act, 2023 (1966)**
- » **Food Regulation, 2027 (1970)**
- » **Feed Act (Animal Concentrate), 2023 (1966)**

The **Food Rules Act 2027 (1970)** and **Food Act 2023 (1966)**¹²¹ govern Nepali trade in food products, including those areas that fall under the country's commitment to the SPS Agreement under the WTO. The statutes and regulations together were intended to ensure food safety through three pillars: inspection, oversight and enforcement. In its current form, the legal and regulatory framework does not form a comprehensive foundation for food safety that balances the needs of consumers, producers and processors. The current food law forces the state to be reactive and enforcement-oriented as opposed to (the less costly) prevention-oriented. This is particularly troubling given the limited enforcement capabilities within Nepal, including at border posts as noted in the trade section of this report.

The legal and regulatory framework for food lacks specificity to the point of hampering implementation (e.g., does the "substandard" principle include or exclude product with aflatoxin contamination?). Moreover, key principles of a forward-looking food law, including reliance on transparent and independent scientific advice, the use of risk management as a core pillar of implementation and inclusion of the private sector are all left out of the legislation and accompanying regulations. Key elements of future legal and regulatory reform in this area should focus on the country's reliance on international trade and the importance of legal, regulatory and institutional harmonization to lower the cost and increase the stability/predictability of trade flows (e.g., harmonization of grades, standards, testing procedures, and border infrastructure).

The **Plant Protection Act 2064 (2007)** provides a legal basis for governing Nepal's trade in plants and plant products while the **Plant Protection Rules 2066 (2010)** empower the national plant protection organization to implement the Act. The harmonization of standards between SAARC members is reported to be moving forward, based on 2012 SAARC technical meetings, albeit slower than most stakeholders think necessary.

While Codex standards do exist for certain grain and grain products traded between Nepal and its neighbors, interviewees pointed out that these standards tended to be applied differently in each of the respective countries. Despite the increasing frequency of quarantine checks reported by interviewees, informal trade evades such checks, thus rendering the system ineffective. Some interviewees suggested that the checks, nominally in the name of pest and disease inspection, may in fact be an “informal protection measure” or non-tariff barrier.

TAXATION

Taxation of agricultural goods moving throughout Nepal substantially increases the cost of these goods to consumers. People interviewed for this report noted that it is often easier to export grains (despite export bans) than it is to trade grains domestically. For instance, a consignment of rice from Nepalgunj to Kathmandu will need to pay at least four different formal and informal levies, including Village Development Committee (VDC), District Development Committee (DDC), municipality taxes and informal payments to local officials. One trader illustrated the intensity of this issue by noting that the taxes on moving grain from Nepalgunj to Kathmandu increase the cost of the journey by 84%. Interviewees listed internal taxes as a main driver of increasing informal exports to India (including grain exports). The FNCCI, brought and won a case against this issue of local district taxation in 2012. However, five months after the case closed, local and regional authorities were once again applying these taxes despite the Supreme Court’s decision.

PRICE STABILIZATION AND OTHER PUBLIC INTERVENTION

A gradual phasing out of MSP purchases as part of a liberalization program has generally coincided with a decline in food procurements by the NFC, leading to a decline in stocks and use of storage facilities. NFC, who maintains a mandate to stabilize food markets, would need to make substantial and costly interventions to make a marked impact on food price stability in the country given the tremendous effect of Indian supply and demand. India’s policies during the crisis stabilized Nepali prices, largely sheltering Nepali consumers from the full force of the food price crisis. A number of commentators have noted that the principle source of market instability during the global price crisis was not the global price of grain, but rather domestic political activity.

People interviewed for this report noted that it is often easier to export grains (despite export bans) than it is to trade grains domestically.

IMPLEMENTING INSTITUTIONS

The principle agencies responsible for implementing the legal and regulatory framework for grains include the **MOAD** and the **Ministry of Cooperatives and Poverty Alleviation (MOCPA)**. Interviewees widely cited the influence of political parties in the administration of grain trade to and from Nepal. After 10 years of conflict, the parties are widely blamed for the lack of progress in implementing the legal framework set out above.

The **Ministry of Agricultural Development (MoAD)** is the lead implementing agency for issues related to grain and grain products in line with their overall responsibility towards the development of the agriculture sector. MoAD’s Agribusiness Promotion and Marketing Development Directorate is charged to monitor and regulate cereals trade¹⁹⁰. However, the GON has very little involvement in cereal imports or distribution. MoAD’s Agribusiness Promotion and Marketing Development Directorate reportedly pays less attention to cereals trade, focusing instead on perishable goods.¹⁹¹

The **National Food Corporation (NFC)**, whose goal is market stability, is authorized to procure and distribute cereals on behalf of the GON. The NFC is widely considered too weak to affect market outcomes, instead focusing on keeping civil servants and military personnel stocked with subsidized grain. Since marketing year 2007, the NFC began procuring rice from farmers at market prices.¹⁹² The NFC reports a current stockpile of 33,000 MT of rice, inclusive of the 8,000 MT allocated to the SAARC Food Bank. NFC distributes cereals in 30 districts, especially remote districts with limited road access.¹⁹³ Sources consulted for this review did not indicate what amount of cereal, if any, the NFC receives from food aid or commercial imports.

¹⁹⁰ Pullabhotla H, Shreedhar G, Ganesh-Kumar A, Gulati A. 2011. A Review of Input and Output Policies for Cereals Production in Nepal. IFPRI discussion paper no. 01114. Washington, DC: IFPRI.

¹⁹¹ Pullabhotla H, Shreedhar G, Ganesh-Kumar A, Gulati A. 2011. A Review of Input and Output Policies for Cereals Production in Nepal. IFPRI discussion paper no. 01114. Washington, DC: IFPRI.

¹⁹² Pullabhotla H, Shreedhar G, Ganesh-Kumar A, Gulati A. 2011. A Review of Input and Output Policies for Cereals Production in Nepal. IFPRI discussion paper no. 01114. Washington, DC: IFPRI.

¹⁹³ Pullabhotla H, Shreedhar G, Ganesh-Kumar A, Gulati A. 2011. A Review of Input and Output Policies for Cereals Production in Nepal. IFPRI discussion paper no. 01114. Washington, DC: IFPRI.

Public distribution of food grain in Nepal is the responsibility of the NFC. However, the Corporation has too few financial resources to fully affect this role. The GON, through the NFC, held a buffer stock of 15,000 MT in 2011, which was increased to 25,000 MT in 2012. Lack of rural infrastructure, particularly roads, prevents an immediate reaction to localized food crises. To help mitigate the risk associated with poor infrastructure, the government stores its buffer stock in eight locations across the country. Nepal's contribution to the SAARC Food Bank is held in five different locations, mostly in areas where grain is procured (i.e., the eastern part of the country).

GRADES AND STANDARDS

Until recently, Nepali exporters need to rely on Indian and other international labs in order to obtain certifications for agricultural products. In 2012, the Department of Food Technology and Quality Control received accreditation for testing food quality. NBSM is in the process of receiving international accreditation for a wider array of certification services. The accreditation is an essential step towards easing the flow of agricultural products through formal trading systems. Of course, most grain traded between Nepal and its neighbors is traded informally or semi-formally, not requiring certifications to cross borders.

The Nepal Bureau of Standards and Metrology (NBSM) is the National Standards Body of Nepal, falling under the Ministry of Industry, Commerce and Supplies. NBSM is responsible for the establishment of national standards and the adoption or recognition of international standards; it also acts as a Secretariat for the Nepal Council for Standards (NCS). NBSM is responsible for carrying out market surveillance and providing testing facilities, calibration and laboratory accreditation services.

The **Office of Plant Quarantine**, under the **Plant Protection Directorate** in the Department of Agriculture is in charge of implementing sanitary and phytosanitary measures across Nepal. Experts within the agriculture sector note that sanitary and phytosanitary (SPS) measures still need to shift towards a risk assessment model, to deploy government resources as efficiently as possible. Similarly, public and private actors noted that government entities responsible for protecting plant health need to narrow their focus on pest detection and eradication so that Agency priorities fall within the manageable limits of a low-budget and limited capacity institutional arrangement.

The authorities have prioritized the harmonization of Nepali standards with Codex standards for goods bound for export markets. However, interviewees noted that NBSM still needs to raise the awareness around foreign standards while gradually raising the bar within and across domestic trade. Grains and grain products are not considered priorities in this area and are not likely to fall under this umbrella in the near term. Moreover, sources noted that authorities need to focus more on building the credibility (both formal and informal) of local laboratories in order to become recognized by foreign governments, thus facilitating trade for Nepali exporters. Reports of widespread aflatoxin in Nepali grains, especially maize, should provide the authorities with sufficient impetus to broaden education efforts focused on teaching farmers about proper grain storage and drying techniques, with an eventual move towards a standards-based system for consumer safety. Interviewees noted that the lack of standards harmonization is creating the opportunity for non-tariff barriers. As one informed commentator noted "if you harmonize the standards, you will take care of 80% of the NTBs."

SUPPORTING INSTITUTIONS

The vast majority of imports into Nepal come through India. The sole water port used by Nepal is Calcutta, while a number of overland crossings are also used. Rail and navigable waterways are extremely limited in Nepal; thus, roads serve as the primary means of transport for importers and exporters. The road network has limited reach into the Hill and Mountain areas and is often unpassable in monsoon season due to heavy rains.

The principle East-West corridor is the Mahendra Highway, 1,000 km road that cuts through the Terai. Even this major artery can be washed out during monsoon season, severely limiting the ability of traders to move grain into, out of or within Nepal. Trade in grains is made difficult not only by instances of impassable roads and damaged roads (often caused by overloaded vehicles), but also due to the slow traffic speeds which severely limit the ability to efficiently move cargo over long distances. The team heard many reports of new roads being quickly destroyed due to overloaded vehicles, poor maintenance practices and heavy rains.

On- and off-farm grain storage is a major limitation to growing the country's available food supply. Private traders report a lack of available private storage and widespread disrepair within government silos and warehouses. Moreover, storage depots are said to be poorly located, often a significant distance from road networks, which further increases the cost of domestically traded grains. High humidity, poorly maintained storage infrastructure and little private sector capacity to develop storage options on its own leaves the country extremely vulnerable to supply shocks.

Private traders manage most cereals import on their own account. "The private sector is also a supplier of food grains, edible oils, pulses and sugar to state trading agencies involved in public distribution..."¹⁹⁴ Nepal exports small amounts of cereals and cereal products via China (e.g. 2,200 MT of wheat flour in 2011-12).¹⁹⁵ Even during the period of export ban, traders reported having no trouble procuring Indian rice on the Nepali market.

Millers: Nepali rice millers widely report a downturn in their businesses over the last few years. Interviewees estimated that some 50-80% of the millers in Nepal have gone out of business in the last five years. Local players attribute these closures to the aggressive Indian incentive policies just on the other side of the border, concentrated in Bihar state. In the last year alone, Bihar milling capacity is reported to have increased by close to 2 million MT per day. For those Nepali millers still in operation, many are reporting substantial reductions in their factory utilization in response to market conditions. In January of 2013, Nepali rice millers formally requested a ban on rice imports from India.

Following official channels, an exporter of rice sending product to Nepal would first need to send the consignment to Calcutta for inspection, which lasts two to three weeks, largely cutting off any chance of official export opportunities with India. Other export requirements include a variety of checks, including Indian Sashastra Seema Bal (SSB or armed border force), state police and customs officials. For informal trade, an interviewee reported that an additional 5-6% premium needs to be added to the value of the transaction because informal traders don't have access to Indian Rupees through the formal banking system.

One of the principal constraints faced in the upstream rice market is the lack of locally produced paddy. Millers reported that with access to more paddy, they would be more competitive vis a vis Indian exporters. Without improved access to seed, fertilizer and extension, this is unlikely to happen in the near future. Nepali millers also reported that the only way to compete in today's market against India is to rely strongly on Nepali branding, which local consumers will pay a small premium for.

Interviewees reported no problems importing product into Nepal. The most affordable rice on the market comes from Indian paddy that is milled in Nepal. Rice millers are affected by Indian exports to the point that they won't risk increasing their capacity or utilization, in fear of Indian exports flooding the market. Border inspections only occur at main gates; otherwise product can enter the country without stopping. Millers are adjusting to this new reality by becoming importers; they're buying large consignments of milled Indian rice and using their existing sales channels to sell the rice on the Nepali market.

The World Food Program (WFP) provides a social safety net with a focus on nutrition, education and rural livelihoods. The program expects to provide benefits to more than 400,000 individuals during the five-year plan. WFP focuses its efforts in the mid- and far-west hills and mountain regions where there is greatest concentration of food insecurity. WFP is reported to be the only group engaged in delivery and storage of food aid in these vulnerable areas. WFP's plan for 2013-17 proposes to provide an average of 26,000 MT/year (approximately 0.7% of Nepal's cereal consumption) to less than 2% of the population; most of this is targeted to school children.

¹⁹⁴ Pullabhotla H, Shreedhar G, Ganesh-Kumar A, Gulati A. 2011. A Review of Input and Output Policies for Cereals Production in Nepal. IFPRI discussion paper no. 01114. Washington, DC: IFPRI.

¹⁹⁵ GON. 2012. Statistical information on Nepalese Agriculture 2011/12. Kathmandu: GON, Ministry of Agricultural Development.

SOCIAL DYNAMICS

Rice is the principal cereal consumed in Nepal, accounting for approximately two-thirds of total cereal consumption in the country. Wheat and maize constitute between 12-15% of consumption each.¹⁹⁶ While rice production has increased for all but one of the last five years, commercial imports plus food aid continue to be imported in sizeable quantities, averaging approximately 100,000 MT/year from 2006-11. Despite the imposition of an export ban in March, 2007, Nepal's imports of Indian grain were widely reported to have continued through informal trade throughout the food price crisis. Despite cereal imports, the GON estimates that the country's cereal production persistently exceeds consumption—i.e., average “edible production” of 5.4 million MT per year during 2007-08 through 2012-13; such estimated production would be sufficient to feed 34 million people (at 160 kgs/person/year), i.e., 7 million more than Nepal's population. More realistic supply and demand estimates suggest that the rice deficit will remain steady, and even grow, over time.¹⁹⁷

The GON's Agricultural Development Strategy lists “self-sufficiency in food grains” as a specific goal to be met, in part, through government action.¹⁹⁸ However, even if this goal is met, food security in the country may not be markedly improved. Improving access, stability and utilization of the food that already exists within Nepali markets will be the key long-term challenge facing Nepali food security, and thus the key challenge facing government and donor efforts.

The GON has little ability to influence cereals prices through trade. On the other hand, increases in production (through seeds, irrigation etc.) could reduce cereals prices by reducing transport costs—i.e., shifting Nepal or specific districts from import to export-parity prices. Nepal's yields are low relative to India's, making yield increases a realistic option.

The challenge for Nepal in the years to come will be maintaining competitiveness in the face of heavily subsidized neighbors, most notably China and India. There appears to be a growing chorus of voices calling for domestic subsidies to support lagging industries such as the rice milling sector. This is unlikely to be the panacea that so many people hope it would be. Aside from the inefficiencies in most subsidy programs (such as in the fertilizer program, for example), Nepal's lack of competitiveness is complex: cost of production is high, transaction costs are high and hard infrastructure barely exists to connect buyers and sellers within Nepal, even where conditions are ripe for growth.

¹⁹⁶ World Bank Food Price Increases in South Asia". 2010.

¹⁹⁷ Prasad, Sanjay, et al. Supply and Demand for Cereals in Nepal, 2010–2030. IFPRI 2011.

¹⁹⁸ Goletti, Francesco. “Policy Options Report for the Asian Development Bank's Technical Assistance (TA) No. 7762-NEP on Preparation of the Agricultural Development Strategy”. 2013.

RECOMMENDATIONS: REGIONAL



RECOMMENDATION I: Promote automatic varietal release to ensure sufficient access to varieties across the South Asia region.

| | |
|--------------------|---|
| Feasibility | Low |
| Potential Impact | High |
| Resources required | Low |
| Activity | <p>Given widely and commonly expressed interests by Indian seed stakeholders and in international public sector organizations to extend the benefits of India’s seed industry to regional countries, the real question comes down to strategy. Current efforts, with few exceptions, propose:</p> <ul style="list-style-type: none"> » Seed exports from India to neighboring countries. » Governments getting together to accept each other’s variety tests. <p>Both of these approaches miss the point and are unlikely to deliver intended results. Focusing on seed imports overlooks the key point that what is required is movement of varieties, not seeds. A variety from India can, for example, get to Bangladeshi farmers through seeds imported year after year or through multiplication of seeds within Bangladesh after one-time seed imports. The challenge is to facilitate the introduction of varieties into Bangladesh and Nepal, not seeds—and variety approval is the crux of the matter. The focus on government agreements and tests to get to variety approvals adds complexity to what is a simple issue. Governments of neighboring countries that want varieties from India do not need to sit down with the GOI or any other government to negotiate—each government acting alone can decide whether and how they allow seed companies to introduce varieties.</p> <p>The best practice around the world is to allow companies to introduce varieties from conventional breeding without restriction (as in the US and India for all crops, and in Bangladesh for all but five crops) or to automatically accept varieties from specified other countries (as in the EU). Governments of each of India’s neighbors can adopt best practice as a unilateral decision. As for sharing data, governments can leave that to companies; all a government has to do to get data from another country is to unilaterally establish the practice of allowing companies to present their own VCU and DUS data (if required); companies could present data from their own trials or from official trials in India or anywhere else.</p> <p>The primary challenge for USAID is to urge governments to relax controls on variety introductions, and to urge other development projects and public sector partners to understand and promote the proposal. Staff and publications from CIMMYT, IRRI, IFPRI, CSISA and STRASA, for example, almost invariably accept that government committees should control variety introduction to protect farmers. Within the international public sector research community, the view that farmers should be allowed to assess varieties is a marginal position promoted, at best, in limited proposals for “participatory breeding” or “participatory variety selection.” What is not realized in such limited proposals is that participatory selection and/or breeding is business as usual for private companies, and that governments could and should promote it by removing controls on private variety introduction.</p> <p>To foster movement of varieties across South Asian borders, USAID should do what is necessary to engender a united front among USAID, CSISA, CIMMYT, IRRI and other project staff to advocate (persistently and consistently) automatic variety registration. USAID should also consider support for South Asian government officials to participate in the Asian Pacific Seed Association (APSA) and other international visits and meetings.</p> |

RECOMMENDATION 2: Rationalize phytosanitary protections across South Asia.

| | |
|--------------------|---|
| Feasibility | Medium |
| Potential impact | Medium |
| Resources required | Medium |
| Activity | <p>USAID could provide support through the newly established SAARC Seed Forum, headquartered in Dhaka, to discuss rationalization of phytosanitary protections in South Asia. Arguably, a rational design would be to prevent introduction of pests into South Asia, an area bounded by the Himalayas in the north and by mountains east of Myanmar and west of Pakistan. SAARC staff report that the IFC is supporting a parallel initiative through the SAARC Seed Forum to harmonize seed policies.</p> <p>Because multiple countries are involved, and because the activity should be continued for several years with workshops to bring in experts and to build consensus, this activity might take a budget of several million US dollars. Because of the sensitivity of the issue, regional staff should be managing the activity with provision for expert short-term consultants from anywhere in the world. The SAARC Agricultural Center in Dhaka could manage the initiative as a project through contracted project staff without any expansion of SAARC's permanent staff or any change in its mandate.</p> <p>USAID should consider working with or partnering with other donors on this activity. For example, the ADB supports the SASEC Program to promote cross-border connectivity and trade facilitation among Bangladesh, Bhutan, India and Nepal. Insofar as the initiative deals, among other things, with customs procedures, ADB and partners might be interested in focusing attention on phytosanitary controls as an aspect of customs procedures.</p> <p>If discussions within SAARC about rationalizing phytosanitary controls are to be considered seriously, or even to be initiated by SAARC, then the GOI should be brought into the preparation of the proposal. This could be approached, for example, through discussions with experts in plant pests and diseases in Indian universities and ICAR, to see if there is interest at the technical level. If so, interested experts could help to formulate a proposal for presentation to India's MoA, SAARC and USAID.</p> |

RECOMMENDATION 3: Support a long-term strategy whereby fertilizer subsidies are gradually decreased and bilateral agreements with Nepal and Bangladesh are established which support free flow of fertilizer in the region.

| | |
|--------------------|--|
| Feasibility | Low |
| Potential impact | High |
| Resources required | Medium |
| Activity | <p>A major underlying problem with fertilizer use and policy in India is directly related to the fact that the country remains heavily dependent on imported fertilizer, particularly potash. Fertilizer subsidies continue to create distortions to international trade, and limit the growth and timely distribution of fertilizer in India.</p> <p>A fertilizer free trade zone along the extensive border between Nepal and Bangladesh would encourage private competition, provide legal channels which would improve fertilizer quality, and ultimately stabilize prices in the region through competition.</p> <p>Historically, illegal cross-border trading existed because of heavily subsidized Indian fertilizer. or significant changes to illegal cross-border trade to occur, the governments of Nepal, Bangladesh and India must discuss and implement policy changes which support less government involvement and foster a more level playing field. The governments of Nepal, Bangladesh and India will need to convene bilateral talks at the highest level to explore opportunities and challenges associated with a free trade agreement for fertilizer.</p> <p>In partnership with the GOI, GOB, and GON, USAID and other interested actors such as IFPRI can support timely regional seminars and conferences focused on fertilizer subsidies and cross-border trading. It is critical that these events build off of the existing knowledge base and be structured to create “agendas for action” focused on keeping participants proactive and engaged in these critical issues. These stakeholders should also consider the sponsorship of a regional coalition of stakeholders across the South Asia region to address these complex issues. In addition to the topic of subsidies, such a forum will need to address issues of improving waterway and overland distribution of fertilizer.</p> |

RECOMMENDATION 4: Engage the FAI to identify and implement opportunities for improving fertilizer trade and extending high yield crop management education to millions of farmers within India and throughout the region.

| | |
|--------------------|--|
| Feasibility | High |
| Potential impact | Medium |
| Resources required | Low |
| Activity | <p>To gain respect and influence future fertilizer policy, the fertilizer industry must have a well-organized association, such as the FAI. Expanding the FAI's influence through broad-based educational opportunities with both the public and private sectors is a golden opportunity for promoting proper fertilizer and crop nutrient use throughout the fertilizer value chain, as well as addressing timely fertilizer issues. It is critical that issues such as nutrient mining, soil acidity and soil salinity be addressed head on by industry; regional yield averages already lag global leaders such as the US by a factor of seven or more.²⁰⁰ Should the soil depletion continue, this gap will only grow, putting at risk the years of green revolution inspired progress.</p> <p>Strengthening the overall position of the private sector within the policy decision-making process through education and participation will provide a better platform for addressing trade constraints and initiating change within India and across the region. USAID's or other donors' partnerships with a strong trade association such as the FAI will improve meaningful dialogue amongst stakeholders and build respect between public and private sectors.</p> <p>The FAI, with support from USAID and other donors, can provide strong leadership to actively expand balanced soil fertility education, including education for policymakers, public stakeholders and private stakeholders throughout the value chain. The FAI can also address key fertilizer issues. To be sustainable, the FAI must develop marketing and educational partnerships with international organizations that have a presence in India such as IRRI, IPNI, CIMMYT and the IFDC. USAID can play a strategic role supporting dialogue and leadership for the concept of synergetic relationships between key agricultural inputs. These inputs, such as fertilizers, seeds, crop protection and irrigation, need to be recognized when framing relevant fertilizer use policies.</p> <p>USAID should consider support for national and regional seminars which focus on balanced nutrient use, as well as fertilizer trade. Working closely with IPNI, USAID and FAI can help coordinate a regional think tank on soil fertility management, which would enhance the proper use of fertilizer throughout Bangladesh, Nepal and India. Regionally, in addition to a think tank for proper fertilizer use, USAID may, with the help of the FAI, support another think tank which guides fertilizer policy ultimately toward free trade zones with Nepal and Bangladesh. Leading through dialogue, USAID support for regional third party investment in manufacturing facilities and raw material acquisition would serve the Indian market and be a strategic entry point for the South Asia region generally.</p> |

²⁰⁰ Mujeri, et al. "Improving the Effectiveness, Efficiency and Sustainability of Fertilizer Use in South Asia." GDN Research Paper no 8. 2012.

RECOMMENDATION 5: Champion the internationally acclaimed 4R Nutrient Stewardship program, by partnering with IPNI.

| | |
|--------------------|--|
| Feasibility | High |
| Potential impact | High |
| Resources required | Low |
| Activity | <p>There is a need across South Asia to develop uniform standards and marketing messages concerning the role and importance of the balanced use of crop nutrients to increase yields, maintain sustainable agriculture and secure food in the region.</p> <p>The 4R Nutrient Stewardship Program is a global focal point for balanced plant nutrition. It is equally applicable for countries with developing agriculture, as well as those with well-developed agricultural systems. The 4R Nutrient Stewardship is one of IPNI's core strategies to support agriculture's ability to meet the world's production needs in a sustainable manner. An adoption of this initiative will help define and shape fertilizer use and policy in the region, something that is badly needed given the emerging picture of troubled soil health across South Asia, as described in this report.</p> <p>Historically, fertilizer use and policy has been fragmented in India and across the region. Encouraging both the public and private fertilizer sectors to focus on demand for nutrients, rather than on fertilizer imports, will be a challenge and potential obstacle to positive change.</p> <p>By supporting timely regional and national crop nutrition seminars to catalyze such an initiative, USAID could help shift the region's perspective on fertilizer and educate producers. USAID could gather support through a regional coalition of stakeholders, possibly utilizing an IPNI-led Global Development Alliance covering Nepal, Bangladesh and India. Other partners to include in such an alliance would be The Fertilizer Institute, the International Fertilizer Association, the Fertilizer Association of Nepal, the Bangladesh Fertilizer Association and the Fertilizer Association of India.</p> |

RECOMMENDATION 6: Pursue partnerships with both the public and private sectors as well as with national and regional NGOs to support cutting-edge crop nutrition research.

| | |
|--------------------|--|
| Feasibility | High |
| Potential impact | Medium |
| Resources required | Medium |
| Activity | <p>To continue leading crop nutrient research in the region, India and its development partners may support and expand high yielding research. This research focus assures balanced fertilizer use, improved soil health and sustainable production. An active, progressive crop nutrient research program will support well-balanced crop nutrient use, and focus on nutrient needs rather than specific fertilizer products. A focus on crop nutrient needs will increase fertilizer demand through higher yields, as well as improve fertilizer use efficiency, protect the environment and enhance food security. India's fertilizer research programs currently lead the way in South Asia and should be a model for Bangladesh and Nepal. USAID could consider partnerships with the International Plant Nutrition Institute to help facilitate more advanced fertilizer research in the region.</p> <p>USAID should also consider supporting regional crop nutrient research forums and seminars, as well as exchange programs for faculty with Bangladesh, Nepal and other SAARC countries. Opportunities need to be explored for providing academic exchange programs with India and Nepal for professional staff and graduate students. USAID should explore ways to support stakeholder involvement in high yield research.</p> |

RECOMMENDATION 7: Work with the three customs services to improve cooperation and harmonization of procedures and standards at borders.

| | |
|--------------------|---|
| Feasibility | High |
| Potential impact | High |
| Resources required | Medium |
| Activity | <p>The application of customs laws and standards has been inconsistent among the countries, causing long delays that have a serious effect on trade, especially on trade in perishables, such as agricultural products. Sanitary and phytosanitary measures need to be harmonized among the countries of the region and laboratory facilities need to be upgraded.</p> <p>Initial efforts have been made in all three countries to bring high level customs officers together to address issues of mutual concern. USAID can assist in these efforts by sponsoring meetings of high level customs officials and by assisting in identifying where harmonization is most needed and most feasible. These meetings should be held on a regular basis until pre-defined outcomes are achieved. The meetings should include other relevant government agencies (Ministries of Agriculture, etc.) as well. The meetings could also include presentations from various donors (e.g., the World Bank, ADB and ESCAP) concerning work they are doing to foster customs cooperation. Cooperation among the customs services would result in improved customs processing in the region, saving time and cost for traders. This, in turn, could result in lower levels of smuggling.</p> |

RECOMMENDATION 8: Work to improve the capacity of the SAARC Secretariat.

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|--------------------|---|
| Feasibility | High |
| Potential impact | High |
| Resources required | Medium |
| Activity | <p>The SAARC region lacks coordination for trade policy and transport issues. The SAARC Secretariat, although it currently has very low capacity, at least provides some organizational structure for the region. This structure should be used to further communication among the countries with respect to increasing trade in agriculture in the region, particularly for fertilizer, seed and grain.</p> <p>Numerous interviewees pointed out that the SAARC Secretariat lacks capacity to be effective—but also noted that it could be effective with additional professional staff, and most importantly, delegation of authority to each country representative at the Secretariat.</p> <p>To develop a more effective Secretariat, donors should consider providing staff assistance for a period of no less than three years, but preferably for five or more to ensure long term stability in operations. At the time of writing this report, the Secretariat was in the process of carrying out an internal review of capacity across the organization. It is critical that any donor activity to support SAARC take this analysis into account, weighing the relative success of past and current factors leading to the Secretariat's growth. Secretariat staff interviewed for this report suggested that no new staff would be taken on as part of a donor project without a long term vision for funding each additional position.</p> <p>The SAARC-TPN could provide assistance with organizational efforts and provides an interesting model for future technical assistance activities. The SAARC-TPN received high praise from numerous interviewees and thoroughly understands the challenges of operating in a consensus-driven environment. It is well organized through its office in Kathmandu and includes both the public and the private sector; it also has active representatives in all of the eight SAARC countries. The SAARC-TPN could, for example, be used as a platform to work with other organizations such as the Chambers of Commerce and Industry (FNCCI, FBCCI and FICCI).</p> |

RECOMMENDATIONS: COUNTRY SPECIFIC – BANGLADESH



RECOMMENDATION I: Advise the GOB to adopt policies to allow private companies to access and introduce inbred rice and wheat varieties from India according to standard practices in the international seed industry.

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| Feasibility | High |
| Potential impact | High |
| Resources required | Low |
| Activity | <p>Movement of varieties from India to Bangladesh works well, according to standard practices in the international seed industry, for maize. Because maize is a non-notified crop, Bangladesh companies are able to introduce maize hybrids from India according to farmer interest. On the other hand, rice and wheat are notified crops. Because sales of hybrid rice seed offer a good profit, seed companies have been able to pay for official tests and approvals, and are thus able to introduce Indian rice hybrids into Bangladesh. However, because seed companies are not able to sell non-hybrid rice and wheat seed for much more than grain price, and cannot stop other companies from producing seed for the same varieties once they are registered, companies are not willing to invest the time and money to register non-hybrid varieties of rice and wheat from India.</p> <p>The solution to this situation does not require any more variety testing by governments, or the development of a SAARC variety list—such efforts would deviate from standard international practices in private variety movement and encourage more government management and control. The solution is, rather, for Bangladesh to take rice and wheat off the list of notified crops. This would allow Bangladeshi companies to do for inbred rice and wheat varieties what they already do for maize and rice hybrids—i.e., find and introduce good varieties from India.</p> <p>Introducing varieties from India into formal seed trade could improve the reliability of seed supply for these varieties, as well as help farmers far from the border to access the varieties. Because of the small markup possible for seed over grain, private companies could be expected to produce seed in Bangladesh, avoiding transport costs. The CUTS proposal that non-hybrid rice seed from India might provide a large proportion of Bangladesh’s planted seed is unlikely to be realized given the low value of non-hybrid seed. Furthermore, some GOB officials might be concerned about developing a dependence on foreign-produced seed; if so, one solution could be to tax imports of non-hybrid rice seed to encourage production in-country. The goal should be to increase access to Indian varieties to Bangladeshi farmers, but not necessarily more Indian seed.</p> <p>USAID’s policy advocacy is essentially costless; it would mostly involve efforts on the part of USAID staff to get seed industry-related organizations and partners (e.g., CSISA, CIMMYT, IRRI, Agricultural Inputs Project, IFPRI, and others) to support the principle that farmers, rather than government committees, should be allowed to assess the suitability of varieties. Furthermore, to implement that principle, USAID should monitor the advice these organizations give to the MoA on the matter of notification. Achieving a unified voice—or at least adding more voices—in favor of doing away with notification would be a major step forward.</p> |

RECOMMENDATION 2: Develop a plan to help Bangladeshi seed companies formally enter the Indian market.

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|--------------------|--|
| Feasibility | Medium |
| Potential impact | High |
| Resources required | Low |
| Activity | <p>Indian farmers' appreciation of BRRI varieties presents an opportunity for companies to multiply the seed for formal sale. There may be no problem on the Indian side, because varietal registration is voluntary. So what are the constraints? With some initiative from USAID, parties could be brought to the table to figure out how to proceed. Here are some issues.</p> <p>Some Indian states maintain lists of allowed varieties—is that an issue in West Bengal and other states using BRRI varieties?</p> <p>The seed should be produced in India to avoid any problems with importing the seed. This could be done by a subsidiary of a Bangladeshi company registered in India or, for that matter, by any company. Will BRRI agreement be required for a Bangladesh company to produce seed in India? Would the company bring breeder seed from BRRI into India once, and then maintain it there? Alternately, if import is difficult, any company could develop breeder seed in India through mass selection. Would BRRI collect a (nominal) license fee? Could BRRI mandate a Bangladeshi company to register PVP for specific varieties in India in BRRI's name?</p> <p>The point of these discussions would be to get good seed of good BRRI varieties to Indian farmers. Discussions within Bangladesh among managers of BRRI and seed companies could help all involved to understand that moving rice varieties from Bangladesh to India can be accomplished through normal practices in the international seed industry and does not need government-to-government negotiations.</p> <p>Promoting these discussions is essentially costless. This could be done, for example, through CSISA or IFPRI staff, through the Agricultural Inputs Project etc.</p> |

RECOMMENDATION 3: Assist negotiations among BRRI and private seed companies to facilitate Bangladeshi companies producing and selling seed for BRRI varieties in India.

| | |
|--------------------|---|
| Feasibility | Medium |
| Potential impact | Medium |
| Resources required | Medium |
| Activity | <p>The South Asia region is naturally bounded by mountains in the north, in the west along Pakistan's border with Afghanistan, and in the east along Myanmar's mountainous border with Thailand. Plant pests that get into South Asia are difficult to stop, given the large amount of informal trade across porous land borders. Thus, it is reasonable for governments in the region to work together to rationalize phytosanitary protection: strengthening protection at the region's borders, while at the same time reviewing and reducing unnecessary controls at intra-regional border crossings.</p> <p>The SAARC Seed Forum, associated with the SAARC Agricultural Center, may be a good place for regional governments and seed industry representatives to discuss rationalization of phytosanitary controls. The IFC is already planning to work with the SAARC Seed Forum to harmonize seed regulations within the region. So far, the IFC has not prioritized phytosanitary issues. USAID might consider joining the IFC in supporting the SAARC Seed Forum with an emphasis on phytosanitary issues. Other organizations that could be engaged include the Asian Pacific Plant Protection Commission under FAO, and the Asia Pacific Seed Association, the private seed trade association for the region.</p> <p>This activity could take several million US dollars over several years. The money would be required to hire local staff, engage short-term expert consultants, and arrange offices, transport and meetings. The project should be led by South Asian staff for better coordination with SAARC governments. How it is set up is crucial.</p> |

RECOMMENDATION 4: Recognize and support the contributions of the private Bangladesh seed industry to agricultural development.

| | |
|--------------------|---|
| Feasibility | High |
| Potential impact | High |
| Resources required | Low |
| Activity | <p>Over the last 20 years dating from liberalizing reforms, Bangladesh’s private seed industry has shown the world what a private, mostly local seed industry can do if governments allow it to grow. Despite its achievements, the industry has been under pressure in recent years from parts of the government promoting public sector, subsidized seed production. A severely retrogressive draft Seed Act 2013 is under review. In this situation, USAID could help by showing support for the private seed industry.</p> <p>Some comments in recent USAID-supported reports as well as USAID’s current involvement in the seed industry through the Agricultural Inputs Project arguably do not recognize the extent to which Bangladesh’s competitive seed industry and markets maintain constant pressure for seed quality—that the industry self-regulates through competition. In Bangladesh as elsewhere, seed companies build markets by reliable delivery of quality seed over years.</p> <p>Recent assessments of Bangladesh’s seed sector fall into two categories: studies that recognize the contributions of the private sector, and studies that reflect a public sector bias. One recent study, for example, reports at length on seed production and sale through BADC, ignoring the impact of private hybrids on maize yields, and charges that private seed traders “supply seeds of...unknown quality... These activities are considered a threat to plant genetic resources in the Bangladesh agriculture” (Jaim and Akter 2012). Studies misleadingly state that farmers trust BADC seed more than seed from the private sector (Jaim and Akter 2012; Ahmed et al. 2011) and that not requiring seed certification is a “loophole allowing poor quality seed to be distributed and marketed.” (Weidemann Associates 2013).</p> <p>Such statements reflect a public sector bias and are out of touch with realities on the ground. Moreover, such comments seem not to recognize that best practice seed regulations in the US, India and elsewhere have been established and have been working in Bangladesh for more than two decades.</p> |

RECOMMENDATION 5: Reduce emphasis on and discussion of GMOs.

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| Feasibility | High |
| Potential impact | Medium |
| Resources required | Low |
| Activity | <p>Because GMO crops are controversial, there is virtually no chance to coordinate regulation of GMOs among regional countries in the medium-term future. Bringing GMOs into discussions about regional cooperation would threaten progress on other more important issues on which agreement is possible.</p> |

RECOMMENDATION 6: By partnering with BAE, SRDI and BFA, USAID and other donors should support better fertilizer quality testing to help ensure that mechanisms at different levels are in place which strengthen quality control and reduce distribution risk.

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|--------------------|--|
| Feasibility | High |
| Potential impact | Medium |
| Resources required | Medium |
| Activity | <p>As long as product flows into Bangladesh from India illegally mainly because of subsidy differences and lack of monitoring between the two countries, there is always the risk that adulterated products will enter the distribution chain and will be sold to farmers. Although not as a severe a problem as exists in Nepal, these adulterated products can potentially harm the food chain; or at the very least, leave farmers overpaying for mismarked products.</p> <p>Farmers should be assured that the fertilizer products they receive are, in fact, what they believe they've purchased. Environmentally sensitive contaminants such as heavy metals should be reduced or eliminated from fertilizer products.</p> <p>Educating farmers on the overall benefits of quality fertilizer, as well as on the consequences of using adulterated products, could help encourage importers and ag-retailers to provide better products. The GOB needs to expand its fertilizer sampling and monitoring programs to better address this issue.</p> <p>USAID should consider supporting the process of upgrading and expanding existing fertilizer facilities. Taking more and better fertilizer samples would improve fertilizer quality and reduce risk to farmers. USAID should also encourage a fertilizer quality educational initiative through a series of seminars and conferences.</p> |

RECOMMENDATION 7: USAID and other donors are well placed to open a dialogue with BFA to identify and implement opportunities for extending high yield crop management education, as well as for efficient fertilizer use, thus having a positive impact on future fertilizer policy.

| | |
|--------------------|--|
| Feasibility | High |
| Potential impact | Medium |
| Resources required | Medium |
| Activity | <p>To gain respect and influence future fertilizer policy, the fertilizer industry needs a well-organized association. Expanding the BFA's influence through broad-based educational opportunities for both the public and private sectors is critical for promoting proper fertilizer and crop nutrient use throughout the value chain. Strengthening the overall position of the private sector within the policy decision making process, through education, will provide a better platform for addressing trade constraints and initiating change within Bangladesh and across the region. By partnering with a strong trade association such as the BFA, USAID will help improve meaningful dialogue amongst stakeholders and build respect between public and private sectors.</p> <p>The BFA, with support from USAID and other donors, can provide the leadership to actively expand balanced soil fertility education for both the public and private stakeholders throughout the value chain. Likewise, working closely with the DAE, SRDI and IPNI, the BFA could help coordinate a regional think tank on soil fertility management, which would enhance the proper use of fertilizer throughout Bangladesh, Nepal and India. To be sustainable, the BFA needs to develop marketing and educational partnerships with international organizations that have a presence in Bangladesh, such as IRRI, IPNI and CIMMYT.</p> <p>Since Bangladesh is still heavily dependent on fertilizer imports to meet its growing crop nutrient demand, USAID may encourage the BFA to explore ways for Bangladesh to increase its internal production, particularly for phosphates and NPK manufacturing, whereby improving efficiencies and timely distribution of products. Leading through dialogue, USAID should support regional third party investment in manufacturing facilities in Bangladesh.</p> |

RECOMMENDATION 8: USAID should consider support for the SRDI concerning a better soil testing infrastructure and marketing program. Soil laboratories must be upgraded and expanded to better meet the need of retailers and farmers, and to help farmers make more informed decisions concerning crop nutrients and proper fertilizer use.

| | |
|--------------------|--|
| Feasibility | Medium |
| Potential impact | Medium |
| Resources required | High |
| Activity | <p>Bangladesh needs to continually upgrade its soil testing and fertilizer analytical facilities. Soil testing, in particular, must be readily available at an affordable cost to farmers so they can make informed decisions on fertilizer use. Fertilizer use based on sound scientific principles will provide a solid basis for future fertilizer policy. An active soil testing program will support well-balanced crop nutrient use, and focus on nutrient needs rather than specific fertilizer products. A focus on crop nutrient needs will increase fertilizer demand through higher yields, as well as improve fertilizer use efficiency, protect the environment and enhance food security.</p> <p>Historically, there has been a lack of financial support for soil and fertilizer testing in Bangladesh. As a result, much of the analytical equipment and facilities are old and outdated. Encouraging the GOB to fully appreciate the value of high-quality testing facilities and programs is a potential obstacle to change.</p> |

RECOMMENDATION 9: USAID and other donors should pursue strong partnerships with both the public and private sectors, as well as with national and regional NGOs, to support cutting-edge crop nutrition research.

| | |
|--------------------|--|
| Feasibility | Medium |
| Potential impact | Medium |
| Resources required | High |
| Activity | <p>To maintain respect and academic support across the region, Bangladesh needs to continually upgrade its facilities, research equipment and level of field research. Well-respected, high yielding crop research will lead to higher nutrient consumption and better, well-balanced fertilizer use. An active progressive crop nutrient research program will support well-balanced crop nutrient use, and focus on nutrient needs rather than specific fertilizer products. A focus on crop nutrient needs will increase fertilizer demand through higher yields, as well as improve fertilizer use efficiency, protect the environment and enhance food security. Historically, there has been a lack of financial support and focus on crop nutrient research in Bangladesh which has resulted in challenges to maintain and recruit qualified faculty. Much of the analytical equipment and facilities are old and outdated.</p> <p>India research programs currently lead the way in South Asia and should be a model for Bangladesh and Nepal. Involving IPNI would be strong tactically in moving Bangladesh crop nutrition research to a higher level. To expedite new fertilizer introductions, the MoA needs to accept field trials from other South Asia countries in lieu of two years of field trials within Bangladesh.</p> <p>USAID should explore opportunities to rebuild infrastructure such as greenhouses and laboratories. It should also consider supporting regional crop nutrient forums and seminars, as well as exchange programs for faculty with both India and Nepal. Opportunities need to be explored for providing academic exchange programs with India and Nepal for professional staff and graduate students.</p> |

RECOMMENDATION 10: Work with government to reduce the size of grain tenders to increase the participation of smaller players over time.

| | |
|--------------------|--|
| Feasibility | High |
| Potential impact | Medium |
| Resources required | Low |
| Activity | The current tender process disadvantages small- to medium-size traders given the large (typically 50,000 MT) tenders. People interviewed for this report noted a façade of competition in the tendering process whereby only big, connected trading houses could participate. To increase competition over time will necessitate somewhat smaller and more frequent tenders, allowing smaller companies to participate, while keeping a steadier flow of product coming into the market. |

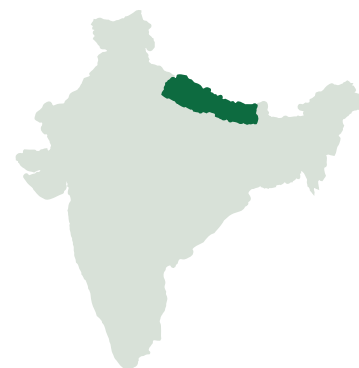
RECOMMENDATION 11: USAID has convening power to bring Nepal, India and Bangladesh together. Use this convening power to focus on the issue of ports (e.g., Nepal using Mongla port), transit (e.g. getting freer movement between Nepal and Bangladesh) and policy notifications.

| | |
|--------------------|--|
| Feasibility | High |
| Potential impact | Medium |
| Resources required | Low |
| Activity | Many of the issues discussed in this report require, as a first step, a convening of relevant experts. For example, transporting products the 17 km between Nepal and Bangladesh takes an entire day to the great frustration of Nepali and Bangladeshi traders. USAID can play a convening role to bring together the necessary authorities from India, Nepal and Bangladesh to come up with a realistic action plan that meets the needs of all involved, while facilitating trade. On the back of the recent agreement between Bangladesh and India to allow India transit Bangladesh en route to the Northeastern states, interviewees suggested that the time was ripe to raise this transit issue in a tripartite setting. |

RECOMMENDATION 12: Work alongside the parliamentary strengthening project to increase knowledge of agricultural trade issues within parliament.

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| Feasibility | High |
| Potential impact | Medium |
| Resources required | Low |
| Activity | Interviewees suggested that lawmakers in Bangladesh's parliament had little to no understanding about the needs of the agricultural sector. As a first step in this process, USAID should consider using its parliamentary strengthening program to help educate lawmakers on timely issues of crucial importance to the agriculture community, including land tenure, grades and standards and seed/fertilizer policy. |

RECOMMENDATIONS: COUNTRY SPECIFIC – NEPAL



RECOMMENDATION I: Advocate for low/no barriers to introduction of new varieties.

| Feasibility | Medium | | | | | | | | | | | | | | | |
|--|---|--|--|--|-------|----------------------|--------|------|------|------|-------|-----|------|-------|------|------|
| Potential impact | High | | | | | | | | | | | | | | | |
| Resources required | Low | | | | | | | | | | | | | | | |
| Activity | <p>Most of the initiatives that could help Nepal’s seed industry and farmers realize greater benefits from proximity to more developed seed industries in India and other regional countries can be taken by the GON, acting unilaterally and at virtually no cost. Thus, whatever activities or positions USAID takes regarding seeds could and should be aimed at policy changes to ease introduction of new varieties and seed imports from India; policy changes can and should be non-specific as to variety origin, thereby easing introduction of varieties from other countries as well. Without the right policies, anything that USAID can do in relation to seeds will have only marginal impact.</p> <p>A basic strategy to boost yields is to introduce new varieties. When farmers are well-connected to world public and private breeding, they can be expected to replace old varieties with new varieties on average every five to ten years—i.e., to shift 10%-20% of planted area from old to new varieties every year. This is not possible in Nepal using only varieties from in-country public research. To achieve attainable and acceptable rates of growth, Nepal’s farmers need a steady flow of new varieties from foreign breeding through competing private companies.</p> <p>In this regard, Nepal is in a good situation; many of the varieties from public and private breeding in India (as well as in China and other countries) are suitable for Nepal. Nepal’s \$7 million annual spending on public research (including research from NGOs with donor funding) is less than 1% of agricultural research budgets in India, estimated in 2008-09 at \$251 million in the private sector and \$563-688 million in the public sector.²⁰¹ Indian private and public breeders release scores of new varieties each year for major crops. Because only varieties from public breeding must be registered, there is no complete list of new private varieties in India; numbers of private varieties in Table 20 are for 34 companies only from information available on their websites.</p> <table><tr><th colspan="3">TABLE 20: NUMBERS OF NEW RICE, WHEAT, AND MAIZE VARIETIES INTRODUCED IN INDIA, ANNUAL AVERAGES 2005-10</th></tr><tr><th>CROPS</th><th>PRIVATE^b</th><th>PUBLIC</th></tr><tr><td>Rice</td><td>13.2</td><td>40.0</td></tr><tr><td>Wheat</td><td>6.7</td><td>15.8</td></tr><tr><td>Maize</td><td>22.7</td><td>13.0</td></tr></table> <p>^b Numbers of private varieties are from 34 companies only. Sources: Pray and Nagarajan 2012.</p> <p>Currently, smugglers are linking Nepali farmers to Indian breeding—introducing better varieties and importing the necessary seed. This is good insofar as it introduces new varieties to farmers, but it is less than optimal in other respects. When seed imports come through informal trade, seeds come through traders with no reputation to protect; there are no local companies with brand names vouching for seed quality; and seed trade avoids and erodes Nepal’s formal private seed industry when it could and should be building local companies and capacity.</p> | TABLE 20: NUMBERS OF NEW RICE, WHEAT, AND MAIZE VARIETIES INTRODUCED IN INDIA, ANNUAL AVERAGES 2005-10 | | | CROPS | PRIVATE ^b | PUBLIC | Rice | 13.2 | 40.0 | Wheat | 6.7 | 15.8 | Maize | 22.7 | 13.0 |
| TABLE 20: NUMBERS OF NEW RICE, WHEAT, AND MAIZE VARIETIES INTRODUCED IN INDIA, ANNUAL AVERAGES 2005-10 | | | | | | | | | | | | | | | | |
| CROPS | PRIVATE ^b | PUBLIC | | | | | | | | | | | | | | |
| Rice | 13.2 | 40.0 | | | | | | | | | | | | | | |
| Wheat | 6.7 | 15.8 | | | | | | | | | | | | | | |
| Maize | 22.7 | 13.0 | | | | | | | | | | | | | | |

²⁰¹ Carly Pray and Latha Nagarajan. "Innovation and Research by Private Agribusiness in India. IFPRI Discussion paper no. 01181. Washington, DC: IFPRI.

A recent IFPRI paper proposes a “policy option” for the GON: “to encourage private seed companies from India and other neighboring countries to... distribute their seed varieties in Nepal.”²⁰² The challenge for the GON is to revise its regulations and other policies to coax seed imports from India into formal channels, i.e., so that companies with Nepali addresses import and distribute the seed in packages with their brand name and local address. This involves several specific changes in regulations and policies. The general thrust of these changes is to make importing seeds from India through formal trade as easy or easier than smuggling.

Here are some suggestions for how to coax currently smuggled cross-border seed trade into formal channels:

- a. The GON could establish automatic or near automatic variety registration; because Indian companies introduce so many new varieties each year, and because seeds are so easy to smuggle, it is unreasonable to expect seed companies to wait and pay for registration of new varieties when smugglers can provide seeds of new varieties immediately without paying for registration.
- b. The GON could ensure no tariffs or para-tariffs on cross-border seed.
- c. The GON could relax phytosanitary controls based on an assessment of risks; for any crop for which there are no quarantinable pests (i.e., no seed-borne pests found in India but not in Nepal), Nepal could make a unilateral decision to allow seeds from India without phytosanitary certificates. In this way, phytosanitary attention and controls would be focused on crops for which there are phytosanitary risks rather than going through the motions for crops with no risks (and pushing seed into informal trade, where there are no phytosanitary checks in any case). The EU provides a precedent for allowing cross-border trade without phytosanitary certificates: “Within the Single Market, plant health checks are focused on the place of production. There are no border checks for plants and plant products travelling between EC member states, although spot checks may take place anywhere in the trade chain. A limited range of material which host the most serious ‘quarantine’ pests and diseases requires a plant passport to facilitate its movement.”²⁰³

The policy changes recommended above—allowing seed companies to beat smugglers and to provide new varieties to support acceptable rates of agricultural growth—will likely meet some objections. For example, the 2009 incident of cold weather bringing high rates of sterility (undeveloped kernels) in maize may be presented as an example of the losses that farmers might experience if the GON does not test and approve private varieties. However, when crop losses are due to unusual weather (such as a cold spell that occurs once in 10-20 years), two years of VCU tests are not likely to coincide with a damaging cold spell, so the varietal response will not be found. Furthermore, all varieties are subject to weather risks—flood, heat, cold, drought, untimely rain etc. Farmers know they face risks. Companies that want to stay in the market can be relied on to do their best to warn farmers about risks based on what companies know about each variety, including its breeding history.

Similarly, some might argue that allowing imports without testing seed for quality (germination, purity) could lead to import of low-quality seed. This argument overlooks the fact that the alternative is smuggled seed—which is not only untested at the border but is also subsequently sold without a Nepali company’s name on the label, so no one is responsible. The quality that counts is not the quality at point of import, but rather truthful labeling at the retail level, which can be enforced for seed in formal trade, but not smuggled seed.

Whatever the arguments, USAID should keep a clear priority to advocate for low/no barriers to private sector introduction of new varieties from conventional breeding. That theme needs to underlie all involvement with research and agricultural development, because without workable policies, key institutions remain illegal (e.g., seed traders) or do irrational things (e.g., SQCC, Phytosanitary Department). Throughout discussions, USAID should not push GMOs; given strong opposition, GMOs are a distraction, and talking about them obscures readily available and much larger gains available with varieties from conventional breeding.

²⁰¹ Mujeri, et al. “Improving the Effectiveness, Efficiency and Sustainability of Fertilizer Use in South Asia.” GDN Research Paper no 8. 2012.

²⁰² Pullabhotla H, Shreedhar G, Ganesh-Kumar A, Gulati A. 2011. A Review of Input and Output Policies for Cereals Production in Nepal. IFPRI discussion paper no. 01114. Washington, DC: IFPRI.

²⁰³ Department for Environment, Food & Rural Affairs, UK. 2013. Plant Passporting and Marketing. Available at: <http://www.fera.defra.gov.uk/plants/plantHealth/plantPassporting.cfm>.

RECOMMENDATION 2: Work through existing USAID partners and projects to advocate low/no barriers.

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| Feasibility | Medium |
| Potential impact | High |
| Resources required | Low |
| Activity | <p>USAID has access to policy dialogue through researchers and seed experts attached to CIMMYT, IRRI, and other organizations involved in the CSISA. In discussions about whether and how the MoA should control variety introduction, donors' representatives—including experts attached to CIMMYT, IRRI, and CSISA—have often accepted that the MoA's involvement to approve or deny each new variety protects farmers. Accepting that the MoA should assess and control varieties does not recognize how private companies introduce new varieties—companies show the varieties to farmers to gauge farmers' interest before deciding whether and how much seed to place in stores. Subsequent seed sales depend on farmers' demand. In this process, farmers decide what they want based on what they see; as far as farmers are concerned, official VCU tests and the deliberations of an MoA expert committee are next to irrelevant.</p> <p>USAID should do what is necessary to engender a united front among USAID, CSISA, CIMMYT, IRRI, and other project staff to advocate (persistently and consistently) automatic variety registration to MoA. It will not be a minor challenge for USAID to organize such a consistent stance; opponents might suggest that government tests and controls protect farmers. USAID can further support such a global perspective by sending Government officials to participate in the APSA and APPPC and to attend other international visits and meetings. Meetings could be arranged to look at policies, rationalization of regional phytosanitary protections etc.</p> |

RECOMMENDATION 3: Support policy dialogue through interactions with the private seed sector.

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| Feasibility | High |
| Potential impact | High |
| Resources required | Low |
| Activity | <p>With a continuing focus on policy changes as discussed above, USAID could help private sector participants strengthen their case for easier variety introduction. Here are some suggestions that could be introduced in a new project, or retrofitted into one or more ongoing projects:</p> <p>USAID could support SEAN—seed companies and dealers—with funds for training, international tours, policy analysis, advocacy and communications. For example, USAID could support business and technical skills training, engaging mostly local experts to do the training, including staff of NARC's Seed Science and Technology Division. These could be accomplished with a budget of several hundred thousand dollars per year.</p> <p>Through one or more projects, USAID could provide financial and/or technical support to companies to produce seed for potatoes, hybrid rice, hybrid maize and/or hybrid vegetables for export. Nepal's climate supports production of high-quality seed for many species. In order to help companies receive and fulfill orders for contract seed production for export, USAID's activity costs would vary depending on the crops. In any case, a program or initiative would not exceed several hundred thousand per year; there is no need for (additional) expatriate staff.</p> |

RECOMMENDATION 4: Support the SAARC Seed Forum to rationalize phytosanitary controls across South Asia.

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| Feasibility | Medium |
| Potential impact | High |
| Resources required | Medium |
| Activity | <p>USAID could provide support through the newly established SAARC Seed Forum, headquartered in Dhaka, to discuss rationalization of phytosanitary protections in South Asia. Arguably, a rational design would be to prevent introduction of pests into South Asia, an area bounded by the Himalayas in the north and by mountains east of Myanmar and west of Pakistan. SAARC staff report that the IFC is supporting a parallel initiative through the SAARC Seed Forum to harmonize seed policies.</p> <p>Because multiple countries are involved, and because the activity should be continued for several years with workshops to bring in experts and to build consensus, this activity might take a budget of several million US dollars. Because of the sensitivity of the issue, regional staff should be managing the activity with provision for expert short-term consultants from anywhere in the world.</p> |

RECOMMENDATION 5: Promote a free trade zone along the border with India involving high level discussions with both India and Nepal. Discussions should include a series of seminars, forums, conferences and think tanks to help facilitate the complex dialogue.

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| Feasibility | Low |
| Potential impact | High |
| Resources required | Medium |
| Activity | <p>The underlying problem with fertilizer use and policy in Nepal is directly related to the large illegal fertilizer trade facilitated by the long porous border between Nepal and India. As a result, a large quantity of unregulated and often adulterated product is sold to Nepal farmers. A free trade zone along the extensive border would encourage private competition, improve fertilizer quality through legal channels and stabilize competitive prices for both Nepal's and India's farmers.</p> <p>Historically, illegal cross-border trading existed because of heavily subsidized Indian fertilizer. For a significant change to occur, the governments of Nepal and India must discuss and implement policy changes which support less government involvement and foster competitive free trade.</p> <p>As noted previously, the long open border between India and Nepal is at the heart of fertilizer trade and food security. Correcting the illegal flow of fertilizer trade across the border would not only solve many of the fertilizer issues, but it would also provide the opportunity for rapid expansion of Nepali agriculture, improve the standard of living for millions of Nepali people and secure the food supply.</p> <p>It has been suggested that the Nepali and Indian governments convene talks at the highest level to explore the opportunities and challenges associated with a free trade agreement for fertilizer. In exchange for a partially subsidized fertilizer market, there are bilateral opportunities available for both Nepal and India. For example, a large phosphate rock reserve has been discovered in far western Nepal. If it was proven to be economically feasible, it could be developed as a joint venture between Nepal and India, providing valuable phosphate rock for the large phosphate fertilizer complexes in India. In exchange, traders from Nepal would be allowed to purchase legally subsidized fertilizer from given locations within India.</p> <p>There are several ways in which this could work; first, traders could purchase fertilizers at a pre-set price within India and then get subsidized by the GON when entering Nepal, or secondly, fertilizer could trade freely be inventoried at the border, and then the GON would reimburse the GOI for the volumes purchased at some prearranged subsidy level. Initially, target retail prices in Nepal should be set at 10-15% higher than India's prices. Although significant discussions and negotiations would be necessary, conceptually it could provide a free trade zone which would support a growing regional agriculture. In addition to phosphate reserves, Nepal has an abundance of natural resources that could be developed, such as the agricultural lime industry and abundant water resources for irrigation.</p> <p>To further reduce trade barriers in the border region with India, a free trade agreement could provide incentives for investment in fertilizer manufacturing facilities within India. Since it is prohibitively expensive to develop a urea plant within Nepal, the opportunity to invest in foreign manufacturing facilities may be appealing to investors. Based on numerous discussions with both the private and public sectors, the team gathered that a free trade zone would be a tremendous boost to the agricultural economy and help improve food security for the region.</p> <p>In partnership with the GON and the GOI, USAID should support timely regional seminars, conferences and a think tank focused on fertilizer subsidies and cross-border trading. They should also sponsor a regional coalition of stakeholders across Nepal, Bangladesh and India. In support of the overall initiative, USAID should encourage bilateral agreements with India and Bangladesh which support better port access, water and ground transit, and reduced non-tariff barriers for fertilizer imports moving through India and Bangladesh to Nepal. To further support a free trade agreement, Nepal must improve the roadway infrastructure all along the border and throughout the Terai region. In addition, USAID should support policy whereby investors are incentivized to invest in fertilizer manufacturing in India and Bangladesh for off-take to Nepal. A long-term free trade agreement would provide Nepal a subsidy exit strategy as free market forces develop.</p> |

RECOMMENDATION 6: Embrace opportunities to support educational programming within Agricultural Extension, the cooperatives and the private sector.

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| Feasibility | High |
| Potential impact | High |
| Resources required | High |
| Activity | <p>Agricultural research is only beneficial if it is effectively communicated to agricultural retailers and farmers through outreach programs such as extension. Crop nutrient education needs to be a partnership between the public and private sectors.</p> <p>Strengthening the overall educational process for farmers and other stakeholders will lead to a more sustainable agriculture sector and ultimately, to increased food security. Since a solid educational base concerning the use of crop nutrients is critical to a high yielding, profitable agriculture sector, it is also core to understanding and resolving key fertilizer supply and demand issues.</p> <p>As stated previously, there has been a lack of financial support and focus on crop nutrient education in Nepal. Therefore, changing the present mindset to support educational efforts will be challenging. India and Bangladesh both have strong public/private sector educational partnerships. Again, Nepal needs to learn from existing programs across South Asia.</p> <p>In partnership, USAID should support timely regional and national crop nutrition seminars and conferences. USAID should also support a regional coalition of educational stakeholders lead by IPNI, as well as a broad-based educational initiative across Nepal, Bangladesh and India. USAID should develop dialogue with IPNI, The Fertilizer Institute and the International Fertilizer Association, and partner with them wherever possible on a crop nutrition educational and research activities in Nepal, and across South Asia.</p> |

RECOMMENDATION 7: Through the NFA, Nepal's private fertilizer sector must elevate its political and technical position nationally and internationally by developing a strong trade organization for importers, distributors and retail outlets.

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| Feasibility | Medium |
| Potential impact | Medium |
| Resources required | Low |
| Activity | <p>Strengthening the overall position of the private sector within the policy decision making process will provide a better platform for addressing trade constraints and initiating change within Nepal and across the region. The development of a strong trade association will help improve meaningful dialogue and build respect.</p> <p>Historically, there has been a lack of trust between the public and private sectors which has made dialogue difficult. Since the formation of a fertilizer trade association is in its infancy, there still remain significant organizational challenges. Both the Bangladesh Fertilizer Association and the Fertilizer Association of India are excellent examples whereby strong trade associations can influence trade policy.</p> <p>USAID should open a dialogue with this new organization and together support a national conference on free trade and the role of subsidies as well as other fertilizer issues. Regionally, USAID should support an NFA think tank for evaluating and guiding policy toward a free fertilizer trade zone with India.</p> |

RECOMMENDATION 8: Work with the Soil Management Directorate to support upgrading and expanding soil and fertilizer testing across Nepal.

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| Feasibility | High |
| Potential impact | High |
| Resources required | Medium |
| Activity | <p>Soil and fertilizer testing is only beneficial if it is effectively used and communicated to agricultural retailers and farmers. There needs to be a strong marketing partnership established between the Soil Management Directorate (which handles testing) and other stakeholders (which use the information), both in the public and private sectors.</p> <p>Providing access to soil testing by a larger number of farmers will gradually develop a solid base from which to guide future fertilizer use decisions, thus providing better environmental protection, increasing nutrient use efficiency, controlling costs to farmers and improving farmer profitability. Increasing the availability for quick and easy fertilizer sample analysis will help ensure better product quality for farmers, which has been a significant problem in Nepal.</p> <p>As noted previously, historically there has been a lack of financial support and awareness of or for soil testing in Nepal. Therefore, changing the present mindset to support soil testing efforts will be challenging. The need for more testing laboratories is critical to making these programs effective.</p> <p>India and Bangladesh both have strong public/private sector-driven soil and fertilizer testing programs. Again, Nepal needs to learn from existing programs across South Asia.</p> <p>In partnership, USAID should support timely regional and national crop nutrition seminars and conferences focusing primarily on fertilizer and soil testing. USAID should also support a regional coalition of educational stakeholders lead by IPNI, as well as a broad-based educational initiative across Nepal, Bangladesh and India. USAID should develop a dialogue with the IPNI, The Fertilizer Institute and the International Fertilizer Association, and partner with them wherever possible on all crop nutrition education and research activities in Nepal and across South Asia.</p> |

RECOMMENDATION 9: Assist NARC in providing high yielding, cutting-edge crop nutrient research. Research which leads to higher, sustainable yields needs to be a high priority.

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| Feasibility | Medium |
| Potential impact | High |
| Resources required | High |
| Activity | <p>To gain respect and academic support across the region, Nepal needs to upgrade its field research. Well-respected, high yielding crop research will lead to higher nutrient consumption and better, well-balanced fertilizer use. An active, progressive crop nutrient research program will support well-balanced crop nutrient use, and focus on nutrient needs rather than specific fertilizer products. A focus on crop nutrient needs will increase fertilizer demand through higher yields, as well as improve fertilizer use efficiency, protect the environment and enhance food security.</p> <p>Historically, there has been a lack of financial support and focus on crop nutrient research in Nepal which has resulted in challenges to maintain and recruit qualified faculty. Much of the analytical equipment and facilities are old and outdated. India research programs currently lead the way in South Asia and should be a model for Nepal. By involving IPNI in any projects or discussions, USAID could help move Nepal crop nutrition research forward. USAID should also explore opportunities with NARC to rebuild the infrastructure such as greenhouses and laboratories, as well as consider supporting regional crop nutrient forums and seminars. Lastly, as noted elsewhere, USAID could assist in facilitating exchange programs for faculty with both India and Bangladesh.</p> |

RECOMMENDATION 10: Begin to prepare private, public and other groups (e.g., associations) for negotiations on mutual recognition between India and Bangladesh to alleviate standards-based bottlenecks.

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| Feasibility | High |
| Potential impact | Low |
| Resources required | High |
| Activity | Authorities on both sides of the border should be convened to review standards-related legislation, conformity assessment and border procedures to harmonize them in a way that meets the public goals of both countries without unnecessarily impeding the flow of important agricultural commodities. The goal of such review should be mutual recognition of legislation, regulation and procedure. Such discussions should be used to identify a clear path towards increased standards development, border cooperation, conformity assessment and review. |

RECOMMENDATION 11: Pool resource for the long term development and maintenance of hard infrastructure.

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| Feasibility | High |
| Potential impact | High |
| Resources required | High |
| Activity | The most commonly cited constraint to agricultural growth, competitiveness and food security in Nepal was the lack of reliable infrastructure. The current infrastructure system makes accessing the Hills and Mountain areas prohibitively expensive, introducing numerous and costly policy responses, including subsidized transportation (at the expense of investment). |

RECOMMENDATION 12: Provide targeted assistance to commercial growers in and around areas able to supply rice mills, promoting out-grower schemes where possible.

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| Feasibility | High |
| Potential impact | Med |
| Resources required | Low |
| Activity | Substantial differences in scale and a wealth of subsidies translates into increased competitiveness for Indian grains on the Nepali market. To protect the jobs associated with rice milling in southern Nepal, and to increase the competitiveness of the sector, donors should consider efforts to expand the number of rice farmers receiving support. In addition to improved agricultural practices that will lead to greater on-farm productivity, improved access to high yielding varieties is an essential aspect to reinvigorating the Nepali milling sector. Interviewees noted that one variety of rice dominates the areas near mills and that increasing the varieties available to producers (and eventually to millers) will be a crucial step towards recapturing the Nepali milled rice market. |

RECOMMENDATION 13: Work with local chambers of commerce to eliminate the district-by-district tax system, levied on grain and other products transported across Nepal.

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| Feasibility | Medium |
| Potential impact | Medium |
| Resources required | Low |
| Activity | The cost of transporting a consignment of grain from Nepal's border with India costs about as much as the grain itself. The FNCCI has already won a case against local officials trying to impose taxes on the movement of grains; unfortunately, the local officials have failed to comply with the court order and are now charging local cesses once again. Donors can assist with this situation by encouraging the GON to change the tax system while working in parallel to strengthen the court's enforcement mechanisms. |

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