Trade Integration within ASEAN: The Role of Non-tariff Measures for Cambodia, the Lao People's Democratic Republic, Myanmar and Viet Nam
ESCAP is the regional development arm of the United Nations and serves as the main economic and social development centre for the United Nations in Asia and the Pacific. Its mandate is to foster cooperation between its 53 members and 9 associate members. ESCAP provides the strategic link between global and country-level programmes and issues. It supports Governments of the region in consolidating regional positions and advocates regional approaches to meeting the region’s unique socio-economic challenges in a globalizing world. The ESCAP office is located in Bangkok, Thailand. Please visit our website at www.unescap.org for further information.

The shaded areas of the map are ESCAP members and associate members.

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TRADE INTEGRATION WITHIN ASEAN: THE ROLE OF NON-TARIFF MEASURES FOR CAMBODIA, THE LAO PEOPLE’S DEMOCRATIC REPUBLIC, MYANMAR AND VIET NAM
Preface

In 2014, the Agence Française de Développement (AFD) decided to launch and finance a research and capacity-building project on economic integration within ASEAN. More specifically, the project was aimed at dealing with the specific problems that the four less prosperous countries of ASEAN (i.e., Cambodia, the Lao People’s Democratic Republic, Myanmar and Viet Nam, collectively known as the CLMV group) would have to cope with in the context of the ASEAN Economic Community (AEC), which was to be fully realized by the end of 2015. The first phase of the project, which was carried out in partnership with the Asian Development Bank Institute (ADBI), dealt with reforms in the agriculture sector. The second phase, the results of which are presented in this publication, concentrated on non-tariff measures (NTMs) and geographical indications. This phase was carried out in partnership with researchers from the Asia-Pacific Research and Training Network on Trade (ARTNeT) and its secretariat at ESCAP.

This research project is emblematic of one of the two pillars of AFD research activities. Apart from gaining knowledge to improve its own operations, AFD also aims at promoting policy dialogue on development by supporting research centres and think tanks based in developing and emerging countries. The CLMV project is a perfect example of how a research and policy support programme can be designed to run concurrently with national or regional development strategies as well as serve as a knowledge backstop for policymakers and other key stakeholders.

The substantial gap in economic development between CLMV and the other members of ASEAN appears to be one of the key challenges facing the region and its ability to fully realize the benefits from regional integration. Cambodia, the Lao People’s Democratic Republic and Myanmar are now middle-income developing countries while Viet Nam is consolidating its status of a dynamic exporter, and they face a different global environment from the one faced by the ASEAN-6 when they were at the similar level of development. After the negative impact of the global financial crisis of 2008/09 on merchandise trade,
the recent depression (2011-2015) is slowly being corrected, although more in terms of value than volume. With some main international production networks reaching maturity with less or no expansion, the signs point to a longer-term slow trade growth. Moreover, the ability to benefit from market access depends increasingly on compliance with trade regulatory measures such as sanitary and phytosanitary requirements and goods standards as well as many other standards such as behind-the-border measures. The CLMV group faces this problem on both sides of their borders, which increases their trade costs and reduces their ability to follow the ASEAN-6 in exploiting trade and regional integration effectively for their development, even though regional trade is expected to continue to grow. As a matter of fact, ASEAN’s greatest success has been in the area of tariff reductions. On average, 96% of tariff lines are at zero per cent and more than 70% of intra-ASEAN trade travels at a most-favoured nation rate. Nowadays, more than 70% of total trade between ASEAN members is conducted with zero tariffs. However, tariff liberalization is certainly not the end of the story, especially for the CLMV group whose economic structures still lag compared to those of other ASEAN members.

These are the reasons why the second phase of the AFD project was aimed at the implementation of policy-oriented research activities, a research capacity development programme and the sharing of knowledge about NTMs and geographic indications (in the broader context of trade-related intellectual property rights). The objective was to strengthen the technical and analytical skills of CLMV officials and researchers in managing the use of such tools in making assessments. Taking into account ESCAP’s overall capacity-building work, synergies were found with other projects, such as “reducing obstacles to international trade and investment in Asia and the Pacific”. Moreover, ARTNeT’s management skills in carrying out research programmes is a guarantee of good-quality outcomes, which is clearly demonstrated in this publication.

The ASEAN fell short of its target of fully realizing the AEC by the end of 2015, as 105 of its 506 measures were deferred. A successor blueprint called the
AEC blueprint 2025, which lays out the work for ASEAN economic integration in the next 10 years, was therefore adopted at its twenty-seventh summit in November 2015. Among many other provisions, greater emphasis is being placed on harmonizing standards and regulatory convergence, a field that directly considers NTMs and geographic indications. When every ASEAN country accepts and enforces commonly defined standards and mutually recognizes geographic indications, ASEAN will become more of a single market.

It is hoped that the research work carried out by the project, together with the many exchanges of views between participants, will contribute to better preparation by the CLMV group in adopting an equitable framework for trade facilitation under the 2025 perspective.

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“Trade integration within ASEAN: The role of non-tariff measures for Cambodia, the Lao People’s Democratic Republic, Myanmar and Viet Nam” resulted from a project implemented in a partnership between Agence Française de Développement (AFD) and the ESCAP’s Trade, Investment and Innovation Division in collaboration with researchers associated with the Asia-Pacific research and training Network on Trade (ARTNeT). The project “Supporting Equitable Economic Development in ASEAN: Impact of regional Integration (AEC) on Cambodia, Lao PDR, Myanmar and Viet Nam (CLMV countries)” had an objective to strengthen the technical and analytical skills of officials and researchers from CLMV countries to manage use and assessment of the impact of 1) non-tariff measures, and 2) geographical indications in the context of effective response in CLMV countries in these policy areas.

The project included two components: technical capacity building and production of policy-relevant research. ARTNeT secretariat in collaboration with its advisers and resource persons from the Asian Development Bank (ADB), Center for the Advancement of Trade Integration and Facilitation (CATIF), Economic Research Institute for ASEAN and East Asia (ERIA), United Nations Conference on Trade and Development (UNCTAD), and World Trade Organization (WTO) organized two technical trainings for the researchers involved in this project. Their initial findings were shared and discussed at the ARTNeT dialogue on “Analyzing non-tariff measures: collating evidence and setting research agenda” 26-27 April 2017 in Bangkok, Thailand,¹ which also provided a platform for the formulation of the future research agenda in this substantive area.

In addition to the authors of the chapters, many people deserve to be thanked for their contributions to the implementation of the project and preparation of this publication, including all experts sharing their knowledge through training

¹ http://www.unescap.org/events/artnet-dialogue-%E2%80%9Canalyzing-non-tariff-measures-collating-evidence-and-setting-research-agenda
and mentoring, former and current TIID staff including Adam Heal and Arun Jacob (working on the project in its early phase), Alexey Kravchenko, Su-Arjar Lewchalermvongs and Mia Mikic who in various capacities led the project to its full implementation. The cover design for the publication was prepared by Cheng Wen Cheng, Consultant in TIID, ESCAP, copy editing was done by Robert Oliver, and the final checks were done by Alexey Kravchenko. The printing was done by Dharmmasarn Co., Ltd.
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<td>ACIAR</td>
<td>Australian Centre for International Agricultural Research</td>
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<td>ADBI</td>
<td>Asian Development Bank Institute</td>
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<td>AEC</td>
<td>ASEAN Economic Community</td>
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<td>AFD</td>
<td>Agence Française de Développement</td>
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<td>AFTA</td>
<td>ASEAN Free Trade Area</td>
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<td>AO</td>
<td>appellation of origin</td>
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<td>APLAC</td>
<td>Asia Pacific Laboratory Accreditation Cooperation</td>
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<td>ARTNet</td>
<td>Asia-Pacific Research and Training Network on Trade</td>
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<td>ASEAN</td>
<td>Association of Southeast Asian Nations</td>
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<tr>
<td>ASEAN-6</td>
<td>Indonesia, Malaysia, Philippines, Brunei Darussalam, Singapore, and Thailand</td>
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<td>ATIGA</td>
<td>ASEAN Trade in Goods Agreement</td>
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<td>BEC</td>
<td>Broad Economic Categories</td>
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<td>BIT</td>
<td>bilateral investment treaty</td>
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<td>CA</td>
<td>competent authority</td>
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<td>CAB</td>
<td>conformity assessment body</td>
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<td>CAC</td>
<td>Codex Alimentarius Commission</td>
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<td>CBI</td>
<td>Central Bureau of Investigation</td>
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<td>CCA</td>
<td>Committee on the Implementation of ATIGA</td>
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<td>CDRI</td>
<td>Cambodia Development Resource Institute</td>
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<tr>
<td>CEPIII</td>
<td>French Research Center in International Economics</td>
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<td>CFDO</td>
<td>Community Fisheries Development Office</td>
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<td>CIEM</td>
<td>Central Institute for Economic Management</td>
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<td>CIRD</td>
<td>Cambodia Institute for Research and Rural Development</td>
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<td>CLMV</td>
<td>Cambodia, Lao PDR, Myanmar and Viet Nam</td>
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<td>COMTRADE</td>
<td>United Nations Commodity Trade Statistics Database</td>
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<td>COO</td>
<td>certificate of origin</td>
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<td>CPC</td>
<td>Central Product Classification</td>
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<td>Abbreviation</td>
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<td>CTIS</td>
<td>Cambodia Trade Integration Strategy</td>
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<td>DFQF</td>
<td>duty-free, quota-free</td>
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<td>Enterprise and Development Consultants</td>
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<td>EDI</td>
<td>Electronic Data Interchange</td>
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<td>exclusive economic zone</td>
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<td>electromagnetic compatibility</td>
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<td>ERIA</td>
<td>Economic Research Institute for ASEAN and East Asia</td>
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<td>Economic and Social Commission for Asia and the Pacific</td>
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<td>Viet Nam – European Union FTA</td>
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<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
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<td>FDI</td>
<td>foreign direct investment</td>
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<td>free trade agreement</td>
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<td>GDP</td>
<td>gross domestic product</td>
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<td>GI</td>
<td>geographical indication</td>
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<td>GMS-CBTA</td>
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<td>General Statistics Office</td>
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<td>GSP</td>
<td>Generalized Scheme of Preferences</td>
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<td>HACCP</td>
<td>Hazard Analysis Critical Control Point</td>
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<td>HS</td>
<td>Harmonized System</td>
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<td>I-TIP</td>
<td>Integrated Trade Intelligence Portal</td>
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<td>IEC</td>
<td>International Electrotechnical Commission</td>
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<td>IFReDI</td>
<td>Inland Fisheries Research and Development Institute</td>
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<tr>
<td>ILAC</td>
<td>International Laboratory Accreditation Cooperation</td>
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<td>IPR</td>
<td>intellectual property right</td>
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<td>ISO</td>
<td>International Organization for Standardization</td>
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<tr>
<td>ITC</td>
<td>International Trade Centre</td>
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<td>International Telecommunication Union</td>
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IUU  illegal, unreported and unregulated
KPPA  Kampot Pepper Promotion Association

Lao PDR  Lao People’s Democratic Republic
MAFF  Ministry of Agriculture, Forestry and Fisheries
MAST  Multi-agency Support Team
MFN  most favoured nation
MoC  Ministry of Commerce
MoU  memorandum of understanding
MRA  Mutual Recognition Agreement

NSDP  National Strategic Development Plan
NTB  non-tariff barrier
NTM  non-tariff measure

OECD  Organisation for Economic Co-operation and Development
PGI  Protected Geographical Indication
PPM  process and production method
PWO  Public Warehouse Organization

RASFF  Rapid Alert System for Food and Feed
RCEP  Regional Comprehensive Economic Partnership Agreement

SEOM  Senior Economic Officials’ Meeting
SIDS  small island developing state
SPS  sanitary and phytosanitary measure

TBT  technical barriers to trade
TDF-2  Second Trade Development Facility
TFA  Trade Facilitation Agreement
TRAINS  Trade Analysis and Information System
TRIPS  Trade-Related Aspects of Intellectual Property Rights
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<tr>
<th>Acronym</th>
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<tr>
<td>UNCTAD</td>
<td>United Nations Conference on Trade and Development</td>
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<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>UNIDO</td>
<td>United Nations Industrial Development Organization</td>
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<td>UNNEExT</td>
<td>United Nations Network of Experts for Paperless Trade and Transport in Asia and the Pacific</td>
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<td>VASEP</td>
<td>Viet Nam Association of Seafood Exporters and Producers</td>
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<td>WDI</td>
<td>World Development Indicator</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>WITS</td>
<td>World Integrated Trade Solution</td>
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Part I

Geographic indications, trade promotion and sustainable development in CLMV countries
Geographic indications, trade promotion and sustainable development in CLMV countries

Sébastien Bouvatier

Geographical indications (GIs) are a specific type of intellectual property rights dedicated to the protection of goods (agricultural products, handicrafts, etc.) which possess a strong link with their geographical origin. As such, they enable to protect the name of goods which are not only of high cultural value but also represent a significant potential in matter of economic development for local communities. Famous examples of GIs include French champagne, Cornish pasties, Gorgonzola cheese and Darjeeling tea.

The concept of GIs was initially developed in France between the end the 19th and the beginning of the 20th century. It proved very efficient to promote multiple local products such as Champagne or Cognac which generate several billion euros of turnover, largely to the benefit of French farmers. But it is only in the mid-90’s that GIs obtained a global recognition through the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights.

This international endorsement opened the way to a wider use of GIs worldwide, particularly in developing and emerging countries. In these economies, GIs are seen as an interesting tool to foster economic development, in contexts where other intellectual property rights might not be as relevant (products based on tradition, collective approach, etc) and might not ensure such an equitable distribution of benefits along the value chain.

ASEAN countries possess a long history, a high level of cultural diversity and wide range of agricultural/food products and handicrafts. Those characteristics are particularly favourable to the development of GIs and their economic success. It is the reason why most ASEAN countries have shown a growing interest in GIs during the past two decades. Recently, ASEAN countries have been displaying considerable dynamism to register numerous GIs and there are now more than 200 registered products in the region. In the coming years,
ASEAN countries will progressively shift their focus towards organisation of producers and control systems which are two key elements for successful GIs.

The following two chapters on GIs in Viet Nam and Cambodia shed light on the situation of GIs in ASEAN, showcasing their first impressive successes but also evidencing the need of further work and cooperation between authorities and producers to reap the full benefits of GIs and ensure their sustainability in the long term.

The first chapter investigates the relationship between GIs and sustainable rural development in Viet Nam, considering Government roles and producers’ strategies. As part of this study, interviews were conducted with Vietnamese officials and GI producers to investigate the role of the Government of Viet Nam in designing and implementing GIs. The study also examined the involvement of local producers in taking advantage of GIs to identify how and to what extent GI protection affects sustainable rural development.

The study found that the most notable impact of GIs on the social system is its contribution to the development of representative associations for GI-registered products in the territory. Communication and connections among producers and traders were found to be lacking, culminating in the need for such associations. Next, critical supporting infrastructure and local government human resources were found to be insufficient to meet the current demand due to limited budgets of the local authorities. In terms of economic development, due to the establishment of the GIs, the increase in reputation has led to a considerable rise in the production volume and the premium price of the products, resulting in significant improvements of the producers’ incomes. Next, the study found that GI development in Viet Nam has been increasingly instrumental in preserving the uniqueness of products rooted in specific territories or local areas, especially when the region is encouraged to produce traditional products rather than focusing on alternative products. Finally, technological improvements, while may have issues relating to attaining cost efficiencies, have been found to promise significant benefits to producers. The recommendations of the study include a call for further infrastructure investment; stronger collaboration between relevant ministries, local authorities, farmers, producers and relevant associations to acquire GI recognition; improving regulatory framework on GIs; providing training and support for GI producers; improving the quality control system of post-GI registration, and; improving the policy on harnessing GIs for sustainable rural development.

The second chapter contributes to the literature on the impacts of GI on local development by providing empirical evidence using Cambodia’s Kampot pepper.
as a case study. The study employs a qualitative data collection and analysis method combining secondary data from content analysis with primary data from interviews of relevant stakeholders and site visit observations. The findings of this study are in line with the literature, which support the hypothesis that GI contributes positively to socio-economic development in rural Cambodia. The GI status of Kampot pepper has provided economic benefits by increasing the value of this product as well as boosting local and export demand that has resulted in higher turnover for the producers. The social benefits of GI come in form of improving people’s livelihood, and the creation of employment for the local population as a result of the expansion of farmland and increases in production. GI has also brought about environmental gains through the promotion of sustainable agriculture practices.

The authors of the chapter caution, however, that while Kampot pepper is a successful case, this does not suggest that any product registered as a GI will automatically be successful. GI only provides recognition of, and protection for products that are historically well-known. Although there are many examples of origin-based products that are sustainably successful without official recognition and protection, official recognition and protection through GI can help to improve the marketing and profitability of such products. Kampot pepper has long been appreciated for its quality, yet GI has helped to make it famous internationally and thus has created a broader market for the product. Furthermore, for the GI approach to work, it is necessary for a quality product to be positioned in quality markets, so that consumers are willing to pay more. In addition, the intermediary economic actors who process and/or sell the product must be ready to apply this strategy.

The authors further call for further collaboration and partnerships among various stakeholders, including the Government (both national and local), local producers and processors, international development agencies and relevant local community development agencies. Such collaboration is necessary for successful GI registration and implementation. Furthermore, a sustainable GI approach must ensure that a significant share of the value-added generated by GI goes to the producers located in a GI product’s territory. A systematic capacity-building programme as well as the promotion of public awareness are vital for the long-term success of GI. In addition, a strong enforcement of the GI law is needed in order to protect the reputation of GI products, and eliminating counterfeit products and deterring offenders are crucial to maintaining the value of GI products and to meeting the expectation of the consumers. The long-term benefits of GI can be realized when GI policies are linked with trade facilitation and investment promotion measures, rural development strategies and national public quality standards.
Geographical indications and sustainable rural development in Viet Nam:
A qualitative study of policymakers and producers*

Hoang Truong Giang, Nguyen Hoang Anh, Du Vu Hoang Tuan and Le Thi Thu Ha

Introduction

Despite the well-known importance of geographical indications (GIs) to the agriculture sector and rural development, very few studies have explored the link between GIs and sustainable rural development in the context of Viet Nam. This study is an attempt to contribute to the literature by investigating the relationship between GIs and sustainable rural development in Viet Nam, considering Government roles and producers’ strategies. Nineteen interviews were conducted with Vietnamese officials and GI producers to investigate the role of the Government of Viet Nam in designing and implementing GIs and the involvement of local producers in taking advantage of GIs to identify how and to what extent GI protection affects sustainable rural development. The results show that GIs have positively contributed to sustainable rural development in Viet Nam; however, problems remain in terms of infrastructure, GI management and the connection between producers and traders. These problems need to be solved with the involvement of the Government and local producers. This study concludes with policy implications for promoting GIs and sustainable rural development in Viet Nam.

* Please note that the Annex to this chapter is available digitally from http://www.unescap.org/resources/trade-integration-within-asean-role-non-tariff-measures-cambodia-lao-peoples-democratic
Agriculture and rural development play an important part in the economy of Viet Nam. While the value of agriculture in Viet Nam’s GDP has fallen from 22.7% to 17% since 2002 (World Bank, 2017), the sector still accounts for nearly half of the total workforce (Oxford Business Group, 2017). In a developing economy like that of Viet Nam, agriculture is the main source of income for people living in the rural areas. Therefore, a strategy for sustainable rural development should be based on sustainable growth of agricultural production.

Prior to 1986, the year of Doimoi (Renovation), a policy focus of self-sufficiency in agriculture was in place. Such agricultural policies are generally applied nationwide by the Ministry of Agriculture and Rural Development, and more locally by provincial Governments before being imbedded into all other levels of government down the chain of command. After Doimoi, many new policy tools were used to stimulate agricultural and rural development by focusing on quality and branding values of the agricultural products. Among such agricultural policies, GIs are considered to be an effective tool for improving the quality and reputation of agricultural products, thus contributing significantly to the development of rural areas. From the mid-1990s until the present, the Government of Viet Nam has been proactive in the development and use of GIs (Durand and Fournier, 2015), and it is now seen as one of the world’s most active users of this policy tool (Benerji, 2012).

In general, GIs are an effective and cost-effective way of promoting agricultural products, by avoiding the misappropriation of names (Anders and Caswell, 2009; Bramley and others, 2011; Vittori, 2010). Similar to the objective of intellectual property rights (IPRs), GIs are aimed at protecting the appeal and reputation of regional products that can be linked clearly to their source. GIs may help customers recognise quality food from other foods in the context of “information asymmetry” (Akerlof, 1970). In addition, GIs can even play a role in resource conservation (Gangjee, 2012), thereby enhancing the autonomy of rural communities through “grassroots economics” (Bowen, 2010). In today’s highly globalised world, GIs can even change a product from pure “commodity” to that of an “origin product” (Galtier and Marescotti, 2013), which can in turn increase both the selling price and market share of products.

Given their potential multiple functions, both positive and otherwise (Bowen, 2010; Galtier and Marescotti, 2013), in many places around the world GI protection is considered an integral part of general agricultural policy. GIs have the potential to raise producer incomes through creating and strengthening a product’s reputation, thereby allowing a boost in local agricultural activity and
the growth of the local market (Bowen, 2010). This creates a slipover effect into
other sectors of the local economy (Pecqueur and others, 2008). Governments
can therefore use GIs to promote sustainable diversification in productive
agricultural areas as well as help to prevent a rural exodus. Even though the
literature has largely agreed that GIs can contribute positively to agricultural
and rural development (Durand and Fournier, 2015), there is still some way to
go concerning the impact of the former on sustainable rural development –
a key strategy in the long-term development of Viet Nam.

To bridge these gaps, this study examines the institutional role of the Government
of Viet Nam in implementing and managing GIs, explores the involvement of
local producers in GI development, and analyses whether and how GIs are
combined with agricultural policies to support sustainable rural development in
Viet Nam. To realize this aim, the study employs the PENTAGON model (Akgun
and others, 2015; Gülümser, 2009) to explore the link between GI protection
and five factors of sustainable rural development. Five main questions are
posed: (i) How do GIs contribute to an economic system?; (ii) How do GIs
influence a local socio-economic system?; (iii) Do GIs contribute to a creative
system and how?; (iv) How do GIs contribute to a physical system?, and (v)
How do GIs impact a social system?

This study is structured as follows. Section A provides a review of the literature
on GIs and sustainable rural development, and an evaluation of the role of the
Government of Viet Nam in designing and implementing GIs. Section B explains
the situation regarding GI protection in Viet Nam. Section C explains the
methodology, including sample selection, data collection and data analysis.
Section D presents the results of the qualitative research. Section E proposes
implications of, and recommendations for (a) improving the legal system, and
(b) local producers to take full advantage of GI protection in order to promote
sustainable rural development in Viet Nam. Section E provides the conclusion.

A. Literature review

GIs are defined in many ways. This study worked with the definition by the
World Trade Organization (WTO), presented in Article 22 of the Trade-Related
Aspects of Intellectual Property Rights (TRIPS) Agreement. In the Agreement,
GIs are defined as “indications that identify a good as originating in the territory
of a particular country, or a region or a locality in that country, where a given
quality, reputation or other characteristic of the good is essentially attributable
to its geographical origin” (WTO, 1994).
Under the TRIPS Agreement, there are three major conditions that a product must satisfy to be recognised under the GI scheme. First, it must relate to a specific type of agricultural or non-agricultural good (although in some countries services are also counted, including but not limited to Bahrain, Croatia, Jamaica, Moldova and Singapore). Second, a product must originate from a defined area. Finally, the product must have qualities, reputation or other characteristics that are clearly linked to its geographical origin (Kireeva and O’Connor, 2010; WTO, 1994). Products that are unable to meet these three conditions cannot be protected under the GI terms of the TRIPS Agreement.

The exact nature and extent of protection, however, are not specified in the Agreement, and there is case law only for specific products. This lack of specification of GI protection methods is perceived as the shortcoming of the TRIPS Agreement (Le, 2016). Instead, an array of institutions and arrangements have been established in different parts of the world to solve the issues of GI protection (Bowen and Zapata, 2009; Le, 2016).

European Union countries adopted the earliest *sui generis* registration-based system, in which the relevant member State (often the Ministry of Agriculture) assesses the application against criteria. If acceptable, the European Commission is responsible for final approval (Bowen and Zapata, 2009; Le Goffic and Zappalaglio, 2017). Meanwhile, trademarking is the approach used in other developed countries such as Australia, Canada, New Zealand and the United States, where trademark owners regulate the utilization of their own trademarks (Le Goffic and Zappalaglio, 2017). Similarly, developing countries have started to make a move in this field as a way to encourage rural development and protect local products, at both the local and the national levels (Bowen and Zapata, 2009; Charbot and others, 2016). According to Le (2016), business and competition laws are also methods of protecting GIs.

Despite being found in different forms, the legal protection provided by GIs is aimed at safeguarding the markets for GI products, especially in terms of preventing market failure, from public goods and over-exploitation of the origin name (Belleti and others, 2015). Without regulations for controlling GIs as a tool in providing protection for intellectual property rights (IPRs), any similar products, even if produced in another area and without certain quality criteria, can be labelled as GI.

**B. Geographical Indication protection in Viet Nam**

Viet Nam, like many other Asian nations, became interested in protecting GIs
only relatively recently, not long after signing the TRIPS Agreement (WTO, 1994). In the following subsections, the interventions by the Government of Viet Nam in GI development are analysed, including its legal framework, the implementation and the distribution of tasks between the central and local Governments.

1. Progressive establishment of a legal framework

Before a GI protection system can be properly established, a corresponding legal framework must be established. This was first done so in Viet Nam in 1995 (Vu and Dao, 2006). As the TRIPS agreement on GIs does not specify any legal means that should be enacted for setting up GIs, Viet Nam has had to make its own decisions regarding how to internally regulate its GI system.

In Viet Nam, the regulatory framework surrounding GIs was progressively made clearer between 1995 and 2005 through a series of decrees, draft laws and circulars. These laws also clearly designate responsibility for the different aspects of GIs among various levels of the Government. National experts and universities were pivotal in ensuring the first drafts of the laws were harmonious with the Vietnamese and international legal backgrounds.

The Civil Code of 1995, Article No. 796, protected GIs for the decade from 1995 to 2005, on “Appellation of Origin” (AO). The Ministry of Science and Technology, through the National Office for Industrial Property, under Decree 63/CP managed the scheme, which defined AOs and administered their accreditation. There were only two AOs during that period, a brand of fish sauce and a type of tea from Moc Chau known as “snow tea”.

However, when Viet Nam was preparing to join the WTO, the IPR regulations were revised. The reformed regulations (IP Law 2005, Article 79), allowed for any agro-food or handicraft product attributable to one geographical region, to be designated as a GI product. While organizations and individuals may theoretically apply for GIs for their products, in practice it is only possible for administrative authorities to do so. The IP law was very detailed, and its application was fast and effective, resulting in accelerated GI registrations. A preference for GIs over AOs was demonstrated, however, as geographical names could also be protected as certification trademarks.

(a) Beyond the law: Diversification of the Government’s role in GI development

The role of the Government of Viet Nam has shifted far beyond simply maintaining a legal framework to support GIs. The Government supports the
development of GIs through various actions such as providing incentives for GI projects and helping to generate GI applications. The Government has trained national GI experts, and raised the general level of awareness of GIs at the local level. In addition, the Government provides financial support for GI implementation.

The Government continues to maintain significant involvement in GI development through technical assistance, together with a database of potential Conformity of Production goods. To ensure that suppliers meet Conformity of Production requirements, the whole process is actively supervised and supported by the country’s relevant authorities. National research institutions within Viet Nam have the responsibility for these tasks, in partnership with the Ministry of Science and Technology.

(b) **Government participation in GI development: What authority at what level?**

It is interesting to consider the division between the national and local levels in Viet Nam in the context of decentralisation. Durand and Fournier (2015) argued that there was no clear delineation of responsibilities with regard to GIs, leading to inefficient administration. In theory, there is a stated desire for cooperation and collaboration between local and central authorities; however, the central administration sometimes overpowers any local collaboration efforts.

In the Vietnamese system for managing GIs, the right to register is held exclusively by the central Government, while the right to manage is usually held by a local authority. Once a GI is registered, the central Government may delegate the responsibility for management of that particular GI to a provincial branch of the Department of Science, Technology and Environment. While those processes are relatively clear, what is less clear are the phases leading up to registration. The provinces have, over time, become more active in identifying potential GIs and have used their resources towards GI development, originally a domain held by the Central Government. The problem with this approach is that the provinces require federal funding and support, and this support is not always forthcoming from the central Government due to a lack of resources or will to support all GI projects identified by the provinces. Sometimes, local actors will instead resort to collective trademarks as they are easier to register and less costly.

The post-registration phase of GIs appears to be more clearly outlined, regulated and delineated among the various levels of authority. Local public authorities often have the motivation to become involved, but lack the internal resources
to do so fully. To overcome this problem, some producers and local authorities have appealed for external support through cooperation projects or private funding.

To ensure successful GI registration and implementation, there must be cooperation between the central and lower levels of government; however, the role of each level of government needs to be clarified. This is also the case in Europe according to Scudeller (2009). The case studies in section D of this study discuss in more detail the role of, and implications for local government authorities in relation to GI dynamics.

(c) Registered GIs in Viet Nam

These products can be divided into two categories: (a) products that need protection; and (b) products that need to build their presence. Products that need protection are those that require GIs to prevent counterfeiting. For products that need to build their presence, GIs offer an added marketing dimension, and an accreditation of sorts. The market types of these GI products vary from small-scale goods to export commodities.

The significance of individual GI products to the national economy or food security also varies. Some of these products have strategic and symbolic value to Viet Nam; almost all GIs, even those without a level of national value, have a level of economic importance on a local scale. The presence of the most extensive range of GI-registered products in ASEAN shows the central Government is intent on using GIs to promote national heritage. This aspect has also been explored in other literature by scholars, for example Biénabe and Marie-Vivien (2015), and Jena and Grote (2010). Local government is not blind to this significance, and its participation in the founding and supporting of GI enterprises ensures that the central Government maintains a focus on local priorities.

In short, despite a relatively long establishment process, the steady legal framework and successful operational GI enterprises exist in Viet Nam. The GI scheme is well supported by the public, and the number of applications has accelerated since its establishment. The central Government’s involvement in GIs is far beyond that required by the legal framework; however, it is the only source that can offer the correct support, as local economic actors are often unaware of what GIs are, and how they work.
2. Sustainable rural development

Currently, with economics and ecologies driving perspectives and actions, sustainability has become a key concept in a vast range of areas, one of which is rural development (Emmanuel and others, 2007). In general, sustainable rural development refers to the guaranteed sustainability and progression of rural regions in tandem with the exploitation of global opportunities (Akgun and others, 2015). This ensures that future generations will be endowed with a sustainable resource (Emmanuel and others, 2007).

In order to achieve sustainable rural development, there is a need for the integration of well-prepared and properly executed initiatives that tackle all three pillars of sustainability, i.e., the social, economic and physical aspects of the environment (Emmanuel and others, 2007). While barriers remain to attaining sustainable rural development, such as the complexity of the link between sustainability and rural areas (Akgun and others, 2015), it is best to embark upon activities within rural areas, especially agriculture (Chiritescu, 2011), and share rural development knowledge among related stakeholders (Ali and Advic, 2015).

A number of success factors can explain sustainable rural development in general, or the complex system between sustainability and rural development in particular (Akgun and others, 2015). According to Berkes and others (2003), whether sustainable rural development is achievable depends on the integrated knowledge of the natural process and natural resources as well as the interlink between the ecological and social aspects.

In addition, it is worth noting that the role of sustainable rural development is further consolidated in the 2030 Sustainable Development Agenda formulated by the United Nations in 2015, which came into force on 1 January 2016 (United Nations, 2017). In fact, sustainable rural development is one of the most notable and longest-running themes across different agendas (United Nations, 2017). In the latest agenda, the concept is reflected in goal 2 of the 17 goals: “End hunger, achieve food security and improved nutrition and promote sustainable agriculture”. To achieve this, there is a need for increased investment in the infrastructure in rural areas, agricultural research and extension services, and so forth, with a view to raising agricultural productive capacity, particularly in least developed nations (United Nations, 2015).
C. Methodology

The aim of this study was to (a) identify the process of GI implementation in Viet Nam, (b) explore the role of the different administrative levels in supporting GI producers and (c) examine whether GIs contribute to the sustainable rural development in the country. A qualitative research approach, based on interviews, was chosen because it is considered suitable for providing deep insights and detailed accounts of complex phenomena (Wang, 2008).

1. PENTAGON model

In the context of this study, the PENTAGON model, or the five-factor approach, was selected as the evaluation tool. Gülümser (2009) pioneered the utilization of the PENTAGON model in identifying critical success factors for sustainable rural development. Apart from the traditional analysis of the three pillars (environmental, social and economic) of sustainability, the model integrates them with other two aspects (physical and creative), with the objective of providing a comprehensive illustration of, and systematic approach to the multiple dimensions of the concept (Akgun and others, 2015; Vehmas, Akgun, Van leeuwen and Nijkamp, 2010) as detailed below.

Figure 1. The critical factors of, and driving forces required for sustainable rural development

Source: Akgun and others, 2015.
Physical system refers to the availability, accessibility and quality of built environment, plus technology application in rural areas. Social system consists of the open-mindedness of the local communities in rural areas, such as a willingness to change, social relations and enthusiasm in development activities. Economic system refers to the competitiveness of economic diversity as well as the improved amount of entrepreneurship, human capital, externality and promotion. Locality system includes the rural nature, i.e., landscape, tradition, culture and tacit knowledge, that can influence rural development activities. Creative system implies the transformation of tacit knowledge into a fruitful outcome, i.e., the adoption of innovation in the production process.

2. Establishing a link between GI protection and sustainable rural development

Viet Nam, among many other countries, has recently began considering GIs as a part of their national agricultural policy (Josling, 2006; Rangnekar, 2004), as they help to combat counterfeiting as well as strengthen the reputation and value of locally products, thus providing balanced benefits for producers, the market and the local economy (including the supply chain) (Bowen, 2010; Pecqueur and others, 2008). GIs in this context can also act to support communities that cannot compete with intensive agriculture in rural areas, through economic development and the creation of a market for them. In addition, GIs may help to promote sustainable diversification in significantly productive agricultural areas.

If GIs are accepted as policy tools, then the question arises as to whether they have a positive impact on sustainable rural development in Viet Nam. If the link between GIs and sustainable rural development exists, how can Viet Nam use GIs to promote sustainable development in rural areas? Due to their voluntary nature, the successful use of GIs as an agricultural policy tool involves paying close attention to local economic actors. GIs have no binding effect on technical practices or production systems; therefore, close monitoring is a key to ensuring their effective use and implementation. To use GIs within an agricultural policy framework, producers must be convinced to participate fully; an equal-handed negotiation between the Government and local economic actors must occur. By linking GI protection to the PENTAGON model (Gülümser, 2009) the present study analysed the connection of GIs with each of the following factors:

(a) Physical system: The higher quality of GI products is aligned with the enhancement of the infrastructure system (Caenegem and Cleary, 2017);
(b) Social system: GIs can empower local organisations and communities with the collective management system needed to sustain GI requirements. Governments can use GIs to promote sustainable diversification in productive agricultural areas and help prevent rural exodus;

(c) Economic system: The product differentiation nature of GIs is a contributor to a number of rural development strategies (Folkeson, 2005). First, it boosts both the selling price and the market share of a product, increases producers’ income and as a result boosts local agricultural activity, market growth and regional development (Bowen, 2010; Dogan and Gokovali, 2012; Mederos and others, 2016; Pecquer and others, 2008). Second, in the context of asymmetric information, it allows recognition of high-quality agricultural products in the market compared to those of a lesser quality (Akerlof, 1970; Dogan and Gokovali, 2012; Durand and Fournier, 2015; Folkeson, 2005; Rangnekar, 2004);

(d) Locality system: GIs heighten attention to local resources for producing agricultural products (Gangjee, 2012) and indigenous knowledge (Charbot and others, 2016). In turn, this contributes to the autonomy of rural communities through “grassroots economics” (Bowen, 2010);

(e) Creative system: Production systems can be significantly influenced by GIs because of the rules outlined in their Codes of Practice that can determine whether or not an industrial process can be used to process a certain product (Allaire and Sylvander, 1997).

Based on the above, five main questions were defined for this study:

(a) What are the contributions of GIs to the economic system?
(b) How do GIs influence the locality system?
(c) What are the contributions of GIs to the creative system?
(d) What are the contributions of GIs to the physical system?
(e) What are the contributions of GIs to the social system?

3. Participants

The present study is based on empirical data derived from semi-structured interviews with 19 Vietnamese policymakers and producers of GI goods. The sample included seven Vietnamese representatives of the national authorities, six officers of the Department of Science, Technology and Environment in Hoa Binh province, Thai Nguyen province and Quang Ngai province who are in charge of GIs, and six producers of Cao Phong oranges, Tra Bong cinnamon
and Tan Cuong tea. The interviews enabled the identification of the process of GI implementation in Viet Nam, the exploration of the role of the different administrative levels in supporting GI producers, and the gaining of an understanding of how GI protection influences sustainable development in rural areas of Viet Nam.

4. Data collection

Data were collected during the fourth quarter of 2016 by four researchers involved in this study. Semi-structured interviews were used to collect data on the participants’ perceptions regarding GIs protection and sustainable rural development. The interview was guided by an open-ended question protocol. The participants were assured that all identifying details would be excluded from the published study. In addition, the participants received an explanatory statement describing the aims of the study, the researchers’ commitment to preserving confidentiality and anonymity, and their right to pass on any question and to stop the interview at any time.

5. Data analysis

The contents of interviews were transcribed in full in order to take into account the coding analysis (Spiegel and others, 2016). NVivo (Version 11) was employed for coding. The conducting and analysis of the interviews were completed iteratively in the coding and analysis process proposed by Lichtman (2013). First, the initial coding of the data was provided by using in vivo codes (interviewees’ terminology) and extant theory (academic terminology) to inform naming and attribution of codes (Hsieh and Shannon, 2005). Identical codes and resolved issues were then merged with different understanding of the meaning of codes through review and clarification. Next, the codes were aggregated into categories (higher-level constructs that describe several codes on a more abstract level). The final categories, sub-categories and their links were considered and remaining ambiguities were resolved.

D. Research results

This section analyses the results of qualitative study to discover the relationship between GIs protection and sustainable rural development in Viet Nam, which includes five factors as outlined above – economic system, locality system, creative system, physical system, and social system.

1. What are the contributions of GIs to the social system?

In Viet Nam, the social system is most closely associated with stakeholder engagement in rural development. Particularly, throughout the GI establishment
process, inclusiveness is important, as policymaker number 3 pointed out:

“The local Government has relentlessly encouraged the participation of as many producers and processors as possible, implying their crucial role in the success of GIs.”

Therefore, the most notable impact of GIs on the social system is its contribution to the development of representative associations for GI-registered products in the territory. According to Reviron and others (2009), there are two main types of collective organizations in relation to GIs, regardless of the development level of the country. The first is inter-professional associations. This type of association, while comprising members from multiple levels across the supply chain, from producers to distributors, is not involved in any commercial activity. Instead, it acts as a coordinator that controls the activities of members with a view to ensuring the attainment of the common goal. Collective decisions are made by the association. The second type of collective organization is a professional association. The major disparity between the two types of associations results from the delegating of members in the supply chain. For this type, delegates from a single level of the chain are selected. Nonetheless, the structure of both types of organization includes an assembly of delegates and a board.

The majority of existing associations related to GI-registered products in Viet Nam belong to the inter-professional association group. Producer number 1 explained the crucial role of such associations:

“The underlying reason for establishing associations in Viet Nam lies within the lack of communication and connection among producers themselves”.

This weakness is further exposed by the fact that a large number of producers are restricted by exclusivity clauses and struggle to look for a market to penetrate. Recently, several large Vietnamese retailers, such as Intimex or Vinmart, put forward a new model, in which they will enter into an exclusive sales agreement with producers, followed by a strict daily and weekly quality control process until collection and packaging before distribution. More specifically, producer number 1 noted that:

“The recommendation of the new model has since received positive feedback from producers alike, who reckon that the expansion of the model will leverage GIs protection at its best”.

Furthermore, associations enhance their market connection role by acting as an independent party in auditing the unique features of GIs, the aim of which
is to guarantee sustainable development. Likewise, members are capable of deriving benefits from associations as the latter lay the groundwork for sharing expertise and networking opportunities, which will further foster rural development dynamics (Bramley and others, 2011). Having said that, their self-management and less than professional nature still raises a question regarding the effectiveness and efficiency of these organisations (policymaker number 4).

2. **What are the contributions of GIs to the physical system?**

The infrastructure in rural areas has grown significantly in tandem with the development of GIs in Viet Nam. The construction of bottling plants on Phu Quoc Island in southern Viet Nam is a clear example, as locating these plants there has contributed greatly to the island’s physical system. Other areas, such as Luc Ngan district, Bac Giang province (with GI-registered lychees) and Tra My district, Quang Nam province (notable for its GI-registered cinnamon), have experienced similarly positive infrastructure enhancement. The latter is located in a mountainous region. Policymaker number 2 noted that:

“Thanks to the successful GI registration, it has become more imposing and attracted a rising wave of producers.”

Furthermore, producer number 1 noted that:

“Roads are to be widened to pave the way for business tours to local farms. Dams, tanking and pipeline systems have been installed to facilitate the use [by] farmers.”

In fact, underdevelopment and lack of investment are the two most notable issues of the current infrastructure system of Viet Nam, mainly due to inadequate budgets for the local Governments, which shoulder the major responsibility for the system, according to policymaker number 8. Simultaneously, the National Office of Intellectual Property (NOIP) can barely support the situation, due to the shortage of human resources, according to policymaker number 4.

3. **What are the contributions of GIs to economic system?**

Having acted as a pillar in the agricultural sector of the European Union’s countries (Bramley and others, 2011), GIs in Viet Nam have proved to have had a similar impact on the economic system of sustainable rural development, the benefits of which are enjoyed by a vast range of stakeholders. One of the most remarkable economic gains from GIs is the promotional advantage of such products. To be more specific, GIs have the power to signal the quality of agricultural products thanks to an improved reputation as a socially transmitted
device (Bramley and others, 2011) through multiple communication channels, such as word-of-mouth or advertising, according to policymaker number 6.

The increase in reputation has led to a considerable rise in the production volume, associated with the extensive production areas to ensure a sufficient supply for the rising social product demand. Along with this comes the premium price of the product, which confirms its status and high quality in the market. As a result, the income of producers is significantly improved. Cao Phong orange producers are a worthwhile example for this. Over the last three years, the value of Cao Phong oranges has improved dramatically. This fact was confirmed by producer number 2, who noted that:

“Around five years ago, the farm gate value of one kilogramme of oranges from Doai Village ranged between only 4,000 VND up to the maximum at 9,000 VND. However, thanks to the GI registration of the orange, the farm gate value has increased to at least 18,000 to 20,000 VND per kilogram or even up to 30,000 to 35,000 VND per kilogram at the end of the season.”

Another example is the case of Phu Quoc fish sauce, the only GI in Viet Nam so far as well as the first in Viet Nam and the ASEAN region, to be protected by the appellation of origin in all European Union countries since 2012 (European Union-MUTRAP, 2014). Most notably, registration as a GI has seen a leap in the export volume of Phu Quoc fish sauce. This is demonstrated by the fact that in 2002, after being registered in Viet Nam, the quantity of Phu Quoc fish sauce exports hovered at around 500,000 litres at a price of approximately 90 cents per litre (Duong, 2002). After 2012 when it was given protection by the European Union, exports annum to more than 30 countries increased by up to 5 million litres (accounting for 15% of the total production) per (Duc, 2016) together with a rise in price by around 30% (Tran, 2015). This positive record further strengthens the economic value of GIs to Viet Nam’s economy.

On top of that, GIs enable producers to strengthen their market share and position as well as expand their networking opportunities with vegetable and fruit supplying companies. For example, the Vegetables and Fruit One Member Limited Liability Company is the main wholesaler for Cao Phong oranges.

A broader impact of GIs on the economic system can be seen from a community perspective, as GIs are widely regarded as a community asset. That is, they are largely instrumental in generating sustainable development at the region.

Furthermore, one policymaker emphasized the positive impact of GIs on employability in rural areas. According to policymaker number 1:
“GIs have been credited for boosting local employment opportunities for an array of workers of different levels. In turn, this prompts the reduction of the issue of urban migration, a presentably debatable issue in Viet Nam.”

Moreover, GIs can have a positive influence on the development of associated services such as eco-tourism (Lun and others, 2016). As mentioned above, the local reputation of a product also helps to improve the reputation and uniqueness of the area; that, in turn, creates strong tourism interest and a higher number of visitors to the area. For example, the relocation of bottling plants to Phu Quoc Island has encouraged manufacturers to organize frequent business tours to promote Phu Quoc fish sauce and other local products, thus making a partial contribution to the socio-economic growth of the area.

In addition, the registration of GIs has seen a shift in the management mechanisms of registered products. This point was confirmed by policymaker number 2:

“Prior to the introduction of GIs, the majority of these products were self-managed. However, with the appearance of a new policy tool, the involvement of the Government from both the local and the central levels has since become an integral part”.

Nonetheless, there remains a huge problem related to the development of GIs in local areas such as counterfeiting. The fact that the area per se makes a remarkable gain in reputation has caused some external producers to grow similar products in the region and then claim them as being GI-registered to sell them at a premium price. This violation negatively affects the reputation of GI products in particular and the economic system of a GI-registered region generally.

4. How do GIs influence the locality system?

GIs have raised the awareness of preserving natural capital and traditional value in Viet Nam, in part due to the mandatory qualification stage of GI registrations (Bramley and others, 2011). First, certain environmental conditions must be met in order to produce GI-registered products of high quality. For example, Bac Lieu province, with its advantage of a coastal position and climate, is famous for its salt fields that have attracted multiple international clients such as those from the Republic of Korea. In this regard, policymaker number 4 noted that:
“...farmers and producers should be aware of that condition, which propels their products to stand out among others with regard to uniqueness and quality.”

However, it should be noted that these environmental conditions are not unchangeable, but instead, can decline. In fact, GIs are utilized in their geographical areas. This implies that the preservation of natural capital is an indirect result of GI registration and protection (Bramley and others, 2011). Consequently, according to policymaker number 2:

“It is necessary to teach farmers and producers how to ensure product quality and the production process and, most importantly, preserve the condition for development.”

In addition, the unique nature of GIs gives them a greater advantage with regard to the preservation of traditional knowledge than any other form of intellectual property rights (Bramley and others, 2011). Van Yen District Authority, famous for its GI-registered cinnamon, organized a festival, inviting neighbouring provinces as well as cinnamon producers and foreigners, to introduce its cinnamon. Another purpose of the festival was to promote the traditional culture, clothes, music and dancing, among other aspects.

In addition, GI development in Viet Nam has been increasingly instrumental in preserving the uniqueness of products rooted in specific territories or local areas, especially when the region is encouraged to produce traditional products rather than focusing on alternative products. In fact, GI development makes a great contribution to the consolidation of regional identity and rural development (Bramley and others, 2011). To achieve both of these aspects, the involvement of local Government is particularly important. Policymaker number 3 emphasized the fact that:

“GIs would pave the way for better planning by local Government as well as delivery of more effective solutions to protect the area, the environment and the product value. In other words, local Government plays an important role in ensuring consistent product quality, environmental protection and economic stabilization.”

However, this approach still faces constraints, as local government management has been limited to the commercial facet, while producers have to take the main steps themselves.
5. What are the contributions of GIs to the creative system?

The involvement of technology in sustainable rural development has become widely popular across the world, and Viet Nam is no exception. For example, in order for a GI-registered product to penetrate European or American markets, a certain number of technical barriers in these importing countries must be overcome. This fact has grown in importance for Viet Nam, particularly when the country has joined global organizations such as WTO. Consequently, various agricultural practices have been applied extensively. In Viet Nam, VietGAP and GlobalGAP are the two most prominent standards. While VietGAP is the nation’s own standard emerged since 2008, GlobalGAP is a common global one, both of which aim to ensure the conformity to supplying standards. That is, their utilisation enables the production method to produce agricultural products of clean and safe quality (Quacert, 2016). Taking storage technology as an example, policymaker number 5 pointed out the benefits for producers:

“These days, commonplace storage technology not only helps lengthen the duration of product storage but also reduces, to a certain extent, the use of storage chemicals that have proved to be harmful in many cases. In turn, this can improve profitability for producers.”

Technology use also allows a considerable reduction in manual work and the time spent on the production process, which can also create benefits. For example, without the use of an automatic watering system, the manual watering on a farm normally takes several days, which allows pests to breed and transit to unwatered areas, and decimate the harvest.

Apart from the above advantages, there are some disadvantages related to the involvement of technology. Difficulty in attaining cost efficiency is the most apparent one, as it often prevents producers from moving forward. In addition, some experts hold the opinion that the application of technological innovation in rural development in general and GI-registered production should be put under strict control. Their reason for that view is to ensure the product attributes remain unchanged. Specifically, irrespective of the standard regional producers apply, they must be able to retain the locally unique feature of the product. This is the case for Tan Cuong and Thai Nguyen tea as well as Cao Phong oranges, which have specially customised technological procedures with an aim of achieving the above-mentioned goal. Moreover, the technology must be innovative and modernised enough for it to be used in the production procedure, as out-of-date technology may lead to counter-productivity. Thus, policymaker 4 concluded that:
“GI producers in Viet Nam should apply technology to their products when research into that type of technology has been conducted carefully.”

E. Policy implications and recommendations

This section looks at the policy implications for the Government of Viet Nam in improving GI protections and offers recommendations for local producers to develop their strategies to take full advantage of GIs and promote sustainable rural development in Viet Nam.

1. Improving the regulatory framework on geographical indications

Undoubtedly, GIs in Viet Nam have matured convincingly during recent years. Nonetheless, producers in general still face obstacles in registering and then protecting GIs, mainly due to an implicit legal framework. Therefore, it is important that the central Government makes necessary amendments to the legislative framework to assist producers.

To be more specific, laws, decrees, circulars and other regulations should provide a detailed process for every necessary step in GI registration. International regulations on protecting intellectual property in general, and GIs in particular, should be strictly applied. In addition, legal documents should include the updated criteria for the subsequent management, monitoring and control of GIs. More importantly, the central Government should formulate a complete Code of Practice for GIs. Associated contents such as entrepreneurship, business establishment and quality standards should be clarified in relevant policies and regulations alike. Furthermore, NOIP should further foster and support local areas that have eligible products for registration as GIs and international brands.

Finally, penalties should be increased for any violations of GIs regulations or for counterfeiting, such as high fines. This should be embedded in updated regulations at all levels of government to ensure stricter application.

2. Improving the quality control system of post-GI registration

This study recommends that the Government employ international experience in quality control systems as well as innovative approaches and methods such as those in use in the European Union, where GIs originated and have a long history of success. In addition, the updated regulations of developed countries should be analysed in order to obtain key lessons that can be applied in Viet
Nam. Although the degree of development among different countries could create difficulties in applying international experience, learning from such methodologies can assist Viet Nam’s authorities and producers in developing a strategic roadmap in the long term.

Additionally, the European Union management mechanism is a good example for Viet Nam’s agricultural sector. According to policymaker number 2, the mechanism often includes an independent quality monitoring and control organization, which contributes to a guarantee of product quality before market distribution. Therefore, establishing a similar organization in Viet Nam would give rise to further transparency in the quality control system of GIs.

3. Providing training and support for GI producers

GIs play an essential role in sustainable agricultural development, which not only has a natural heritage to protect but also has special commercial characteristics to be used in market promotion (Damary and others, 2013). Therefore, it is necessary for all stakeholders engaged in the value chain of GIs to be equipped with sufficient knowledge, tools and techniques needed to participate in two of the most important actions in relation to GIs, i.e., preservation and promotion. In other words, there is a crucial need for providing relevant stakeholders with training courses. This will enable them to enhance their expertise in areas such as supply chain management, the common code of conduct in the domain, how to protect their products, what action they can apply in the process, among others. By doing so, this will ensure that there will be more experts in the field and, most importantly, that stakeholders can improve their contribution to regional sustainability.

Groups of stakeholders that will have an interest in training courses covering different objective, include:

(a) Value-chain stakeholders, such as producers and their organisations;
(b) National and local authorities;
(c) Regulatory institutions, including NOIP;
(d) Supporting organizations, including non-governmental organizations, academic and research organizations, practitioners in the field of GIs, consumer associations and environmental protection organisations.

Training course curricula can vary, from the introduction of technological advancement to new policy promulgation. Table 1 presents an overview of some suggestions for course elements serving different needs.
<table>
<thead>
<tr>
<th>Training elements</th>
<th>Details</th>
<th>Suggested audience</th>
</tr>
</thead>
</table>
| Fundamentals of GIs    | • Introduction to the concepts  
• The role of GIs  
• Relevant authorities related to the development of GIs  
• GI situation in Viet Nam | - Value-chain stakeholders  
- Supporting organizations |
| Value chain            | • The phases across the GI value chain  
• GIs and sustainable development  
• Agricultural techniques | - Value-chain stakeholders  
- National and local authorities  
- Regulatory institutions  
- Supporting organizations |
| Laws and regulations   | • The GI legal framework in Viet Nam and other countries  
• Policies related to the development of GIs (registration)  
• Scope of protection  
• Trade agreements  
• Counterfeiting problems | - Value-chain stakeholders  
- National and local authorities  
- Regulatory institutions  
- Supporting organizations |
| Quality management     | • International and domestic quality standards  
• Code of practice | - Value-chain stakeholders  
- National and local authorities  
- Regulatory institutions  
- Supporting organizations |
| Marketing/promotion    | • The potential for GIs in domestic and international markets  
• Case studies  
• Support from authorities in promoting GIs | - Value-chain stakeholders  
- National and local authorities |

4. Improving the policy on harnessing GIs for sustainable rural development

To continue developing GIs and using them as a tool for sustainability in Viet Nam’s rural areas, support through a sound policy system is crucial. Specifically, such policies should cover the five aspects of the PENTAGON model as detailed below.

(a) Policy implications for the physical system

The infrastructure needed for developing GIs varies. Traditionally, the construction of infrastructure such as roads and factories has received more attention and is the main focus of investment. However, scholars have pointed out that natural infrastructure, such as sustainable agriculture management, albeit an equally cost-effective alternative approach, receives significantly less investment (Gartner, 2015).
For that reason, the Government should continue to encourage investment in agriculture and rural development. With a view to creating a foundation for investment in this domain, the Government should prioritize projects based on their opportunities and risks. That will enable (a) the identification of the best locations, (b) the assessment of conditions and (c) the scale of development to be designed to achieve environmental benefits as well as returns on investment (Gartner, 2015). Moreover, Reuben (2015) proposed cross-sectoral cooperation, such as a hybrid of food-energy-water, which can serve multiple purposes at the same time and boost the scale of natural infrastructure investment.

Regarding funding, investment from both the public and private sectors should be promoted. On the one hand, this can be done through incentives provided by the Government, such as land rental reduction or exemption, and low interest rates, all of which will benefit investors. On the other hand, infrastructure projects can be financed through public-private partnerships, which is the prevalent investment method both in developed and in developing countries, as they display more stability and transactional capabilities.

(b) Policy implications for the social system

The influential role of associations in the agricultural sector should be further enhanced. Instead of limiting membership to among producers, the Government of Viet Nam could also require the mandatory representation of members from the local authority. This will increase the opportunity for discussions between the different stakeholders as well as pave the way for greater collaboration and networking between both parties.

Moreover, the role of NOIP should be more prominent, as it plays an important part in protecting GIs both at the domestic and the international levels. NOIP should also increase its collaboration with the Ministry of Agriculture. As the agency directly responsible for managing GIs in Viet Nam, NOIP can provide strong support in terms of completing and enhancing relevant regulations. Furthermore, its capability for controlling and monitoring agricultural projects, especially those associated with developing and protecting GIs, should be further strengthened by the central Government, particularly the Ministry of Science and Technology. At the same time, NOIP could support the exploration and application of sustainable production practices relevant to the GI system, thus enabling GIs to contribute to rural development.

In addition, the local authorities should encourage the participation of local actors, such as farmers, producers and associations in acquiring GI recognition.
Local authorities could organise periodical festivities linked to GI products as a way of further engaging communities and promoting GIs. This would not only enable authorities to take into consideration the benefits and interests of local stakeholders in the GI product system, but will also preserve and take advantage of traditional knowledge for use in GI development.

(c) Policy implications for the economic system

Local authorities should further raise awareness of local farmers, consumers and other relevant stakeholders of the real value of these community assets. It is important to (a) continue raising awareness of GI products, the process and difference from non-GI products among the public, (b) increase access by a wider range of consumers or any objects having interests. After all, people are the most crucial factor; therefore, the concept of protecting GIs should be expanded from an individual basis to the local, and in a broader sense, national levels (policymaker number 4).

(d) Policy implications for the locality system

According to Charbot and others (2016), government support is important for (a) helping people in GI localities to derive benefits from origin-based schemes through monitoring and the consolidation of the legal protection against fraud and counterfeiting, and (b) assisting collective organisations, quality control and market strategies. Charbot and others (2016) also commented on the fact that the lack of government involvement can lead to inefficiencies or counterproductive results for GIs.

The intervention of governmental organizations, both at the national and local levels, is essential to the development of GIs through: (a) regulating products and names to be registered; (b) document submission; (c) cancellation of registration; (d) the fees involved and timing; (e) acting as the authority responsible for managing registration; and (f) control systems and the levels of protection (Kireeva, 2010).

It should be noted that in terms of GIs protection, the role of local government should be made more prominent due to its capability to directly manage the production process in the region. Furthermore, financial and personnel support should be provided by local authorities to local producers who have the potential for producing high-quality agricultural products as well as through assistance in seeking the appropriate distribution channels for local products. By doing so, this can ensure the effective operation of every phase of the local value chain.
In fact, GIs improve recognition of the relationship between natural conditions such as biological resources, water, land, cultural heritage and so on. Therefore, in setting relevant regulations, legislators should consider the link of GI products with the ecology as being one of the criteria for GI specificity (Damary and others, 2013). Specifically, GIs can be used as a label for environmental protection to increase awareness among consumers. In addition, to encourage acceptance of environmental protection and quality standards as criteria for sustainable agriculture, the code of practice for the entire GI production process as well as technical and economic evaluation should be adopted and strictly controlled.

(e) Policy implications for the creative system

One of the most essential tasks that the Government of Viet Nam should take on is the responsibility for fostering research and development (Cohen, 2014), which paves the way for the improvement of agricultural production and marketing (Milovanovic, 2014). According to Bernanke (2014), government assistance will be most effective when research and development are treated as a long-term investment; the result will have a positive correlation with support stability. In this context, it is suggested that the Government should adopt a combination of policy solutions to foster research and development in GIs, while also dealing with project features, funding and human resource issues.

Regarding project features, Viet Nam should focus on developing technology that minimizes the effects on the quality and nature of GI products, which are the foundation of the products’ reputation. Meanwhile, due to the deteriorating environmental problems in many provinces, use of green technology is encouraged as a way to boost the locality system of sustainable development.

In terms of funding, high costs remain an obstacle for a number of GI producers in Viet Nam. To alleviate this problem, the Government can use several tools, such as direct government funding, grants to academic institutions or private researchers or tax incentives (Bernanke, 2014). This type of funding is most appropriate for large-scale and high-risk projects involving a large pool of stakeholders, such as infrastructure construction. Furthermore, the Government can join hands with development banks and non-governmental organizations in financing research and development projects in the field of geographical indications. In addition, in this age of globalisation, the Government should pave the way for open connection and networking between entrepreneurs and international investors, such as angel investors and venture capitalists. Furthermore, by organizing or attending international investment promotion exhibitions, the Government could increase the chance of acquiring funds for
GI-related projects.

Regarding human resources, the quality and quantity of research and development personnel are a critical factor in fostering innovation in agriculture in general, and GIs in particular (Bernanke, 2014). Therefore, stakeholders engaged in the value chain of GIs should be equipped with tools and techniques associated with GI preservation and promotion, such as supply chain management, the common code of conduct in the domain, and methods for protecting their products. This will ensure that there are more experts in the field and, most importantly, stakeholders will be able to improve their contribution to regional sustainability.

5. Recommendations for future studies

Although the five research questions discussed above have been answered through this study, limitations remain. First, the study did not focus on the value chain of the development of GIs. For that reason, it may have been able to fully collect the bottleneck-related answers from producers, which can contribute to addressing the innovation and sustainability of the supply chain. Together with that, it has recorded wider opinions from policymakers so to guarantee the balanced views of the two parties in terms of GIs. Second, only one model was used to evaluate the link between GIs and sustainable rural development in Viet Nam. For future studies, a combination of different models can be used to strengthen the comprehensive findings regarding the two constructs. Overall, this research will pave the way for further research in the field, especially empirical research, to bridge the existing gap on the topic, i.e., clarification of the relationship between GIs and sustainable rural development.

F. Conclusion

This study has attempted to explore the relationship between GI protection and sustainable rural development in Viet Nam, by considering the role of public policies in this matter and the involvement of local producers. The empirical results have shown that GI protection and implementation has made significant impacts on sustainable rural development. This is evidenced by the (a) economic development, (b) improvement of the locality system, (c) application of technology in producing GI products, (d) development of local infrastructure and (e) protection of the social system. However, weaknesses remain in controlling and maintaining the quality of products after GIs have been registered. The study provides several suggestions for the Government of Viet Nam to make better use of GIs as a policy tool in enhancing sustainable rural development.
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Part I
Chapter 2

The roles of geographical indication in trade promotion and local development: Case study of Cambodia’s Kampot pepper

Pheakdey Heng and Vannarith Chheang

Introduction

Since joining the World Trade Organization (WTO) in 2004, Cambodia has carried out legal and institutional reforms to conform with the standard regulations of WTO, including the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). The introduction of geographical indications (GI) to Cambodia is a relatively new concept.

In 2002, the Law Concerning Marks, Trade Names and Acts of Unfair Competition (Trade Mark Law) was enacted by Cambodia with a procedural sub-degree passed in 2006. The Trade Mark Law aims to (a) protect the marks and trade names duly registered in the register of marks in Cambodia, and (b) prevent acts of unfair competition on the creation and utilization of trademarks and trade names. The Ministry of Commerce (MoC) oversees trademarks and trade names registration.

In 2003, the Law on Patents, Utility Model Certificates and Industrial Designs (Patent Law) was passed with a procedural sub-degree issued in 2005. The Patent Law provides protection for granted patents and utility model certificates and/or registered industrial designs in Cambodia. It aims to promote innovation, scientific and technological research and development as well as to stimulate trade and investment, promote the transfer of technology, and provide protection for industrial property rights.

1 Additional resources for this chapter are available online at http://www.unescap.org/resources/trade-integration-within-asean-role-non-tariff-measures-cambodia-lao-peoples-democratic
The Law on Copyright and Related Rights (Copyright Law) was enacted in 2003 to protect the rights of authors with regard to works and cultural products, performance, phonograms and the transmission of broadcasting organizations.

Geographical indication (GI) is a new development and legal concept for Cambodia. In 2014, the Government of Cambodia adopted the law on GI to protect Intellectual Property Right (IPRs) of local products and promote export of GI-certified products as a means to socio-economic development and improvement of the livelihoods of the people, local farmers in particular. With technical support from international development partners/agencies, in 2016 the European Union awarded a GI certificate to Kampot pepper. With this recognition and certification, Kampot pepper has become a global brand.

The Government of Cambodia recently began paying close attention to further promoting Kampot pepper. Cambodia is in the process of learning from the experiences of GI registration, collaboration among the various stakeholders, and a market analysis of the supply chains of Kampot pepper. Based on these observations, Cambodia is studying the possibility of registering other agricultural products and agri-food products in the GI list. However, no study has been carried out on the impacts of GI on socio-economic development in Cambodia. Therefore, this research report is aimed at: (a) shedding light on the relationships between GI and socio-economic development; (b) examining the case of Kampot pepper; (c) exploring the lessons learnt from Kampot pepper production and the implications for other products; and (d) providing policy recommendations on how to gain further benefits from GI.

This study employs a qualitative data collection and analysis method combining secondary data from content analysis with primary data from interviews of relevant stakeholders and site visit observations. Fieldwork was carried out from 25 November to 13 December 2016 at five villages in Kampot province. The researchers interviewed 23 pepper producers and five key stakeholders, including the Ministry of Commerce (MoC), Ministry of Agriculture, Forestry and Fisheries (MAFF), the Kampot Pepper Promotion Association (KPPA), and the Cambodia Institute for Research and Rural Development (CIRD), which is a non-governmental organization.

The findings of this study are in line with the literature, which support the hypothesis that GI contributes positively to socio-economic development in rural Cambodia. The GI status of Kampot pepper has provided economic benefits by increasing the value of pepper as well as boosting local and export demand, resulting in higher turnover by the producers. The social benefits of GI come in
form of improving people’s livelihood and the creation of employment for local people, as a result of the expansion of farmland and increased production. GI has also brought about environmental gains through the promotion of sustainable agriculture practices.

To effectively promote and implement GI, Cambodia needs to further strengthen collaboration and partnerships among various stakeholders, i.e., the national and local Government, private corporations, local producers and processors, local associations or social networks, and international development agencies. Cambodia needs to develop a national strategy on GI by linking it with the national development plan, trade facilitation and rural development. The core issue for Cambodia in developing GI is institutional capacity-building, manpower development and research on GI.

A. Research questions

Using Kampot pepper as a case study, this research attempts to address the following questions:

(a) What was the process as well as the constraints in getting Protected Geographical Indication (PGI) for Kampot pepper?
(b) What impact has PGI of Kampot pepper had on socio-economic development in Cambodia?
(c) What are the capacity gaps in implementing and supporting GI?

B. Data and methodology

This study employs qualitative data collection and analysis method combining secondary data from content analysis with primary data from interviews with relevant stakeholders and field visits. Fieldwork, which was carried out from 25 November to 13 December 2016 in five villages in Kampot province of Cambodia (table 1), included visits to the pepper plantations, during which observation notes were taken. A digital camera was used during the visits. In total, 23 pepper producers and five stakeholders were interviewed, including the MoC, MAFF, KPPA and CIRD.
Table 1. Number of interviews, by village

<table>
<thead>
<tr>
<th>Village name</th>
<th>Number of interviews</th>
<th>Interview date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trapang Chrey</td>
<td>7</td>
<td>25 November 2016</td>
</tr>
<tr>
<td>Angkor Chey 1</td>
<td>5</td>
<td>26 November 2016</td>
</tr>
<tr>
<td>Chamkar Chek</td>
<td>4</td>
<td>13 December 2016</td>
</tr>
<tr>
<td>Chamkar Bey</td>
<td>4</td>
<td>13 December 2016</td>
</tr>
<tr>
<td>Angkrong</td>
<td>3</td>
<td>13 December 2016</td>
</tr>
</tbody>
</table>

The data collected from the main sources described in table 1 were analysed qualitatively. The recorded data and handwritten field notes from the interviews and observations were transcribed by a team hired for this purpose, and the finished product was reviewed by the data collectors to ensure its accuracy. The lead researcher then closely reviewed the data by listening to the tapes, reading the transcriptions and studying the observational notes in order to gain an overview of the detail, depth and diversity of the materials gathered as well as make notes of key ideas and recurrent themes. The outcome of the analysis is detailed in this report with examples, quotes and a visual display.

C. Literature review

GI refers to a name or sign used to identify certain products that correspond to a specific geographical location of origin. Trademarks and GIs are independent categories of distinctive signs and are subject to domestic and multilateral agreements, regulations, and administrative procedures (Monteverde, 2012). While copyright and patents aim to reward investments in innovation, GIs reward producers who invest in creating the value, reputation and brand of a product. GIs are more location-oriented and community-based. GIs are based on collective knowledge, tradition and a collective decision-making process (Singhal, 2008). GI is regarded as an important symbol of intellectual property because it is based on the fact that the quality or characteristics of a good, particularly an agricultural product, is closely related to the geographical attributes of the production location. Such attributes include climate, soil and unique methods of cultivation or production (Suh and MacPherson, 2007).
1. Enabling factors and actors

Several factors need to be taken into consideration in promoting GI, depending on the context-specific institutional environment, the degree of involvement of the supply chain actors, local knowledge, and the leadership and institutional capacity of the local associations/social networks. The registration for GIs requires collective actions and collaboration among several actors, including local producers and processors, local and national Governments, the local associations and social networks, and other stakeholders. The State plays a critical role in designing and implementing the legal framework, and providing technical assistance to stakeholders in the registration process (Quinones-Ruiz and others, 2016).

Three critical criteria that need to be considered in judging whether to grant GI were proposed by Suh and MacPherson (2007). First, the quality of the product must be well-known. Applicants must submit documentary evidence that verifies the fame of the product. Second, the product of a specific region must be differentiated from similar products of other regions; product differentiation needs objective data on the components of the product. Third, the quality, reputation or other characteristics of the product must originate from the geographical and human factors of the region.

A concerted effort by the Government, research institutions, the private sector, and international development agencies (for the case of developing countries) is needed in promoting the development of GI. The findings of case studies in Indonesia and Viet Nam showed that the national and local Governments are active and supportive at all stages of GI development, from the selection of the candidate products for GI registration, to the supervision and enforcement of GI implementation. State intervention in GI development is essential in those countries (Durand and Fournier, 2015).

Within the context of weak State institutions, international development agencies need to play a role in aspects such as analysing the supply chains and providing technical support to the local producers or farmers in applying for GIs (Chabrol and others, 2015) as well as to social networks (the expert system network and mobilization network, in the case of Brazil). In addition, local associations, including research networks and institutions, help to provide expertise and market information to the local producers, and promote better coherence in terms of strategies and policies concerning GIs (Wilkinson and others, 2015). How can the potential benefits deriving from GI be harnessed? The institutions concerned play a key role in assisting local producers to benefit fairly from
maintaining a GI. In addition, local producers need to pay the costs incurred in maintaining GI, marketing costs, and production costs involved in ensuring the continuing existence of the quality attributes of the products. A set of formal and/or informal rules also play a crucial role in realising the potential benefits of GI (Jena and Grote, 2010). Bowen (2010) argued that “the degree to which GI protection spurs development, and protects local environmental and cultural resources, depends on the structure of the GI legislation and on the territorial context in which protection is embedded”.

State interventions are important in GI development, including the institutional embodiment of GI products as both a public quality standard and as an IPR, trade facilitation, institutional support, and international harmonization (Bienabe and Marie-Vivien, 2015). Technical and financial support from the Government might be needed to assist local producers to reduce and mitigate costs and ensure they enjoy the net benefits of GIs. The Government needs to undertake a monitoring and enforcement role in cooperation with other stakeholders to protect GIs under the framework of intellectual property rights. According to Grote (2009), “concerted action is needed to ensure that GI registration results in price premia. Not every GI product will be successfully marketed as such, but registration might confer opportunity”.

Well-organized producer associations and the support of the local Government are critical factors in the GI registration process. Participation and knowledge-sharing drive collective leadership in developing common strategies and innovative initiatives beyond just GI registration (Quinones-Ruiz and others, 2016). GI registration alone does not suffice to improve the quality of the origin-products and promote rural development. The stakeholders, particularly national and local Governments, need to develop a holistic rural development policy in which GI is a core element (Zhao and others, 2014). Marketing strategy needs to be developed to promote awareness of the GI products, build the image, genuinely protect the quality and trademarks of the products, and build a common identity of the products (Aggarwal and others, 2014).

Learning from the case study of a Gemlik olive, the control system or mechanism for GI should be developed in countries where there are no common logo and control/tracking systems to help GI holders manage the process. The control system includes identification of product amount and the number of producers, preparation of software program to monitor the system and distribute labels, preparation of labels (containing the logo of the GI product, integrated with a barcode or quick-response code), distribution of labels to traders/ producers, and promotional activities (Dokuzlu, 2016).
To improve the effectiveness and sustainability of GIs, the Government, the private sector, social networks, and international development agencies need to work together to develop a comprehensive framework with clear strategy to link GIs with socio-economic development, knowledge preservation, environmental protection, marketing strategy, and supply chain management (table 2). According to Bowen and Zapata (2009), there is also a need to specify sustainable production practices within the legal framework of GIs, and to strengthen “the link between the biophysical properties of particular places, the traditional practices and culture that have evolved in these places, and the specific tastes and flavours of the foods produced there”.

### Table 2. Enabling actors

<table>
<thead>
<tr>
<th>Actors</th>
<th>Functions</th>
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| National Government                         | • Developing GI strategy, for example, by linking with the national development plan and trade promotion policy.  
• Designing and implementing a legal framework.  
• Providing legal and technical support to facilitate GI registration. |
| Local Government                            | • Working with the national Government to facilitate GI registration.  
• Informing local producers/farmers about GI policy and regulations.  
• Providing legal support to the local producers or farmers on GI. |
| Private sector                              | • Promoting innovation and entrepreneurship.  
• Developing a comprehensive marketing strategy.  
• Analysing the market and supply chains. |
| Local Associations/ social networks         | • Promoting the collective decision-making process and actions.  
• Promoting knowledge sharing.  
• Ensuring the originality and quality of the GI products. |
| International development agencies          | • Helping to analyse supply chains  
• Providing technical support to the local producers/farmers and associations.  
• Building the institutional capacity of national and local Government. |
2. Socio-economic impacts

GI is an important element of international trade, an instrument for institutionalizing a collective reputation in protecting the consumer through addressing information asymmetries and quality and the producer through protecting reputation as an asset (OECD, 2000), supporting public goods and sustainable development (Belletti and others, 2015), promoting local socio-economic development, preserving local knowledge and traditions, and creating community identity (Ferrari, 2014). GI reduces the asymmetry of information between the producers and consumers, offers marketing advantage and competitiveness to the country that has unique products from a specific location embedded with local geographical landscape, heritage and local ways of production, particularly in the case of agricultural products. A place-related brand name presents the quality and characteristics of a product.

A GI can have a significant impact on a region’s economic performance and cultural heritage preservation, as it protects the identity of indigenous products. Developing countries have economic advantages in promoting the protection of GI, as they are increasingly being viewed as helpful tools for achieving product differentiation as well as increasing economic efficiency as producers have incentives to deliver an appropriate supply to the market. A GI promotes the image and brand of a product, stimulates the production of local products, and acts as an effective policy tool for mitigating or neutralizing the adverse impact of trade liberalization (Suh and MacPherson, 2007).

The institutionalization of the reputation, identity and quality of local products adds value to the origin-labelled supply chains, and develops a competitive advantage around the product’s specificity. Contextualization of the understanding of the relationship between GI and regional development through the case study approach is needed to better understand the opportunities, challenges and impacts of GI on local community development. The collective body of empirical evidence that the impact of GI is critical in formulating a right development policy for a developing country (Bramley and others, 2009).

There is evidence proving the positive impacts of GI on socio-economic development through the branding of local products, market access, rural development and the improvement of the living standards of local residents (Dogan and Gokovali, 2012). Geographical Indications also contribute to the preservation of indigenous knowledge (Blakeney, 2009) and unique traditional knowledge-based agricultural products (Dagne, 2010). Agricultural products contribute a considerable number of GI, particularly in developing countries. The production and marketing of agri-food products have become more
challenging within the context of increased competition and decreasing market prices of commodity products as well as in changing consumer preferences. However, the impacts of GI on socio-economic development are context-specific. Therefore, it is necessary to examine the impacts of GI in different contexts. Developing countries face a host of issues associated with GI, such as the actual distribution of benefits along the supply chain, effective marketing, maintaining quality standards, the ability of the collective rights holders or producers to monitor and enforce their intellectual property rights, the costs associated with GI, and the lack of public policy and institutional support (Bramley, 2011).

GI contributes to community-based agriculture development and sustainable rural development; however, it depends on “the socio-political environment and whether they are relevant for the producers involved, affordable in terms of administrative and management costs, and applicable on different scales of production” (Parasecoli and Tasaki, 2011). A comprehensive GI policy is needed, extending from intellectual property regulation to agricultural market policy, social policy to food safety regulation, and natural local resources preservation to food culture and tourism promotion. Institutions are needed to coordinate policy at different levels (Belletti and others, 2015). In addition, the improvement of logistics and transportation services, access to information, and membership of a cooperative have impacts on the adoption of, and active participation by local households in GI development (Ngokkuen and Grote, 2011).

3. Development of GI in Cambodia

GIIs have gained attention from the Government and producers alike since 2010. Then, in January 2014, the Government adopted the Law on Geographical Indications of Goods (GI Law) to exploit the benefits from GI and protect the intellectual IPRs of producers, operators and consumers by marking goods/products with a GI as well as to preserve and strengthen traditional know-how and national identity, and create an overall reduction of poverty. The GI office was established under the Intellectual Property Rights Department of the MoC. The Cambodia’s Law defines GI as a name, symbol or sign used to represent a geographical origin and identity of a specific product. The product needs to have quality, reputation and other characteristics attributed to the geographic origin. Application for registration of a GI must be made by a GI association that comprises interested parties, including producer groups, operators and institutions, in a certain geographical area and in relation to a specific type of good. Each association must file a “statute” with the MoC and receive acknowledgement from the competent authorities.
As part of the application, the association must produce a “book of specifications”, which sets out the criteria that must be met for a product to use the GI. These specifications must include, among other things, the exact details to be determined by the association, the geographical area of production, and any production conditions and quality control processes that the good/product must satisfy. Upon registration, the association will own the rights to use the GI. However, unlike the owner of a trademark, the ownership of rights to use a GI does not confer property ownership.

The GI Law also provides for the registration of foreign goods, although for local registration the foreign goods must previously have been registered as a GI in accordance with the regulations of the country of origin. The procedure for registration, or petition and objection to foreign GIs, will then be the same as that for local GIs. So long as the application complies with the required formalities and the specifications the association sets out in its book of specifications, there are few restrictions on what may be registered as a GI.

Upon registration, the MoC will issue the applicant with a certificate of registration, and as the member of a producers’ association the recipient can use the GI certificate. In addition, the owner of the GI has the right to file a complaint with the competent court against any person who:

(a) Directly or indirectly, and for commercial purposes, uses the GI on goods that are the same as, or comparable to, the goods for which the GI was registered, such that the use infringes on, and unfairly benefits from the reputation conferred by the GI;
(b) Uses, imitates, recalls or translates the GI of goods so as to cause confusion among the general public, notwithstanding such use/translation on goods is accompanied by the terms “style”, “specific”, “type”, “methodology”, “method”, “imitation” or similar wording (or translations thereof);
(c) Falsifies or causes confusion as to the origin, type or special quality of goods on packaging or advertising materials (or other documents) in connection to the goods; and/or
(d) Carries out any other act that may cause confusion among the public as to the actual origin of goods.

The penalty for individuals committing any of these infringing acts is one to five years’ imprisonment together with a fine of between KHR (Cambodian riels) 2,000,000-KHR 20,000,000 (approximately $500-$5,000). The penalty for legal entities committing any infringement of the GI Law includes, among others, a
fine of between KHR 20,000,000-KHR 50,000,000 (approximately $5,000-$12,500), dissolution of the legal entity, expulsion from public procurement and confiscation of property.

The MoC publishes the registration of a GI in an official bulletin in order to allow interested parties to file an objection to such registration within 90 days from the publication date. If no objection is filed within this time, the registration of the GI is valid from the date the MoC accepted the application form, and lasts for 10 years.

Since 2010, only two products have been registered in GIs, i.e., Kampot pepper and Kampong Speu palm sugar. In April 2016, the European Union awarded GI protection to ‘Kampot pepper’, making it the first Cambodian product to benefit from the status of Protected GI. There are a number of other local products to be considered for GI registration, including Kirivong pepper, Ratanakiri coffee, Siem Reap Sachkrock, Battambang rice and Battambang oranges (Ministry of Commerce of Cambodia).

D. Research findings

1. GI registration process for Kampot pepper

In February 2016, Kampot pepper became the first Cambodian product to win the European Union’s Protected Geographical Indication, joining an exclusive club of gourmet favourites including champagne, Cornish pasties, Gorgonzola cheese and Darjeeling tea. In 2010, Cambodia’s MoC took the first step towards protecting Kampot pepper by giving it a domestically issued geographical indication status. The Government then applied to the European Union in 2014 to expand the status to the European bloc.

The process of gaining GI for Cambodia’s products started in 2007 when Cambodia received financial support from Agence Française de Développement to develop a GI law and implement the two pilot GI products, Kampot pepper and Kampong Speu palm sugar. A working committee was then jointly created by the MoC and MAFF to develop a legal framework for launching a pilot operation for the two products. A Geographical Indication Office was created within the MoC’s Intellectual Property Department on 18 August 2007.

According to an interview with Mr. Loa Reasey, Chief of the Geographical Indications Office, to qualify for a GI a product must meet the following criteria:
2. GI organization

In the case of Kampot pepper, KPPA was established in 2008 as a GI organization to promote the producers’ know-how as well as the name and quality reputation of Kampot pepper. KPPA’s by-law was approved during its first general assembly on 3 October 2008 and the organization was formally registered at the Ministry of Interior (MoI) on 28 December in the same year. Mr. Nguon Lay, President of KPPA, told the authors during an interview that the setting up of KPPA was slow and faced challenges at the beginning, due to the lack of understanding of GI and the benefits that GI can generate, and what benefits would be negated by KPPA; as a result, the local stakeholders were not convinced to join. “It took us a while to raise awareness and explain to farmers about GI and KPPA. It was difficult for us to mobilize support at the early stage, but as people came to understand the objectives of the organization, they became more interested. Now KPPA has 342 members, of whom 18 are traders.” Mr. Lay said. (See annex 1 for more detail information about KPPA).

3. Book of specifications

With the support of CIRD and GRET, a French international development NGO, KPPA drafted a book of specifications for Kampot pepper, which defines the production zone, explains how it affects product quality, and describes the GI products’ production methods and the specificities that distinguish them from generic production.

According to interviews with experts, the specificity of Kampot pepper lies in its strong (but not “burning”) pungency as well as the fact that it is not aggressive, developing progressively in the mouth. In addition, its aromatic intensity gives Kampot pepper its particular quality.
There are four types of Kampot pepper, depending on the time of harvesting and the processing they receive afterwards (figure 1):

- Green pepper is the unripe fruit of the pepper plant, harvested when still young on the plant. It can be marketed and consumed either fresh (presented in clusters) or in brine or vinegar (presented either in full berries or clusters). This variety has a fresh citrus flavour and is less spicy than the dried varieties;
- Black pepper is harvested when the berries start to turn from green to yellow. They are afterwards dried. It can be presented as full berries or ground fruit. It has a deeper, stronger and vaguely floral flavour, with hints of flower, eucalyptus and mint. It can range from mildly sweet to intensely spicy;
- Red pepper is the dried product of fully-ripe berries. Presented as full berries, it is sweeter and less spicy than the black variety. However, its flavour is more rounded and it delivers a powerful fruity aroma;
- White pepper is produced from red or ripe berries and by a subsequent process of soaking. The outer skin of the fruit is removed after the process of soaking; this gives the product a different taste that carries notes of fresh grass and lime.

Figure 1. Types of pepper

There are two known varieties of the plants used by the farmers in Kampot, Kamchay and Lampong, known locally as “big leaves” and “small leaves”. Only these two types qualify for PGI, according to the book of specifications.

Pepper vines are planted on wooden poles. A space of at least 1.80 metres must separate the vines, with a visible location for the input of natural fertilizers (manure) and new soil. To protect the young plants from the sun a shelter must be built and maintained on the plantation until the plants are at least three years old.
Fertilization is applied throughout the year by the addition of new soil called “virgin soil” and the application of cow dung and bat dung (guano). Some farmers also produce fertilizers from rice field crabs, cow bone and prawn skin. The GI book of specifications forbids the use of chemical fertilizers.

Irrigation is crucial to pepper cultivation. If rainfall is plentiful during the monsoon season, irrigation is only necessary during dry season when a vine needs 15 litres of water every three days. Most of the plantations in Kampot are irrigated manually, using water from nearby ponds.

To fight the various pests that infest pepper, producers should use natural pesticides. In cases of inefficient natural means of pest control, pepper producers are permitted to use chemical insecticides, but only those in Class II and III (blue and green in colour), as classified by the World Health Organization (WHO). Many farmers in Kampot now produce natural pesticides (repulsive) from local plants, based on knowledge passed down by their ancestors.

4. Delimitation of the production area

The geographical area for the production of Kampot pepper comprises the following districts located in southern Cambodia:

- Kampong Trach, Dan Tong, Toeuk Chhou, Chhouk and Kampot City, all of which are located in Kampot province;
- Kep City and Damnak Chang Aeur in Kep province

These two provinces have a climate that includes heavy and regular rainfall, and a wet season that lasts longer than the dry season. Therefore, not only is the average rainfall high in the provinces (higher than 2,000 mm annually) but it is also well distributed throughout the year, which is ideal for producing good quality pepper, specifically with regard to its aroma and its balanced pungency.

Within these defined areas, only land plots with good drainage capacities qualify for planting Kampot pepper. To assure good drainage capacity, the plantations are located on hillocks or along the base of mountains, with lateritic rocky or sandy soil. Other locations, such as foothills or plateaux can also be used for pepper plantations as long as they have good drainage capacity through natural declivity. In these land plots water drainage is carried out by means of a canal that is at least 0.8 metres deep.
5. Control and traceability system

To be permitted to produce and market Kampot pepper, the producers must register with, and be accredited by KPPA. Declaration of the volume produced is required from all producers, as well as the registration of all transactions. A traceability system has been developed that allows the identification of Kampot pepper, from production until placed on the market.

To ensure that the final product originates from the defined geographical area and complies with all the specified requirements, three levels of control are conducted. First, control by the producers themselves of their own production. This consists essentially of ensuring that they are in compliance with the specifications and have recorded the specific set of information, notably production and sales data. Second, internal control by KPPA is maintained to verify compliance by all producers with the specifications. KPPA inspectors have been trained by an external certification body. Finally, external control is implemented by the independent certification body, ECOCERT S.A. accredited according to the ISO 65 standard.

KPPA organizes frequent visits to the producers’ plantation and the trading companies, without notice in advance, to check compliance of the production system (storage, post-harvest, packaging etc.) with the specifications.
Control of product samples is conducted at either the producer level or the trading level to check compliance with the specifications. Before the transportation of 200 kg or more of Kampot pepper outside the production area, the producer must inform KPPA. The product is transported not earlier than 72 hours after KPPA receives the official notification, so to leave time for the origin of the pepper to be verified. This is done by taking samples from a producer or trader for analysis of the product characteristics.

6. Proven link between product specificity and its origin

Pepper in Cambodia has a long history, dating back even before the period of the kings of Angkor. The production of Kampot pepper was recorded by a Chinese explorer, Zhou Daguan, as early as the thirteenth century. However, it was not until the arrival of the French colonists at the end of the nineteenth century that Kampot province witnessed real “pepper fever”. At the beginning of the following century production of this spice in Kampot intensified, reaching as much as 8,000 tons per year. In the middle of the twentieth century, Kampot pepper reached a pinnacle. Production, which stabilized at around 3,000 tons per year, was already of exceptional quality. By that time, the name of Kampot had become strongly associated with pepper, and the product was well known widely, especially in France and the rest of Europe. Kampot pepper became highly appreciated for its quality, particularly among the chef community in France and Europe.

In 1975, the Khmer Rouge took over the country and put in place a regime of terror that ruled the country for the next five years. Land and people were monopolized in order to grow rice almost exclusively. During that period, 2 million Cambodians disappeared, the infrastructure was destroyed, and the intellectual elite systematically eliminated. Since the 1998 elections, the country has enjoyed relative calm but everything needed to be rebuilt. The five years of terror and the 30 years of civil war that followed put a stop to pepper production in Kampot. Pepper farms vanished almost completely and only a few poles remained out of the million still in place in the 1960s.

At the end of the twentieth century, producers’ families returned to their ancestral land. Coming from several generations of pepper producers, they naturally cleared the land left abandoned and started cultivating their favourite spice again.

7. Impact of GI on Cambodia’s local area development

Protection by GI has proven to be an efficient tool for local development, as it
increases value-added and protects producers from competition created by generic products through the isolation of niche markets. Therefore, GI helps to protect jobs in rural areas though direct prices increases of products as well as indirect benefits such as the development of tourism in such areas. It is also a way of preserving cultural heritage and biodiversity.

In the case of Kampot pepper, getting GI status has yielded positive results as the literature has pointed out. On the economic front, GI status has increased production and export of Kampot pepper; compared with 2014, production doubled in 2015 to 70 tons, of which 70% was exported, mostly to the European Union, the United States and Japan. Production is expected to increase further to 500 tons in 2018.

The sale of Kampot pepper under the GI label resulted in a significantly higher producer sales price. In 2009 and at the start of the 2010 season, producers were already being paid $4.5 per kg for black GI pepper, compared with US$ 3 per kg for pepper purchased from the same producers by local sellers who did not showcase the GI. Today, black Kampot pepper is sold at $15 per kg. The red and white types are now sold at $28 and $30, respectively (table 3). “After gaining GI status, the quality of the pepper, its storage and packaging all greatly improved, which has also helped to boost product status and sales price,” according to KPPA President, Mr. Ngoun Lay.

<table>
<thead>
<tr>
<th>Year</th>
<th>Black pepper</th>
<th>Red pepper</th>
<th>White pepper</th>
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<tbody>
<tr>
<td>2009</td>
<td>4.5</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>2010</td>
<td>5.75</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>2011</td>
<td>7</td>
<td>15</td>
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<td>2012</td>
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<td>25</td>
<td>26</td>
</tr>
<tr>
<td>2016</td>
<td>15</td>
<td>28</td>
<td>30</td>
</tr>
</tbody>
</table>

Source: CIRD, 2015, and interviews with stakeholders

The increase in demand and price has enabled producers to earn more income. The total turnover for Kampot pepper producers in 2015 was $1 million compared with only $61,500 in 2009 before GI.
The increase in income for producers has enabled them to improve their livelihood, increase the size of their plantations, expand production, encourage other farmers to grow Kampot pepper and create jobs for local people. Ms. Ma Raty, a 22-year-old pepper producer who grows around 2,500 pepper plants, said she previously grew mangoes; however, after the sharp rise in the price of pepper, she decided to convert 70% of her plantation to growing pepper. The number of producers increased from 120 in 2009 to 342 in 2016. Total land under pepper cultivation also increased from just 10 hectares to 184 hectares in the same period. KPPA president Mr. Lay said he was happy that Kampot pepper had been recognized by the European Union. “The GI status has increased our sales and helped to improve our farmers’ living standard,” he added.

“The development of GIs contributes to increasing the income of small farmers by developing value chains, improving market access and increasing the recognition of GI by consumers. The GI system provides answers for consumers who are looking for high quality, and traceable and traditional products,” according to Mr. Alexander Huynh, FAO Representative in Cambodia.

Mr. Sok Khem, a 63-year-old pepper producer in Kampot, told the researchers that his family income had doubled in 2016 due to the increase in pepper price. “Growing pepper has been my family’s business for a few generations now. The farm that I have now was left to me by my father. After listening to the news that Kampot pepper was getting more famous, I also have observed that the price of [Kampot] pepper had increased a lot in the past few years. Now my children and relatives are all growing pepper,” he said.
GI has not only provided Cambodia with economic benefits but also helped to promote Cambodia’s cultural heritage and identify. Kampot pepper has a long and rich history. It has long been regarded by many chefs as one of the world’s finest pepper strains. Mr. Am Phirum, Deputy Director, Agricultural Land Resources Management Department, Ministry of Agriculture, Forestry and Fisheries, told the authors that getting GI for Kampot pepper was a matter of national pride. “The [Kampot] pepper was already famous, but GI made it even more famous internationally,” he noted. According to H.E. Mr. George Edgar, Ambassador of the European Union to Cambodia, GIs are considered by the European Union as part of a country’s cultural heritage and its economic resources. “Clearly, Kampot pepper has been a success story, both with regard to the preservation of Cambodian heritage and as a much-needed source of income for Cambodia’s farmers and traders,” he said.

GI also promotes sustainable agricultural production, which in turn contributes to lowering the environmental footprint of Cambodian products. GI products are required to follow the stringent requirements stated in the book of specifications. In the case of Kampot pepper, producers are not allowed to use harmful chemical fertilizers or pesticide, which might affect the environment and people’s health. “KPPA has a strict requirement. They told us not to use chemical fertilizers. This has been a challenge for us because making natural fertilizers is time-consuming while purchasing them is more expensive [than chemical fertilizers]. However, we always try our best to follow their advice,” said Mr. Sok Khim, a Kampot pepper farmer in Trapaing Chrey village.

### Case study 1

Ms. Kanika is a 50-year-old Kampot pepper producer living in Angkrang village, West Kampong Trach district of Kep province. She owns 42 hectares of land, of which only 22 hectares are being used for growing 40,333 Kampot pepper plants. “I started growing pepper three years ago when I learnt that the sales of Kampot pepper was increasing due to its good reputation. I own the land but still needed to spend a great deal of money to start this business. However, there is no revenue yet, because the pepper is not ready for harvesting,” she said.

On average, she spends around the equivalent of $17,000 per month on labour, meals, wooden poles, water and fertilizer. She employs 70 people on her farm and pays each of them around $120 per month plus
Case study 2

Mr. Chhem Lem, aged 48, owns a small pepper plantation in Trapaing Chhrey village in Kep province. He started his plantation in 2008 with an initial capital of around $2,000. He grows 270 pepper plants on his own land using his own labour.

He became a member of KPPA in 2015 and since then has received support from the association in the production and sale of his pepper. “The association organizes a meeting once a month to teach members how to grow and maintain pepper properly and in accordance with the required standards. They also share new information related to pepper demand and sales,” he explained.

In 2016 Mr. Lem harvested 100 kg of Kampot pepper, 70% of which he sold to traders in KPPA while the remaining 30% of not-so-good quality pepper was sold to other middlemen. He earned $30 from selling 1kg of white pepper, $28 for 1kg of the red type and $15 for 1kg of the black type.

three free meals per day. She said most of her workers had gained better living conditions after they started working for her. Around 30% of the workers also have their own small pepper plantations. “They work on my farm to earn additional income, and since they live nearby it is convenient for them look after their own plantation after leaving work here,” she added.

She is a member of KPPA and has received training from the association on how to grow and maintain the pepper. “We have tried our best to follow what they [KPPA] teach us. For example, we don’t use chemical fertilizers or pesticides. We have to be careful because if our pepper does not meet their requirements, we cannot sell it.

Ms. Kanika knows very little about GI but she is optimistic that the price of, and demand for Kampot pepper will not go down. “I am trying to find new markets for my pepper and I hope that after harvesting, my efforts will pay off,” she said.
8. Capacity-building needs

GI is a new concept for Cambodia, especially from a regulatory standpoint. The Cambodia GI law adopted in 2014 is aimed at managing, registering, recognizing and protecting GI. Understanding and enforcing the law, however, remains limited. Thus, further awareness-raising and capacity-building is critical to achieving long-term success in GI law implementation.

The GI Office was set up within the MoC’s Intellectual Property Department to handle the GI registration procedure. Since then, several training sessions have been organized for the office, including: courses provided by international experts covering the various phases of GI development; and the formulation of the book of specifications for design, delimitation, control plan elaboration etc. The executives from the GI Office and the engineers from MAFF who are working with the GI Office have also received training on the contribution of GI to rural development, and have participated in hands-on training courses organized in collaboration with the Institut National de l'Origine et de la Qualité, in France. Study visits to France and the sub-region have also been organized for the Office staff in order for them to learn more about the processes, status and supervision modalities for GIs in other countries of Europe and Asia.

Mr. Loa Reasey, Chief of the GI Office, recognized the need to build greater capacity of his staff. “GI is new for us, so I’m proud of what we have achieved so far. We have successfully registered Kampot pepper and Kompong Speu palm sugar, but as each GI case is different we need to learn more to prepare for other GI products,” he noted. Cambodia has around 22 products which can potentially qualify for Protected Geographical Indication. These include Battambang milled rice, Siem Reap prahok fish paste, Kratie grapefruit, Kampot salt, Kampot durians and Phnom Srok silk. “I’m excited about our journey ahead. There is great potential for our products to get PGI, which will promote the reputation of Cambodia internationally. My office will try its best to support the registration of these products,” Mr. Reasey added.
One area that needs urgent capacity-building support is enforcement of the GI law. Experience in other countries suggests that once GI of a particular product is successful, there is often an increase in the usurpation of that product name and even production of counterfeit goods. In the long term, such incidents can negatively affect a product’s reputation if the quality of the goods sold under the name of the GI does not meet consumers’ expectations of quality. According to Cambodia’s GI law, offenders are liable to imprisonment from one to five years and a fine of KHR 2 million to KHR 20; however, enforcement of this regulation is challenging. Mr. Prak Sereyvath, Director of the Cambodia Institute for Research and Rural Development, explained that, “it is very difficult to monitor and control the production and sale of GI products throughout the country. We don’t have the resources and capacity to enforce the GI law. We have already seen some people attempt to sell pepper under the GI name that does not come from the production zone or comply with the required specifications.”

Finally, more public awareness on GI is greatly needed among pepper producers, the majority of whom do not know what GI is. Some do not fully understand the book of specifications or even the objectives of KPPA and the benefits that the association offers. “I don’t understand much about this [GI]. I cannot read. It’s hard for me. I am not sure how many rules are in the book. It’s difficult to follow everything they [KPPA] told us but I have tried to follow what I can remember,” said one farmer, who asked not to be named. “I didn’t trust them [KPPA] 100%. I don’t know how they work and I am not sure if they have their own interests, so that is why I hesitated to join at first,” said another farmer who also asked to remain anonymous.

E. Discussion

This study contributes to the limited literature on the impacts of GI on local development by providing empirical evidence using Cambodia’s Kampot pepper as a case study. The findings of this study are in line with the literature, which support the hypothesis that GI contributes positively to socio-economic development in rural Cambodia. The GI status of Kampot pepper has provided economic benefits by increasing the value of this product as well as boosting local and export demand that has resulted in higher turnover for the producers. The social benefits of GI come in form of improving people’s livelihood, and the creation of employment for the local population as a result of the expansion of farmland and increases in production. GI has also brought about environmental gains through the promotion of sustainable agriculture practices.
Kampot pepper has experienced impressive growth in both production and sales in the past few years, but its future sustainability depends on several factors. First, KPPA’s capability to maintain quality in the context of the rapid expansion of production is critical. As discussed above, quality assurance needs close cooperation between the producers and KPPA. At the producer level, it is important that they understand and comply with the book of specifications. KPPA plays a central role in monitoring and evaluating compliance among producers. A clear set of procedures and rules must be put in place and comprehensive awareness-raising and capacity-building must be systematically carried out among producers. The KPPA staff must be well-trained in order for them to effectively enforce the rules. KPPA also needs to be financially sustainable to be able to operate effectively. Currently, KPPA charges producers $0.25 per kilogram of pepper sold through the organization, which is an effective way of keeping the organization functional.

Another matter of concern is the risk of a reduction of price as a result of over-production. The interviews with producers suggest that this is one of their worries. As more and more farmers begin to grow pepper, the overall supply may surpass demand, driving the price down. It is important for KPPA to work with the Government to find markets for Kampot pepper domestically and internationally and to regulate the production in order to ensure that supply and demand are in equilibrium.

While Kampot pepper is a successful case, this does by no means suggest that any product registered as a GI will be automatically be successful. GI cannot turn a frog into a prince. It only provides recognition of, and protection for products that are historically well-known. Although there are many examples of origin-based products that are sustainably successful without official recognition and protection, official recognition and protection through GI can help to improve the marketing and profitability of such products. Kampot pepper has long been appreciated for its quality, yet GI has helped to make it famous internationally and thus has created a broader market for the product. Distinguishing the intrinsic potential of the product from the additional impact of the GI registration is beyond the scope of this research, but it is an interesting topic for further study.

Kampot pepper is the first-ever Cambodian product to receive GI. Thus, the success of the Kampot pepper offers useful lessons for other products to reap the full benefits of GI. Several policy recommendations for future GI development for other Cambodian products are listed below:
Cambodia needs to further strengthen collaboration and partnerships among various stakeholders. Multi-stakeholder partnerships between the Government (both national and local), local producers and processors, international development agencies and relevant local community development agencies is critical to successful GI registration and implementation. The entire process of setting up KPPA and preparing the book of specifications for Kampot pepper benefited from close collaboration between producers and sellers, together with support from MoC and MAFF. This increased the confidence of all involved and made it possible to rapidly achieve the official registration of the product;

For the GI approach to work, it is necessary for a quality product to be positioned in quality markets, so that consumers are willing to pay more. In addition, the intermediary economic actors who process and/or sell the product must be ready to apply this strategy. The price supplement gained from such markets for quality products must be used to cover (a) the production costs involved in obtaining a quality product according to GI product specifications; and (b) the cost of the internal and external controls under GI registration;

A sustainable GI approach must ensure that a significant share of the value-added generated by GI goes to the producers located in a GI product’s territory. In the case of Kampot pepper, the total turnover for producers was also doubled within just a few years;

A systematic capacity-building programme as well as the promotion of public awareness are vital for the long-term success of GI. Each GI product is unique and requires new information and understanding. The GI Office needs to constantly update its knowledge of new products. The GI association needs to provide regular training for its members, particularly with regard to compliance with the book of specifications;

Strong enforcement of the GI law is needed in order to protect the reputation of GI products. Eliminating counterfeiting products and deterring offenders are crucial to maintaining the value of GI products and to meeting the expectation of the consumers;

The long-term benefits of GI can be realized when GI policies are linked with trade facilitation and investment promotion measures, rural development strategies and national public quality standards.
References


Part II

NTMs in fisheries sector and use of mutual recognition agreements: Case of ASEAN
Reducing non-tariff barriers through mutual recognition in fisheries in Cambodia, the Lao People’s Democratic Republic and Viet Nam: An introduction

Sufian Jusoh

ASEAN member States are important exporters of fisheries products to the world market. In 2014, the 10 ASEAN members together accounted for 18.3% (30.6 million metric tons) of world fish production (167.3 million metric tons). Indonesia, Viet Nam and Myanmar are among the top 10 fish-producing countries globally. Indonesia alone accounted for 6.4% of world output while for Viet Nam it amounted to 3.8% in 2014 (Chan and others, 2017). Apart from Viet Nam and Myanmar, the contribution to trade by the other two CLMV countries – Cambodia and the Lao People’s Democratic Republic (Lao PDR) – of fisheries products is insignificant even at the ASEAN level.

On the other hand, at the end of 2015, intra-ASEAN exports of fish and crustaceans, molluscs and other aquatic invertebrates, based on a 2-digit HS code, was $1,654 million compared with the exports by other parts of the world at $9,287 million, making the total world trade of $10,941.7 million.¹ This makes intra-ASEAN fisheries exports, at 15% of the total export, rather less significant compared to the exports to the rest of the world.

The chapters in this section deal with the possible utilization of Mutual Recognition Agreements (MRAs) by ASEAN members to further increase trade in fisheries products between them, which will also mean an ability to further increase ASEAN fisheries trade with the world. This is because through the

utilization of MRAs, local producers and exporters will be able to increase the standards of process and production methods (PPM) and the final product itself, which will make the fisheries products more attractive and competitive in the importing countries. However, challenges exist to implementing the ASEAN MRA on fisheries. This includes challenges in preparing the domestic set-up that is necessary to implement the requirements of the standards, such as laboratory, testing services and human capital to man the required services. Another challenge is whether ASEAN members are even ready to enter into an ASEAN wide MRA, or whether they would rather deal with the issue on a bilateral basis rather than through an ASEAN initiative.

One of the main market access issues for exports from the newer ASEAN members, Cambodia, the Lao PDR, Myanmar and Viet Nam (CLMV), is how to ensure their exports can comply with the technical regulations and standards, such as those in the sanitary and phytosanitary (SPS) measures set in the more developed ASEAN members and the developed export markets.

While tariff rates of most goods have been reduced to zero, the use of non-tariff barriers, such as discriminatory measures, diverse product standards, import bans, import licensing, additional import requirements, technical barriers to trade and new import procedures, has been increasing. The ASEAN Economic Community Blueprint 2025 (AEC Blueprint) aims to minimize trade protection and compliance costs in dealing with non-tariff barriers (NTBs) such as in SPS issues by, among others, working on MRAs.²

The issue with the CLMV countries is whether they are able to economically benefit from MRAs, as they may lack the knowledge and technical capabilities necessary for ensuring that their products and services meet the standards set by the more developed nations; hence, the need to set up for share facilities as well as request technical assistance and capacity-building as allowed under the SPS Agreement of WTO and as envisaged in the AEC Blueprint.

This section focuses on the exports of fish and fisheries products in Cambodia, Myanmar and Viet Nam. As the Lao PDR is a landlocked country, any examination of that country’s fish and fisheries products will be too insignificant to support any theory on the need for harmonization of, or MRA on rules and regulations in its fisheries industry.

²AEC Blueprint 2025, para. 10. iii.g.
A. The question of harmonization or mutual recognition

In recent times, there has been an increase in the internationalization of regulations, including those pertaining to health, safety, consumer protection, the environment and labour markets (de Brito and others, 2016; Trebilcock and R. Howse, 1998). To overcome these barriers, instead of having total harmonization, countries are increasingly working on international regulatory cooperation including MRAs (Nicolaodis, 1997). MRAs are a form of contractual agreement where countries, standards agencies or professional organizations (e.g., licensing bodies) agree to recognize the equivalence of another country’s technical regulations (or conformity assessment procedures)\(^3\) and SPS measures.\(^4\)

In the trade in goods, an MRA embodies the general principle that if a product can be sold lawfully in one jurisdiction, it can be sold freely in any other participating jurisdiction, without having to comply with the regulations of these other jurisdictions regardless of the differences in standards or other sales-related regulatory requirements.\(^5\) In other words, under MRA arrangements, a process of approval can be obtained domestically by the producers and exporters set by the national law based on the same standards set by the destination country.

Thus, MRAs are trade-facilitative instruments negotiated and concluded – often in support of market access commitments – that reduce the costs and time that would otherwise be required to obtain product approvals or certification of professional qualifications. The exporters of goods and services benefit from the conditional recognition that such MRAs provide, while market regulators in the importing State essentially agree to forego any further testing or impose additional compliance requirements on the imported goods’ or foreign service suppliers (Nicolaodis, 1997).


\(^4\) See, for example, Article 4.2 of the WTO Agreement on Sanitary and Phytosanitary Measures.

\(^5\) The formula was originally stated by the European Court of Justice in its Cassis de Dijon ruling of the 1979 Case C-120/78. Mutual recognition appeared by judicial fiat when the court turned to a positive test – should home country standards be recognized as “equivalent” to those of the host country, and therefore replace them? This has been discussed in the ECJ in Cassis de Dijon Case C-120/78 Case C-120/78 Case C-120/78 and German Beer Standards Case 178/84 (1988) 1 CMLR 780 decision, where the Court impugned a German law which required any product sold with the label “beer” in Germany to meet Germany purity standards. See also Hogan & Hartland LLP, 2003.
The potentially lower costs to businesses result from improved competitiveness due to lower compliance costs that result from being able to manufacture to a single standard as well as the removal of unnecessary barriers to trade. Without mutual recognition, manufacturers and exporters face several hurdles: (a) the need to learn the details of applicable standards and regulations; (b) the need to learn efficient and effective measures to assess compliance with product standards and regulations; (c) and the need to obtain certificates of approval that could lead to extra costs and which could contribute to a lack of competitiveness.

Nevertheless, questions remain as to whether countries should work on mutual recognition of rules or standards. Posner has argued that developing countries should adopt rules rather than standards because rules are easier to apply as well as reduce influence of politics in the judicial process (1998). In addition to the academic debate on whether rules or standards should be adopted, least developed and developing countries may face several challenges that are related to creating trust in the domestic system in order to ensure compliance with the rules or standards as agreed in an MRA. Parties to an MRA must be able to show trust in each other’s regulatory systems, structures and procedures for accreditation and conformity assessment, and demonstrate a certain level of technological development for a high-quality infrastructure. A lack of trust can be costly, as it may undermine the cooperative attitude of partners and derail the MRA scheme (Hogan and Hartland, 2003).

B. Standards harmonization and Mutual Recognition Agreements in ASEAN

In an effort to promote economic integration in the ASEAN region, the AEC Blueprint 2015 encourages the reduction of NTBs in the ASEAN members through various efforts including the harmonization of standards and conformity assessment, the development of MRA and the improvement in the trade facilitation through among others the ASEAN single windows (Cadot and Ing, 2015; Narjoko, 2015). The ASEAN Trade in Goods Agreement (ATIGA) which came into force in 2010, prioritises the elimination of NTBs through the traffic light system namely the green or justified NTB, amber whose trade restrictiveness could be discussed and red or clear cut NTBs.

To enhance ease of trade in goods and to reduce NTBs in the ASEAN members, ASEAN has taken steps to harmonize standards and introduce MRAs on standards, technical regulations and conformity assessment in the region through the ASEAN Cooperation on Standards and Conformance to Facilitate Trade in the Region and the ASEAN Consultative Committee on Standards and Quality (ACCSQ). In 2004, the ACCSQ was mandated with the responsibility
to take steps to support regional economic integration, among other actions, by: (a) setting clear targets and timeframes for the harmonization of standards and their alignment among member States; (b) harmonizing and/or developing technical regulations for national application; (c) strengthening cooperation between the member States in the area of capacity building; and (d) convincing ASEAN members to consider modelling their technical standards and regulations on ASEAN harmonised technical standards and regulations.

The ACCSQ also oversees the implementation of three initiatives related to the six key elements mentioned above: (a) information exchange on laws, rules, and regulatory regimes on standard and conformity assessment procedures; (b) cooperation with dialogue partners; and (c) implementation of the TBT chapter in the ASEAN+1 free trade agreements. To assist the ASEAN members in moving towards harmonization of standards and conformance assessment measures, the ACCSQ has developed horizontal working groups for standards and conformity assessment procedures with a view to remove NTBs (Pettman, 2013; Rully and Ponciano, 2015; Cadot and Ing, 2015).

ASEAN has also developed a Policy Guideline on Standards and Conformance, which is intended to guide ASEAN bodies working in the areas of standards and conformance with the objective of facilitating the fast-track integration of priority sectors by 2010 and the realization of AEC by 2015. The guideline lists general provisions and principles specific to the harmonization of standards, the adoption of technical regulations, conformity assessment, post-market surveillance and transparency.

As part of the implementation of the ASEAN Free Trade Area (AFTA), in 1997 20 products were identified by the AFTA Council as a priority for standards harmonization in ASEAN. The harmonization, which was completed in 2003, was carried out based on 59 ISO, IEC and ITU international standards. ASEAN carried out the project to harmonize standards on the electrical safety aspects of electrical products and on the subject of electromagnetic compatibility (EMC), which involved 71 safety and 10 EMC measures. The harmonization was completed in 2004.

The work started with an MRA for Electrical and Electronics. Signed on 5 April 2002, ASEAN members notified their participation either in the acceptance of test reports and/or product certification and agreed to work towards harmonization or regulatory regimes in the electrical and electronics sector by 2010. During the harmonization exercise, the national standards bodies in ASEAN and similar bodies needed to adopt the international standards, based on the requirements of the ISO/IEC Guide 21 as their national standards or accept the direct use of international standards.6
ASEAN members have also discussed a potential MRA in the fisheries sector. According to the ASEAN Sectoral Integration Protocol for Fisheries, which was approved by the ASEAN members on 29 November 2004 and entered into force on 31 August 2015, together with many other measures. The ASEAN members have agreed to accelerate the implementation/development of sectorial MRAs, and encourage domestic regulators to recognize test reports issued by testing laboratories that are already accredited by National Accreditation Bodies in ASEAN and which are signatories to ILAC and APLAC MRA. ASEAN members have also agreed to develop and implement MRAs in selected fisheries products.

The purpose of developing the MRAs is to strengthen fish quality and safety management systems that support the competitive position of ASEAN fish products in world markets, including: (a) moving towards ISO/IEC 17025 accreditation of national fish inspection laboratories; (b) strengthening capacity and acknowledging the recognized national laboratories; (c) risk analysis and equivalence agreements such as the MRA; and (d) promote the implementation of the quality and safety management systems among small and medium-sized enterprises in the ASEAN region.

Thailand, which is tasked with developing the MRA template, developed a template for MRAs on fishery products and presented it to the 20th ASWGFi meeting held in 2013 in Yogyakarta. The final draft template has been developed for submission to the twenty-first ASWGFi meeting in 2013 in Vientiane for consideration and future use on a voluntary basis. Currently, Thailand is encouraging other ASEAN members to sign the MRA, while it also develops the MRA between Thailand and Viet Nam and between Thailand and Myanmar. Although the plan for the MRA is being pushed back, it could be signed before 2020.

C. Papers on MRA and fisheries in this volume

The potential for harmonization and MRAs in the rules and regulations related to the fisheries sector in the CMLV group of countries is discussed in the four chapters of Part II of this book.

The first chapter, “Fish trade and policy: A primer on non-tariff measures” by Marco Fugazza, presents some novel results on the prevalence of NTMs in the fisheries sector. These results were obtained using a dataset recently released by UNCTAD. Six major stylized facts emerge. First, products of the fisheries

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sector are affected more intensively by NTMs than products belonging to non-fisheries sectors. Second, fisheries sector products are mostly affected by technical regulations, particularly SPS measures. Third, almost all countries impose SPS measures on all imports of fisheries sector products. Fourth, similar types of SPS measures and TBTs affect both fish and non-fish products. However, their incidence is much greater for fish products. Fifth, all products (or types of product) of the fisheries sector appears to be equally affected by NTMs. Sixth, no systematic relationship between tariffs and NTMs incidence can be identified.

Fugazza first reviews the state of the world’s trade in fish and fisheries products. The trade in fish and fisheries products is dominated by the developing and the least developed countries, while the developed countries remain the largest importers of the products. The chapter states that of all types of products covered by NTMs, fish and fisheries products are relatively more intensively affected by NTMs than non-fish products. Fisheries products are mainly affected by SPS and TBT measures; all countries on the UNCTAD database impose SPS requirements for fish and fisheries products. The chapter shows that the number of NTMs is much higher in the high-income countries, led by the United States and Japan, compared with the other countries. Fugazza also finds that small-scale and artisanal fisheries face more difficulties in complying with sanitary regulations, including homogeneity in quality, best safety and handling practices, transportation and adequate packaging.

In the second chapter, “Exploring non-tariff measures facing fisheries trade in ASEAN: The case of Cambodia”, Seyhah Ven and Vutha Hing review the development of the fisheries sector in Cambodia. Fisheries is a priority sector in Cambodia, mainly due to its contribution to the rural economy and food security. The sector has potential to grow around the Mekong River, the Great Lake and Tonle Sap. A large proportion of processed fisheries products are domestically consumed, with only a small percentage (7.5%) being exported in 2012, mainly to neighbouring Thailand and Viet Nam, for further processing. Fisheries exports by Cambodia, like many other least developed countries, face many NTMs that create barriers, together with the lack of knowledge and technical capacity among exporting firms as well as the lack of capacity for inspections on quality and safety standards of fisheries products. At the same time, exporters now face a new inspection method that has changed from inspection of final products to Hazard Analysis Critical Control Point (HACCP). In addition, more stringent private standards requirements are increasing the challenges faced by the least developed countries.

Ven and Hing favour an ASEAN-wide initiative to accelerate the efforts to address
NTMs, which could be achieved through an MRA on standards and conformity procedures. To ascertain the possibility of any MRA or harmonization in the rules and regulations covering fisheries products, they examine the regulatory distance among ASEAN members. The authors find that the closer the regulatory distance between two jurisdictions the easier it will be to establish an MRA and to harmonize NTM regimes.

The third chapter, “Barriers facing Myanmar’s non-implementers of the European Union HACCP standards system” by Wai Yee Lin, examines barriers facing non-implementers of HACCP standards of fisheries processing plants in Myanmar that hinder them from taking part in global value chain. Wai studies the impact and barriers created by the HACCP requirement on Myanmar fisheries exporters. The author discusses the need for closer collaboration between competent authorities of exporting and importing countries. In an ideal situation, the competent authority of the exporting country will integrate the food safety control system with those of the importing countries. This means, at the firm level, fisheries exporters are required to comply with the requirements of the importing countries through the competent authorities of the exporting country.

Myanmar’s fisheries exporters are required to implement the HACCP not only by the more advanced importing economies but also by the more developed ASEAN members, mainly Malaysia, Thailand and Singapore. This leads to the question of whether Myanmar should promote an ASEAN-wide MRA on fisheries. Myanmar may follow the example of Thailand, which promotes the use of bilateral MRAs. According to Wai, Thailand implements two models of MRAs. In one model, when exporting and importing countries have equivalence of both standards and inspection/certification system, the latter accepts the certificate/certificate mark of export countries. In the second type of MRA, which is practiced, even though they have different standards but equivalence of inspection/certification systems with the certificate of the exporting country being based on the importing country’s (agricultural) standards.

In the fourth and final chapter, “Barriers to fisheries exports in Viet Nam and potential roles of mutual recognition of standards for goods in ASEAN”, Tran Binh Minh and Vo Tri Thanh discuss the barriers to Viet Nam’s fisheries exports. The study shows that by the end of 2016, total exports of fisheries products reached $7.05 billion, a growth rate of 7.4% compared with 2015. Viet Nam’s fisheries exports face competition from Indonesia, India and Thailand, which has recently put pressure on the growth of the fisheries sector. Tran and Vo recognize that Viet Nam’s products mainly concentrate on frozen fish fillets (HS 030420), shrimps and prawns. The country’s main fisheries export markets
have long been the European Union, Japan and the United States, while similar exports to ASEAN members are not as significant.

Viet Nam’s fisheries exports have enjoyed huge reductions in tariffs. For example, fisheries products enjoy tariff elimination under the European Union-Viet Nam FTA. Nevertheless, Viet Nam’s exports still face constraints due to NTMs. The chapter quotes a recent report by CIEM that SPS measures and TBT constitute the most popular NTMs in Viet Nam, as they account for almost 37.5% of the current NTMs.

To further ascertain the issues related to NTBs in the fisheries sector, the authors conducted a survey of 40 respondents, mostly private sector firms across the fisheries sector in Viet Nam. Based on the survey, they concluded that although opportunities have increased for the fisheries sector, barriers are also increasing; the faster the liberalization of sector, the greater the challenges that face Vietnamese firms.

**D. Conclusion and recommended approach**

Any move towards an MRA, either under the ASEAN regional set-up or through a bilateral MRA, may lead to changes, upgrading and reforms in the domestic system of the CLMV country group. The chapters in Part II find that the CLMV group still face capacity and capability challenges in new standards set by MRAs.

Such challenges include meeting compliance costs, such as those created by technology, skills and equipment upgrading. Another challenge is the setting up and functioning of conformity assessment. To be able to implement a mutual recognition arrangement, the CLMV group needs to have access to a conformity assessment body (CAB), either internally or outside the CLMV, for assessing the compliance of products with the standards of importing countries. The lack of such a body will render any mutual recognition arrangement ineffective. The CAB may take the form of a government-operated CAB, a private CAB or a CAB based in another country that offers its services to the exporting countries. It is also important for the CAB to work with the exporters and producers of products in the exporting countries, especially those that are new to export markets, to help them understand the significant impact of standards compliance to gain access to certain markets.

In conclusion, any move towards any form of MRA in the fisheries sector will face a greater challenge on the domestic front in the CLMV countries, resulting in prolonging the time before any MRA in fisheries can be realized.
References


Fish trade and policy:
A primer on non-tariff measures

Marco Fugazza

Introduction

This chapter presents some novel results on the prevalence of non-tariff measures (NTMs) in the fisheries sector. They were obtained using a dataset recently released by the United Nations Conference on Trade and Development (UNCTAD) secretariat. Six major stylized facts emerge. First, products of the fisheries sector are relatively more affected by NTMs and more intensively than products belonging to non-fisheries sectors. Second, products of the fisheries sector are mostly affected by technical regulations and in particular sanitary and phytosanitary (SPS) measures. Third, almost all countries impose SPS measures on all imports of products of the fisheries sector. Fourth, similar types of SPS measures and TBTs affect both fish and non-fish products. However, their application is much greater for fish products. Fifth, no product (or type of product) of the fisheries sector appears to be more affected by NTMs than any other. Sixth, no systematic relationship between tariffs and NTMs incidence can be identified.

International trade is crucial to the fisheries sector, especially in the least developed economies. International trade can act as an employment creator, food supplier and income generator, thus contributing to food and nutrition security. In this context, international trade can be expected to play a core role as a contributor to economic growth and development. In its most recent report

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1 Additional resources for this chapter are available online at http://www.unescap.org/resources/trade-integration-within-asean-role-non-tariff-measures-cambodia-lao-peoples-democratic
on the State of World Fisheries and Aquaculture, the Food and Agriculture Organization of the United Nations (FAO, 2016) noted that the sustained expansion of trade in fish and fisheries products observed in recent decades has been fuelled by growing fisheries production and high demand. As a consequence, the fisheries sector has increasingly been operating in a globalized environment, a tendency that may intensify further. However, this may not only have positive consequences, as over-capture and acceleration in stocks depletion have already reached worrying thresholds. Sustainability has been at risk for several years; therefore, trade and its intensification, possibly driven by inadequate policy approaches and instruments, may not ease related concerns as discussed in a recent report produced by UNCTAD (2016). Two broad categories of policy measures are usually considered – tariffs and NTMs. While the former category is somewhat narrowly defined, the latter encompasses a large number of heterogeneous policy instruments, including SPS measures, and quantity restrictions or subsidies. Both categories can be applied to imports or exports. Before being in a position that could allow conclusions to be drawn about the appropriateness of using this set of instruments, a clear assessment of their prevalence is necessary and, eventually, unavoidable. Such an exercise is also necessary to establish any possible relationship between these instruments and the possible consequences in terms of trade and economic performance. However, data on policy instruments other than tariffs remain scarce, especially within a consistent multi-country framework.

This chapter presents an analysis of the prevalence of NTMs, using a novel dataset recently released by UNCTAD. Although the reference sample remains limited in terms of country coverage, the countries included account for more than 80% of world fish trade. As a consequence, the picture obtained is a precise reflection of the types of NTMs implemented around the world, especially in major destination markets. The chapter also presents some descriptive statistics related to tariffs and offers an integrated view of two major policy instruments implemented in the fisheries sector. Subsidies were not part of the study due to limited data availability.

The analysis allows the formulation of several stylized facts. First, products of the fisheries sector are affected more by NTMs, and more intensively, than products belonging to non-fisheries sectors. Second, fisheries sector products are mostly affected by technical regulations, and in particular by SPS measures.

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2 NTM data collected by UNCTAD can be downloaded using the WITS extraction software maintained by the World Bank, accessible at wits.worldbank.org.
Third, almost all countries impose SPS measures on all imports of fisheries sector products. Fourth, similar types of SPS measures and TBTs affect both fish and non-fish products. However, their incidence is much larger in the case of fish products. Fifth, no product (or type of product) of the fisheries sector appears to be more affected by NTMs than that of any other. Sixth, no systematic relationship between tariffs and NTMs incidence was identified.

The chapter is organized as follows. Section A provides an overview of trade flows and their main actors in the fisheries sector. Section B presents some major characteristics of NTM data collected by UNCTAD, and it discusses some possible limitations to their use. Stylized facts based on the NTM data are considered in Section C. Section D investigates how the incidence of tariffs and NTMs relate to each other. Section E discusses possible implications for small-scale and artisanal fisheries. Section F presents some possible implications for policy-making, and indicates desirable directions for further and deeper investigation.

A. Fish trade: An overview

Fish and fishery products constitute one of the most-traded segments of the world’s food sector. According to FAO (2106) figures, about 78% of seafood products are estimated to be susceptible to international trade competition. The fisheries sector trade has displayed a strong upward progression in value between 2000 and 2015 (table 1). Its value has more than doubled, despite slowing down since the financial crisis of 2008 and a drop of about 20% in 2015. In relative terms, however, fisheries trade has grown less rapidly than total trade in most years. Moreover, its share of total trade has remained below 1% over the past 15 years (table 2). It was equal to 0.87% in 2000 and then fell to 0.71% in 2014. Fisheries trade deceleration has proved to be weaker than that of total trade in 2015; as a result, its share moved up to 0.74% during that year. Table 3 reveals that the largest group of products traded is raw fish, either fresh or chilled or frozen, representing 50% of total fisheries exports in 2015 and 44% in 2000. The second largest group includes crustaceans and molluscs either fresh or chilled or frozen. Its share in fisheries trade was equal to 27% in 2015 while it was equal to 34% in 2000. The third largest group of fish products is not preparations – the share of which has remained stable at about 5% over the whole period – but oils and fats and other products unfit for human consumption, with a share that has increased slightly since 2000 and was about 19% in 2015.
### Table 1. Growth in world exports

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<tr>
<td>Fresh, chilled and frozen</td>
<td>100</td>
<td>153</td>
<td>213</td>
<td>251</td>
<td>261</td>
<td>238</td>
</tr>
<tr>
<td>Dried, salted and smoked</td>
<td>100</td>
<td>131</td>
<td>184</td>
<td>204</td>
<td>217</td>
<td>198</td>
</tr>
<tr>
<td>Crustaceans and molluscs</td>
<td>100</td>
<td>114</td>
<td>136</td>
<td>165</td>
<td>188</td>
<td>172</td>
</tr>
<tr>
<td>N.E.S.</td>
<td>100</td>
<td>146</td>
<td>197</td>
<td>255</td>
<td>255</td>
<td>228</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>138</strong></td>
<td><strong>183</strong></td>
<td><strong>221</strong></td>
<td><strong>233</strong></td>
<td><strong>212</strong></td>
</tr>
</tbody>
</table>

*Source*: Author’s calculation based on the UNCTADstat World Statistical Database.

*Note*: The year 2000 represents the base year. All exports values are expressed in terms of export values in 2000.

### Table 2. Share in total world exports (%)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh, chilled and frozen</td>
<td>0.38</td>
<td>0.36</td>
<td>0.35</td>
<td>0.34</td>
<td>0.35</td>
<td>0.36</td>
</tr>
<tr>
<td>Dried, salted and smoked</td>
<td>0.04</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>Crustaceans and molluscs</td>
<td>0.29</td>
<td>0.21</td>
<td>0.17</td>
<td>0.17</td>
<td>0.19</td>
<td>0.20</td>
</tr>
<tr>
<td>N.E.S.</td>
<td>0.15</td>
<td>0.14</td>
<td>0.13</td>
<td>0.13</td>
<td>0.13</td>
<td>0.14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.87</strong></td>
<td><strong>0.74</strong></td>
<td><strong>0.68</strong></td>
<td><strong>0.67</strong></td>
<td><strong>0.71</strong></td>
<td><strong>0.74</strong></td>
</tr>
</tbody>
</table>

*Source*: Author’s calculation based on the UNCTADstat World Statistical Database.

### Table 3. Share in world fisheries exports (%)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh, chilled and frozen</td>
<td>44</td>
<td>49</td>
<td>51</td>
<td>50</td>
<td>49</td>
<td>50</td>
</tr>
<tr>
<td>Dried, salted and smoked</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Crustaceans and molluscs</td>
<td>34</td>
<td>28</td>
<td>25</td>
<td>25</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>N.E.S.</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>19</td>
<td>19</td>
</tr>
</tbody>
</table>

*Source*: Author’s calculation based on the UNCTADstat World Statistical Database.
Table 4 shows various country groups shares of world exports and imports. In terms of exports, developing countries (excluding China and least developed countries) account for nearly 40% of world exports but only close to 23% of world imports. While the former has decreased slightly since 2000, the latter has doubled. Demand has been growing significantly in developing countries and this is without counting China. China’s share in total imports more than doubled since 2000, reaching 5.3% in 2015, making it the largest exporter of fish and fish products in that year. Its share in total exports increased from 7.3% in 2000 to more than 15% in 2015. The experience of the least developed countries shows greater contrast, as their share of world imports more than doubled after 2000 but still remained below 1% in 2015. In terms of exports, their presence on international markets fell during the 15-year period covered by this study, moving from 3.2% in 2000 to 2.5% in 2015. Developed countries also lost some of their predominant role in world imports in 2000, benefiting developing countries and China. Nonetheless, developed countries still represented 70% of total imports in 2015.

### Table 4. Country groups participation in world fisheries exports (%)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ex.</td>
<td>Im.</td>
<td>Ex.</td>
<td>Im.</td>
<td>Ex.</td>
<td>Im.</td>
</tr>
<tr>
<td>DVG-China-least developed countries</td>
<td>41.5</td>
<td>13.6</td>
<td>37.2</td>
<td>15.0</td>
<td>36.2</td>
<td>19.2</td>
</tr>
<tr>
<td>Least developed countries</td>
<td>3.2</td>
<td>0.3</td>
<td>2.9</td>
<td>0.4</td>
<td>2.4</td>
<td>0.5</td>
</tr>
<tr>
<td>China</td>
<td>7.0</td>
<td>2.2</td>
<td>10.6</td>
<td>3.6</td>
<td>12.7</td>
<td>4.2</td>
</tr>
<tr>
<td>Developed countries</td>
<td>46.6</td>
<td>85.7</td>
<td>50.6</td>
<td>75.0</td>
<td>46.2</td>
<td>73.1</td>
</tr>
<tr>
<td>Transition</td>
<td>0.8</td>
<td>0.9</td>
<td>1.0</td>
<td>2.5</td>
<td>2.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Least developed countries, Africa</td>
<td>1.9</td>
<td>0.2</td>
<td>1.7</td>
<td>0.3</td>
<td>1.3</td>
<td>0.4</td>
</tr>
<tr>
<td>Island least developed countries plus Haiti</td>
<td>0.1</td>
<td>0.0</td>
<td>0.1</td>
<td>0.0</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Small island developing States</td>
<td>1.0</td>
<td>0.3</td>
<td>1.1</td>
<td>0.5</td>
<td>1.1</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on the UNCTADstat World Statistical Database.

On the exports side, the share of developed countries also decreased during the same period. It was equal to 46.2% in 2000 and to about 41% 15 years later. In other words, some convergence was observed in terms of supply influence on international markets between developing and developed countries. If China is included with the developing countries group this shift in market influence is even sharper. Figures for transition economies suggest some (re) vitalization of the sector, especially between 2000 and 2005, with mitigating tendencies afterwards. They represented 2.3% of world exports and 2.5% of world imports in 2015. Shares were computed for some additional subgroups, i.e., African least developed countries, Island least developed countries plus Haiti and small island developing States (SIDS) (UNCTAD definition). While import shares increased – even if only slightly – for the three subgroups, their export performance varied. While the share of SIDS exports showed an
increased after 2000, that of African least developed countries decreased. The share of Island least developed countries remained somewhat constant during the same period.

Despite tiny overall shares in world trade and a somewhat stagnant performance during 2000-2015, exports of fish and fish products remained essential to many economies.\(^3\) Statistics is available for the shares of world and group aggregates, both in imports and in exports, of the four major fish products groups defined previously as seven different country groups. As far as developing countries (least developing countries and China excluded) are concerned (see figure 1AE\(^3\)), exports of fish products represent a large share of world exports, i.e., up to 50% for crustaceans and molluscs, about 40% for the N.E.S. group (essentially fats and oils, and products unfit for human consumption) and about 30% for fresh, chilled and frozen fish in 2015. Despite this strong presence of fish products in international markets, exports represent only slightly more than 1% of the group’s total exports. At the same time, developing countries are also large importers of fish products. They account for an average of 20% of world imports of fish products, which corresponds to about 0.7% of the group’s total imports.

The least developed countries’ exports of fish products represent about 10% of world exports by that sector (figure 2AE\(^3\)). Their largest share in world exports is observed for crustacean and mollusc products. Fish exports represent about 2% of the group’s total exports. Imports of fish products by least developed countries account for about 2.5% of world imports of these products, and are concentrated in processed products or other animal products not produced domestically.

As mentioned above, China is the largest exporter of fish and fish products overall. That country’s performance has recently been driven by significant increases in exports of fats and oils as well as products unfit for human consumption. Fish and fish products represent about 2% of China’s total exports, which is a large share compared with world aggregates and the figures for other country groups. China’s imports are driven mostly by imports in the crustacean and molluscs subsector and the fresh, chilled and frozen fish subsector (figure 3AE\(^3\)).

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\(^3\) Set of figures (1AE-5AE) referring to herewith described statistical breakdown of world trade shares of the four major fish product groups for seven country groups are available in the electronic format as an appendix to this book. Please visit the publication page at http://www.unescap.org/resources/trade-integration-within-asean-role-non-tariff-measures-cambodia-lao-peoples-democratic
Statistics indicate that there are two dominant sectors in developed countries exports, i.e., fresh frozen and chilled fish and processed fish products. In both cases, the share of developed countries is around 60%. Developed countries are large importers in all sectors, and that fish and fish products represent about 1% of their total imports (figure 4AE3).

Transition economies, export essentially fresh, chilled and frozen fish together with dried, slated and smoked fish products, of which the shares in world exports never exceed 4%. Imports are also predominantly found in these two sectors (figure 5AE3).

B. Non-tariff measures data4

1. Reference groups: Countries and products

Information on NTMs is available for 56 reporting countries, but only for a single year. Reference years vary from 2012 to 2016. Source information refers to 6-digit products as defined in the fourth version of the Harmonization System classification, adopted in January 2012. In that version of the HS classification, 223 products (from raw products to semi-processed or processed products) were identified as being part of this study’s reference group.5 Note, however, that the HS-2012 classification does not allow any distinction between capture and aquaculture origin. This may be seen as a strong limitation in the current context of aquaculture production’s rapid expansion. Further analysis based on regulatory texts may help to identify those NTMs related exclusively to products from aquaculture. The issue is discussed in the last section of this chapter.

Other classifications are used to define specific subgroups, i.e., the Classification by Broad Economic Categories (BEC)6 and the Central Product Classification (CPC) Ver.2.1 released in August 2015.7

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4 Figures reported hereafter are based on UNCTAD NTM data as of December 2016.
5 Although the number of products remains far below the number of fisheries species, the 2012 version of the HS classification is a true improvement with regard to earlier HS versions, especially in terms of coverage of fisheries species originating in developing countries. Such improvements were made possible by close collaboration between the World Customs Organization and FAO. Compared with HS 2007 for fish and fishery products, the 2012 version saw the implementation of about 190 amendments and the introduction of about 90 new commodities (species by different product form). Within the limits of the available codes, the classification was restructured according to main groups of species of similar biological characteristics. The new version of the HS classification entered into force on 1 January 2017. It includes further amendments for fisheries species and/or product forms that need to be monitored for food security purposes and/or for better management of fisheries, in particular for conservation of potentially endangered species.
The following analysis and reported statistics are based on NTMs applicable to all countries without discrimination. This type of measure is referred to as MFN-NTMs. Information on NTMs applied either bilaterally or plurilaterally does exist. However, its treatment requires a deep qualitative investigation to identify any overlapping elements with MFN-NTMs in place, especially those referring to regulatory stringency. Some bilateral measures, for example, could be a waiver of some MFN-NTMs. This would go beyond the scope of this study which provides an overall view of NTM prevalence. NTMs are classified according to the 2012 version of the UNCTAD/MAST NTM classification, as discussed in section A.

2. Definition of non-tariff measures

NTMs encompass all measures affecting the conditions of international trade, including policies and regulations that restrict trade as well as those that facilitate it. For practical purposes, the commonly used definition of NTMs is: “Non-tariff measures (NTMs) are policy measures, other than ordinary customs tariffs, that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both.”

Frequently, NTMs are erroneously referred to as non-tariff barriers (NTBs). The difference between the two terms is that NTMs include a wider set of measures than NTBs, the latter term only being used to describe discriminatory NTMs imposed by Governments to favour domestic over foreign suppliers. In the past, most NTMs essentially took the form of quotas or voluntary export restraints, the so-called core NTMs. As these measures are restrictive by design and have a clear tariff equivalent, at least from a theoretical point of view, the term barrier was used. Nowadays policy interventions take many more forms, and it is therefore more accurate to refer to them as measures instead of barriers, to underline the fact that a measure may not necessarily be trade- or welfare-reducing.

Table 5 contains the various categories identified in the UNCTAD/MAST 2012 classification. Import-related measures are separated from export-related ones. Within the import-related measures there is a divide between technical and non-technical measures.

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8 See UNCTAD, 2013, for an extensive presentation and discussion.
9 See UNCTAD, 2010, for a precise motivation.
10 A brief description of each category is provided in annex 1 of this study. The complete classification can be downloaded from http://unctad.org/en/PublicationsLibrary/ditctab20122_en.pdf.
The data collected for countries in the reference sample cover measures from chapters A to G, and chapter P. Because of objective difficulties in the collection of data on some measures, data covering other types of measures, i.e., those related to chapters I to O, were either not actively collected or only collected for a restricted group of countries.

### Table 5. UNCTAD/MAST* NTM classification (2012 version)

<table>
<thead>
<tr>
<th>Imports</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical measures</td>
<td>Sanitary and phytosanitary measures.</td>
<td>Technical barriers to trade.</td>
<td>Pre-shipment inspection and other formalities.</td>
</tr>
<tr>
<td>Non-technical measures</td>
<td>Contingent trade-protective measures.</td>
<td>Non-automatic licensing, quotas, prohibitions and quantity-control measures other than for SPS or TBT reasons.</td>
<td>Price-control measures, including additional taxes and charges.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Finance measures.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Measures affecting competition.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Trade-related investment measures.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Distribution restrictions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restrictions on post-sales services.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Subsidies (excluding export subsidies under p7).</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Government procurement restrictions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Intellectual property.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rules of Origin.</td>
</tr>
<tr>
<td>Exports</td>
<td>P</td>
<td>Export-related measures</td>
<td></td>
</tr>
</tbody>
</table>

* MAST stands for Multi-Agency Support Team which was established in 2006 to work on the taxonomy of non-tariff measures.

#### C. Non-tariff measures in fisheries trade: Stylized facts

Several incidence measures are used to qualify the presence of NTMs in fisheries trade. Standard incidence measures are the so-called inventory-based measures. This study refers extensively to two standard and widely-used measures, i.e., the coverage ratio and the frequency index. However, the study also uses as a measure of NTM incidence the number of types of measures applied on average to each product. This type of indicator provides more
precise information about the pervasiveness of NTMs in cases where coverage ratios and frequency indices do not vary much across countries and products, and are close to their maximum value. As coverage ratios are only relevant to strictly positive trade flows, other indicators are also computed based only on strictly positive trade flows. Reference is also made to zero trade flows in some specific tables and figures, wherever relevant. Information related to zero trade flows could also be informative in terms of market access conditions. We discuss the scope and relevance of usage is discussed in section F of this chapter. Figures and tables reported below were obtained using import-related measures information only.

1. NTM types

Most products are affected by NTMs. Most of those affected not only face multiple NTMs that, in most circumstances, are also different. This possibly increases complexity in fulfilling regulatory requirements. Table 6 illustrates this point. As far as fish and fish products are concerned, less than 3% of total positive import relationships identified at the importer and product levels are unaffected by any NTMs. NTM-free relationships were found for a limited number products and countries. The most represented ones are Afghanistan, Ecuador and Costa Rica, essentially involving fillet products. However, more than 90% of import relationships face at least two types of NTMs while 35% face at least four. Table 7 provides corresponding figures for non-fish products. It was found that a quarter of import relationships are not affected by any NTM and only 20% are affected by more than four types of NTMs.

Fish and fish products are relatively more affected by NTMs and more intensively than non-fish products. Table 8 reports the incidence of NTMs by chapter, based on prevalence ratios. Shares are not expected to amount to 100 as import relationships can be affected by several NTMs. It shows that for fish and fish products, about 93% of all import relationships are affected by an SPS measure (Chapter A), more than 82% by a TBT measure (Chapter B) and about 41% by a pre-shipment-related measure (Chapter C). Among non-technical regulations, price-control measures (Chapter F) are the most prevalent. About 50% of import relationships are affected by this group of measures.

\footnote{Both measures take values between 0 and 1 (or 0 and 100 depending on the application of a scale normalization of not). See Fugazza, 2013, for a detailed definition of these two measures.}

\footnote{Average number of NTMs types refers to the number of measures belonging to different sub-groups of the UNCTAD NTMs classification and not the absolute number of measures itself. The latter could reflect differences in legal and law-making frameworks without necessarily translating into more or less stringent regulations. In other words, if two or more measures of the same type are reported, that is belonging to the same group corresponding to the highest level of disaggregation (2 or 3-digit) they are by default counted as one in the following sections.}

\footnote{Trade data are taken from the UN COMTRADE international trade statistics database as of December 2016 downloadable at https://comtrade.un.org/. Although figures displayed in section 1 are based on the UNCTADstat database, the root data source remains the United Nations Comtrade database, ensuring that consistency is respected.
Corresponding figures for non-fisheries products are much lower, as shown in table 9. SPS (Chapter A) measures affect about 25% of import relationships, while TBT (Chapter B) measures affect about 52% and inspection-related measures affect about 24%. As to non-technical regulations price control measures (Chapter F) are also the most prevalent and affect about 43% of all import relationships.

Fish and fish products are thus mainly affected by technical regulations, particularly SPS measures. Almost all countries impose SPS measures on all imports of fish and fish products.

Table 6. Number of reporter-product (fish products only) observations, with positive imports, affected by different types of NTMs (at least one measure by type)

<table>
<thead>
<tr>
<th>Number of affected</th>
<th>Number of import NTM types</th>
<th>Share in total (%) relationships</th>
<th>Share in (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>173</td>
<td>2.76</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>364</td>
<td>5.81</td>
<td>5.97</td>
</tr>
<tr>
<td>2</td>
<td>2 040</td>
<td>32.54</td>
<td>33.46</td>
</tr>
<tr>
<td>3</td>
<td>1 540</td>
<td>24.56</td>
<td>25.26</td>
</tr>
<tr>
<td>4</td>
<td>1 629</td>
<td>25.98</td>
<td>26.72</td>
</tr>
<tr>
<td>5</td>
<td>375</td>
<td>5.98</td>
<td>6.15</td>
</tr>
<tr>
<td>6</td>
<td>149</td>
<td>2.38</td>
<td>2.44</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on UNCTAD NTM data.

Table 7. Number of reporter-product (non-fish products) observations, with positive imports, affected by different types of NTMs (at least one measure by type)

<table>
<thead>
<tr>
<th>Number of affected</th>
<th>Number of import NTM types</th>
<th>Share in total (%) relationships</th>
<th>Share in (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>55 519</td>
<td>25.50</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>46 889</td>
<td>21.54</td>
<td>28.91</td>
</tr>
<tr>
<td>2</td>
<td>49 270</td>
<td>22.63</td>
<td>30.37</td>
</tr>
<tr>
<td>3</td>
<td>34 774</td>
<td>15.97</td>
<td>21.44</td>
</tr>
<tr>
<td>4</td>
<td>23 065</td>
<td>10.59</td>
<td>14.22</td>
</tr>
<tr>
<td>5</td>
<td>6 910</td>
<td>3.17</td>
<td>4.26</td>
</tr>
<tr>
<td>6</td>
<td>1 300</td>
<td>0.60</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on UNCTAD NTM data.
Table 8. Number of reporter-product (fish products only) pairs affected by an NTM, by NTM type (at least one measure by type)

<table>
<thead>
<tr>
<th>NTMs Chapter</th>
<th>Number of import relationships</th>
<th>Share in total (%)</th>
<th>Share in affected (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5 826</td>
<td>92.92</td>
<td>95.56</td>
</tr>
<tr>
<td>B</td>
<td>5 112</td>
<td>81.53</td>
<td>83.84</td>
</tr>
<tr>
<td>C</td>
<td>2 558</td>
<td>40.80</td>
<td>41.96</td>
</tr>
<tr>
<td>D</td>
<td>21</td>
<td>0.33</td>
<td>0.34</td>
</tr>
<tr>
<td>E</td>
<td>835</td>
<td>13.32</td>
<td>13.70</td>
</tr>
<tr>
<td>F</td>
<td>3 129</td>
<td>49.90</td>
<td>51.32</td>
</tr>
<tr>
<td>G</td>
<td>746</td>
<td>11.90</td>
<td>12.24</td>
</tr>
<tr>
<td>H</td>
<td>122</td>
<td>1.95</td>
<td>2.00</td>
</tr>
<tr>
<td>Z</td>
<td>173</td>
<td>2.76</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on UNCTAD NTM data.
Note: Shares are computed with regard to total positive trade relationships (column 3), and with regard to trade relationships affected by at least one NTM type (column 4).

Table 9. Number of reporter-product (only non-fish products) pairs affected by an NTM, by NTMs type (at least one measure by type)

<table>
<thead>
<tr>
<th>NTMs Chapter</th>
<th>Number of import relationships</th>
<th>Share in total (%)</th>
<th>Share in affected (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>5 826</td>
<td>92.92</td>
<td>95.56</td>
</tr>
<tr>
<td>B</td>
<td>5 112</td>
<td>81.53</td>
<td>83.84</td>
</tr>
<tr>
<td>C</td>
<td>2 558</td>
<td>40.80</td>
<td>41.96</td>
</tr>
<tr>
<td>D</td>
<td>21</td>
<td>0.33</td>
<td>0.34</td>
</tr>
<tr>
<td>E</td>
<td>835</td>
<td>13.32</td>
<td>13.70</td>
</tr>
<tr>
<td>F</td>
<td>3 129</td>
<td>49.90</td>
<td>51.32</td>
</tr>
<tr>
<td>G</td>
<td>746</td>
<td>11.90</td>
<td>12.24</td>
</tr>
<tr>
<td>H</td>
<td>122</td>
<td>1.95</td>
<td>2.00</td>
</tr>
<tr>
<td>Z</td>
<td>173</td>
<td>2.76</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on UNCTAD NTM data.
Note: shares computed with regard to total positive trade relationships (column 3), and with regard to trade relationships affected by at least one NTM type (column 4).
Figure 1 presents the overall coverage ratios that correspond to the share of imports affected by different groups of NTMs. Qualitatively speaking, comments made about prevalence ratios also apply to coverage ratios, albeit with some nuances. Looking at fish and fish products (figure 1 panel (a)), the incidence of TBT measures (Chapter B) and inspection-related measures (Chapter C) is slightly larger, using coverage ratios. The reverse is true for price control measures (Chapter F).

**Figure 1. Overall coverage ratios**

![Chart showing overall coverage ratios for fish and non-fish products.](image)

*Source:* Author’s calculation based on UNCTAD NTM data.

Figure 2 shows the incidence of NTMs at their most disaggregated level, based on frequency indices. However, similar conclusions could be drawn using coverage ratios. Prominent measures affecting fisheries are essentially SPS measures and TBTs. Among the former category, NTM measures of type A140, A310, A820, A830 and A840 affect at least 50% of all import relationships. A140 measures impose a special authorization requirement for SPS reasons. To obtain this authorization, importers may need to comply with other related regulations and conformity assessments.
Figure 2. NTM incidence by subchapter (share of lines affected by NTMs), frequency indices

Source: Author's calculation based on UNCTAD NTM data.
Such measures are likely to be related to types such as A820, A830 and A840, which all refer to conformity assessment related to SPS. The A310 type measures impose some labelling requirements. Among the TBTs, only measures of type B310 affect more than 50% of import relationships. These are also labelling requirements, but are not SPS-related. Other predominant measures, but with relatively much lower incidence, are of types C300 and F610. Both types affect between 20% and 25% of import relationships. C300 measures are obligations for imports to pass through a designated entry point. F610 measures imply additional taxes in addition to customs duties with no internal equivalent, to cover the costs of custom inspection. As far as non-fish products are concerned, a much lower overall incidence was observed of NTM measures except for chapter F type. For those chapters reported here, the frequency indices are, on average, half those seen in the case of fish products. However, in relative terms, most salient measures fall in categories similar to those identified for fish and fish products, especially for SPS measures and TBTs.

Similar SPS measures and TBTs affect products in the fisheries sector and other products. However, their incidence is much larger in products of the fisheries sector. Figures 3 and 4 show frequency indexes first computed for some broad products group categories\(^{14}\) in the (a) panels, and then the level of processing among these groups in the (b) panels.\(^{15}\) Figure 3 refers to results obtained for fish products and figure 4 gives the results obtained for non-fish products but which belong to the same categories and subcategories. In both figures the (a) panels reveal first that prevalence ratios are similar across categories for both fish and non-fish products. However, overall incidence remains larger among fish products, especially those belonging to the animal products category. As suggested by panel (b) of figure 3, animal products are either primary products dedicated to consumption, or processed products dedicated to both consumption and industry. The absolute and relative incidence of NTM categories is comparable across all these subcategories, indicating no presence of escalation or incidence peaks in NTMs. Similar results were obtained for products of non-fisheries sectors.

\(^{14}\) Categories correspond to aggregations of 2-digit chapters of the HS-2012 classification.
\(^{15}\) The level of processing is defined according to the Broad Economic Categories classification.
Figure 3. Frequency indexes, fish products (by broad category)

(a)

(b)

Source: Author’s calculation based on UNCTAD NTM data.
Figure 4. Frequency indexes, non-fish products (by broad category)

(a) 

(b) 

Source: Author’s calculation based on UNCTAD NTM data.
2. Country analysis

Figure 5 depicts non-parametric distributions of the average number of NTM types of measures, applied on average, across countries. Panel (a) represents the whole sample and panel (b) the sub-country groups by level of income. Distributions for both fish and non-fish products are estimated and graphed separately. More dispersion across countries is observed for products of the fisheries sector than for products of other sectors. In fish products, Afghanistan stands at the extreme left of the distribution represented in panel (a). Table A1 of the annex reveals that it applies on average no more than two types of measures to fish products. At the extreme right are countries such as the Gambia, the United States of America and the Philippines, whose average number of applied measures is around 30. As far as non-fish products are concerned, the lowest average number is found for Côte d’Ivoire (less than 2) and the highest for Brazil and Bolivarian Republic of Venezuela (about 10). The sample average for fish products is about 13 and the median is about 12. For non-fish products, the average and median figures are both about 5.3. The ratio between the number of NTMs applied to fish and that applied to non-fish products is, on average, about 2:3. The associated median value is about 2.1. In other words, fish products are affected by a larger number of different NTM types than non-fish products. Only Afghanistan and Costa Rica impose, on average, a smaller number of NTMs on fish products than on non-fish products.

On average, countries applied twice as many NTMs to products of the fisheries sector than to other products. Panel (b) reports non-parametric distributions obtained for three subgroups, based on per capita income level. In all cases, distribution for non-fish products are less dispersed than those for fish products. Mean and median values are also smaller, as is already the case in panel (a). The mean average number of NTMs is the highest for the high-income group at about 19.5 (the median is about 18.5).
The second-highest mean value is found for the low-income country group at about 12.4. The lowest figure is thus for middle-income countries at about 10.5. Not surprisingly, the highest dispersion is obtained for the low-income country group comprising such as the Republic of The Gambia and Afghanistan.

Regulatory intensity measured by the average number of different NTMs types is higher but less dispersed among high-income countries than among other country groups. As mentioned in the introduction, international imports are driven by a core group of countries and economic zones that include the United States, Japan, China and the European Union. It would thus be relevant to take a closer look at those markets as they are likely to be major destinations for most producers around the world.

Coverage ratios have been computed for fish and non-fish products and other NTMs chapters. The incidence of SPS measures is much stronger for fish than for non-fish products, except in the case of the United States where it is similar. On the other hand, TBTs are applied similarly both to fish and non-fish products across the four economies considered here. As far as fish products are concerned, most imports – between 80% for China and 100% for the other three destinations – are covered by at least an SPS measure and a TBT.

While China does not appear to impose any pre-shipment inspection requirements (at least in 2012, the year for which data were collected), Japan
requires such inspections of all its imports. The United States not only extensively uses all types of technical regulations, but also imposes some price control measures on all imports of fish products.

Figure 6 reports prevalence indicators and frequency indices both for fish and non-fish products. The findings in figure 3 and 4 are confirmed as far as frequency indices are concerned. This is to be expected, especially when coverage ratios are close to 100%. By definition, if all imports are affected then automatically all import relationships are also affected. China frequency indices tend to take higher values than coverage ratios. SPS measures and TBTs concern about 97% and 95% of import relationships, respectively, but translate into coverage ratios of about 80%. In terms of prevalence ratios, SPS measures are the predominant category for fish products in all four destinations. This is also the case for non-fish products, except in the United States where TBTs are the prevailing category. The average number of types of SPS measures applied is significantly larger for fish than for non-fish products. The smallest number, found for China, is about nine, while the largest number is found for the United States and is about 16. The incidence of types of measures, at least in terms of prevalence ratios, is much weaker. In the case of the United States, where both the coverage ratio and the frequency index are equal to their maximum for price-control measures, the corresponding average number of measures is less than two.

The United States and Japan apply NTMs on products of the fisheries sector more intensively and more extensively than the European Union and China. Figures 7 to 9 show prevalence ratios computed at the most disaggregated level of the NTM classification. As to SPS measures, the United States is the biggest user of the four economies represented, as it applies 16 types of measures to most products. These measures cover all subchapters of the NTM classification. They include prohibitions (A1 subchapter), tolerance limits (A2 subchapter), labelling and packaging requirements (A3 subchapter), hygienic requirements (A4 subchapter), special treatment such as fumigation (A5 subchapter), food and feed processing requirements (A630), and traceability requirements (A85 group).

The second-largest user is Japan, which applies 10 types of SPS measures to just about all its imports and four to about 80% of them. Except for prohibitions and special treatment procedures, the measures are similar to those imposed on United States imports. Particular attention appears to be devoted to traceability. The next largest user is the European Union with 10 different NTM types applied to most imports. As shown in figure 7, these are geographical
restrictions (A120), tolerance limits (A210), labelling requirements (A310), packaging requirements (A330), hygienic requirements (A4 subchapter) and four different types of measures imposing some conformity assessment (subchapter A8). China is the last of the group in terms of prevalence ratios. As already mentioned, this does not necessarily mean that regulations imposed on imports are necessarily less constraining. China applies six different types of SPS measures to almost of its imports and two to about 80% of them. Conformity assessment-related measures (subchapter A8) are the dominant group. In addition to these measures, this study also found restrictions (subchapter A1), tolerance limits (A210) and labelling requirements (A310).

**Figure 6. NTM frequency index and prevalence indicator for major**
**Figure 6.** (continued)

*Source: Author’s calculation based on UNCTAD NTM data.*

**Figure 7.** SPS measure frequency indices for major destination markets

*Source: Author’s calculation based on UNCTAD NTM data.*
Figure 8 provides the same detailed analysis as that in figure 7 but with a focus on TBTs. In most cases, the TBT types imposed reflect, to a large extent, measures imposed for SPS reasons. This again suggests that SPS measures and TBTs may have to be considered in combination in some circumstances. This is clearly the case for fish products.

The United States is again the largest user, followed by the European Union, Japan and China, as it applies nine different types of NTMs to almost all its imports, and two to about 80% of them. Conformity assessment-related measures are the prevalent group. The European Union applies three different types of measures to most of its imports. These include authorization requirement (B140), labelling (B310) and packaging requirements (B330). Two other types of measures, i.e., prohibition (B110) and certification requirement (B830), are applied to almost 80% of imports. Japan applies labelling and packaging requirements (B310 and B330) as well as traceability information requirements (B850) to 80% or more of its imports. China requires some conformity assessment.

As shown in figure 9, only the United States, the European Union and Japan require pre-shipment inspections. In addition, only Japan requires this sort of formality on a systematic basis. Figure 10 illustrates the incidence of non-technical regulations, none of which are applied by China and the European Union. The United States charges some fees related to custom inspection, processing and servicing (F610) on all its imports of fish products, while Japan does so on about 60% of such imports.

Figure 8. TBT frequency indices in major destination markets
Figure 8. (continued)

Source: Author’s calculation based on UNCTAD NTM data.

Figure 9. Pre-shipment inspection frequency indices in major destination markets

Source: Author’s calculation based on UNCTAD NTM data.

Figure 10. NTM frequency indices in major destination markets

Source: Author’s calculation based on UNCTAD NTM data.
3. Product analysis

As discussed above, primary products represent the core of fish product exports by developing countries, particularly the least economically advanced ones. The available dataset allows to identify the number of different NTMs applied, on average, to each imported product of various sub-groups of primary fish products (see figure 7AE\textsuperscript{17}). Three large categories of primary products are considered, i.e., fish (panel a), crustaceans (panel b) and molluscs (panel c).\textsuperscript{18} Within each of these categories, the NTM incidence is comparable across products. For example, fish products face, on average, about eight types of SPS measures, about four types of TBTs and about two of pre-shipment inspections. The incidence of non-technical regulations is even more homogeneous across products. The latter observation comes from the fact that the coverage of non-technical regulations is broader in general. This is due to the nature of this type of measure. Crustaceans appear to face more SPS measures than fish products, particularly the crab and lobster subcategories. The incidence of other NTM categories, however, is similar. As far as molluscs are concerned, no striking differences are seen. No product appears to be more affected by NTMs than any other. Unsurprisingly, SPS measures prevail.

One can also reproduce the similar analysis at a country level with a focus on China, Japan, the United States and the European Union (see figures 8AE to 10 AE\textsuperscript{17}). The findings reflect, to a large extent, those in section A. The presence of NTMs is more pronounced in Japan and the United States compared with the European Union and China. Once again, this could be an indication of the relative restrictiveness of regulatory framework across countries. There is a relative homogenous state in country distribution of NTMs across products and within the three broad categories (figure 8AE). As for fish, while the European Union only applies technical regulations, Japan applies some quantity control measures to freshwater fish and some pelagic species. China also applies quantity control measures to some fish species, particularly tuna, bonito and billfish. On top of technical regulations, the United States applies some price control measures to all products in this category.

Technical regulations are the only one affecting imports of crustaceans in the four economies (except for the United States) under consideration (figure 9AE\textsuperscript{17}).

\textsuperscript{17} To follow this analysis refer to figures 8AE and 10AE available in the electronic format in the appendix http://www.unescap.org/resources/trade-integration-within-asean-role-non-tariff-measures-cambodia-lao-peoples-democratic

\textsuperscript{18} Subgroups are identified according to the CPCC classification, version 2.1.
As in the case of the fish category, the former imposes a price control measure on all crustacean products. The NTM incidence is otherwise comparable to that shown earlier (in figure 8AE). Similar comments are also valid for the molluscs category (as shown in figure 10AE), with the exception of Japan, which imposes a quantity control measure on all molluscs but not squid, cuttlefish and octopuses.

D. NTMs and tariffs

This section investigates the relationship between NTMs and tariffs. To ensure consistency with previous sections the numbers reported below were obtained using non-zero trade relationships, which act as the reference while computing NTM incidence indicators.

1. Tariff data

Tariffs data were retrieved from the UNCTAD Trade Analysis Information System (TRAINS) database as of December 2016. Ad valorem equivalents of specific tariffs are also accounted for and represented in the average values. Three types of tariffs are considered: MFN applied; bound; and effectively applied tariffs. All tariffs are reported at the 6-digit level of the HS-2012 classification corresponding with NTMs and trade data used previously.

2. Tariffs and NTMs: Stylized facts

Table 10 provides simple averages of MFN, bound and effectively applied tariff rates computed by category of products (fish versus non-fish) and by NTM chapter. The first column indicates whether fish products (“1” values) or non-fish products (“0” values) are concerned. The first two rows refer to the average tariff applied by countries in the NTM sample for each broad category of products. It can be seen from table 10 that both MFN applied and effectively applied average rates are higher for fisheries sector products than for other products. Bound tariffs appear to be, on average slightly, higher for products in the non-fisheries sectors.
Table 10. Tariffs by NTMs chapters (average tariff imposed on products affected by NTMs by chapter; one product may be affected by several NTMs)

<table>
<thead>
<tr>
<th>Fish</th>
<th>NTM</th>
<th>MFNapplied</th>
<th>Bound</th>
<th>Effectively applied</th>
<th>Overhang 1</th>
<th>Overhang 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Overall</td>
<td>8.97</td>
<td>33.40</td>
<td>7.46</td>
<td>24.24</td>
<td>1.51</td>
</tr>
<tr>
<td>1</td>
<td>Overall</td>
<td>11.64</td>
<td>30.94</td>
<td>8.33</td>
<td>19.79</td>
<td>3.31</td>
</tr>
<tr>
<td>0</td>
<td>A</td>
<td>12.54</td>
<td>44.71</td>
<td>9.63</td>
<td>31.75</td>
<td>2.60</td>
</tr>
<tr>
<td>1</td>
<td>A</td>
<td>11.30</td>
<td>28.90</td>
<td>7.87</td>
<td>18.14</td>
<td>3.42</td>
</tr>
<tr>
<td>0</td>
<td>B</td>
<td>9.46</td>
<td>34.29</td>
<td>7.62</td>
<td>24.81</td>
<td>1.84</td>
</tr>
<tr>
<td>1</td>
<td>B</td>
<td>11.26</td>
<td>29.36</td>
<td>7.86</td>
<td>18.85</td>
<td>3.44</td>
</tr>
<tr>
<td>0</td>
<td>C</td>
<td>10.35</td>
<td>30.86</td>
<td>8.27</td>
<td>21.05</td>
<td>2.07</td>
</tr>
<tr>
<td>1</td>
<td>C</td>
<td>11.20</td>
<td>28.51</td>
<td>8.14</td>
<td>17.94</td>
<td>3.10</td>
</tr>
<tr>
<td>0</td>
<td>E</td>
<td>12.50</td>
<td>37.46</td>
<td>10.36</td>
<td>24.06</td>
<td>2.07</td>
</tr>
<tr>
<td>1</td>
<td>E</td>
<td>12.77</td>
<td>34.02</td>
<td>8.84</td>
<td>23.21</td>
<td>3.95</td>
</tr>
<tr>
<td>0</td>
<td>F</td>
<td>11.32</td>
<td>38.65</td>
<td>8.96</td>
<td>26.49</td>
<td>2.40</td>
</tr>
<tr>
<td>1</td>
<td>F</td>
<td>10.77</td>
<td>28.57</td>
<td>8.18</td>
<td>19.23</td>
<td>2.58</td>
</tr>
<tr>
<td>0</td>
<td>G</td>
<td>12.03</td>
<td>25.75</td>
<td>10.43</td>
<td>14.76</td>
<td>1.60</td>
</tr>
<tr>
<td>1</td>
<td>G</td>
<td>14.46</td>
<td>31.05</td>
<td>10.30</td>
<td>18.90</td>
<td>4.17</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on UNCTAD NTM data.

Note: In the first column, rows identified by 1 refer to fish products and those identified by zero refer to non-fish products.

The last two columns report two distinct measures of tariff overhang. Overhang 1 corresponds to the average of the difference between bound and MFN applied tariffs while Overhang 2 corresponds to the average difference between MFN applied and effectively applied tariffs. While the first measure reflects the degree of unilateral trade liberalization, the second reflects the degree of trade liberalization implemented on a preferential basis, either bilaterally or plurilaterally/regionally. Although unilateral liberalization is more pronounced for non-fish products than for fish products, the reverse is true as far as plurilateral trade liberalization is concerned. In other words, the available space for maneuvering tariffs is more constrained for fish products than for non-fish products.

Other rows of the table show average tariff levels of products affected by different types of NTMs. Unsurprisingly, the results obtained for the various NTM-related

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Supplementary note: It therefore also reflects the latitude a country has for increasing its MFN tariff without violating WTO rules.
subgroups are consistent and in line with the aggregate findings. MFN applied rates are higher for fish products except for those affected by an SPS measure. Bound tariffs are less for fish products, except for those affected by finance measures. Effectively applied tariffs are less for fish products except for those affected by a TBT. As for tariff overhang measures, the general remarks above apply across product categories.

Unilateral trade liberalization is deeper for products of non-fisheries sectors than for products of the fisheries sector. The reverse is true if plurilateral trade liberalization is considered.

Some contrasting patterns appear to emerge whether technical (Chapters A, B, C) or non-technical (Chapters E, F and G) regulations, especially for products belonging to the fisheries category. Within that category, products affected by technical regulations are associated with below average tariff values. This is also the case for products affected by price-control measure. Products affected by other non-technical regulations are associated with above average tariff values.

Although exceptions may reflect some product and measure specificity, it is difficult to draw any convincing explanation based on average measures. The next set of figures may help in identifying a possible set of acceptable explanations. Reference tariffs are MFN applied tariffs. Nevertheless, the results will not drastically change if effectively applied ones are used. Figure 11(a) shows that, on average, countries applying larger average numbers of NTM types per product also apply relatively lower tariffs on fish products. However, confidence intervals suggest that the sign of the relationship is not necessarily very robust. Panel (b) suggests no particular relationship as far as non-fish products are concerned.

Figure 12 reports the same type of relationship, but includes separately each different type of NTM applied by each country in the sample. In other words, the reference unit of observation is a country-NTM chapter pair. It is implicitly assumed that countries define the use of different types of NTMs independently. This is not necessarily realistic in all circumstances but the aim is just to identify a possible relationship between NTMs and tariffs; this type of hypothesis is only introduced for investigatory purposes. Panels (a) and (b) both suggest that a relatively larger number of measures are, on average, associated with a relatively lower tariff. Once again, the results are not extremely robust from a statistical point of view, as the sign of the relationship could be reverted within a 95% confidence interval.
Figure 11. Average number of NTMs per product (per country) and tariffs

(a) 

(b) 

Source: Author’s calculation based on UNCTAD NTM data and TRAINS database.

Figure 12. Average number of NTMs per product (per NTM chapter and country) and tariffs

(a) 

(b) 

Source: Author’s calculation based on UNCTAD NTM data and TRAINS database.

Figure 13 treats figure 12 components separately. In other words, the relationship between tariffs and the average number of NTM types applied is assessed by NTM chapter. Previous overall tendencies are reflected in most cases. Generally speaking, tariffs and NTMs appear to behave as substitutes, although substitutability is far from being perfect – at least from a statistical point of view. This is particularly the case for fish products compared to non-fish products. However, the only negative and statistically significant relationship is found for TBTs applied to non-fish products.
This analysis is reproduced for the product groups introduced in previous sections. Again, the results (see figure 11AE) do not suggest any strong evidence of either positive or negative relationships between the measure of NTM incidence and tariffs. Some substitutability is found for SPS measures applied to basic fish products. This is also the case with TBTs when applied to preparations of non-fish products. In all other cases, no pattern can be clearly and robustly identified.

Generally speaking, the sign of the relationship between NTM incidence and tariff rates is not robust for products of the fisheries sector. It is essentially not significantly different from zero. As to non-fisheries sector products, the relationship is negative if technical regulations are considered, and positive if significantly different from zero.

Figure 13. Average number of NTMs per product, by NTM chapter and groups of products (per country) and tariffs
Figure 8. (continued)

Source: Author’s calculation based on UNCTAD NTM data and TRAINS database.

E. NTMs and fisheries scale

Existing empirical evidence indicates that, in general, technical measures that are newly imposed by a partner country have different effects on exporting firms of different size. More precisely, larger firms are likely to benefit from the implementation of technical measures abroad while smaller firms are likely to lose. Gains for larger firms are both in terms of export value (and eventually market share) and export duration. Exports by smaller firms decrease and their exit rate increases; consequently, their market share shrinks. On the imposing country side, evidence shows that, instead of displacing foreign firms in favour of domestic ones, like tariffs, NTMs also displace small firms in favour of larger ones, both domestic firms and foreign exporters. Such effects are consistent with the mechanism whereby NTMs raise compliance costs, inducing the exit of smaller firms, while leaving the remaining (larger) firms with expanded market shares on both the export and the import side (Asprilla and others, 2017).

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Fontagné and others, 2015, and Fugazza, Ugarte and Olarreaga, 2017 obtained qualitatively similar results despite the use of totally different datasets.
Small-scale and artisanal fishermen and fisherwomen tend to fish in areas close to the coast, within the exclusive economic zone of a country. Several reports and case studies (UNCTAD, 2016; FAO, 2016; OECD, 2013) have documented the fact that obtaining access to key international markets for fish caught by small and artisanal fishers is a major challenge. Data shown in the sections above reveal that while tariffs on fish and fish products are relatively low in most markets, these products face significantly more NTMs, particularly technical measures (i.e., SPS, TBTs and pre-shipment inspections), than products in other food sectors. For small-scale and artisanal fisheries complying with sanitary regulations, ensuring homogeneity in quality, best safety and handling practices, transport and adequate packaging could become particularly complex.

Considering the fact that about 90% of those employed in capture fisheries value chains are engaged in the small-scale sector (despite the fact that the small-scale sector captures less than 35% of global catches), intensification of the implementation of SPS measures and TBTs – both on domestic and international markets – may have dramatic effects. Small and artisanal fishers may see their export opportunities vanish. And the chances of reaching target 14.b of SDG 14 could thus be jeopardized. Moreover, if more stringent SPS measures and TBTs are also implemented domestically, their access to local markets could be severely compromised. As a consequence, production in the small-scale sector would either shrink or become unregistered, possibly contradicting efforts towards meeting target 14.4 of SDG 14. In both cases, employment conditions would become even more precarious than they already are, with earnings eventually falling. This may activate a vicious circle, leading to an increase in poverty incidence, nutritional deficiency and other related disruptions, especially in least developed countries and SIDS where the large majority of the labour force working in the fisheries sector lives. In other words, technical regulations are crucial not only in framing market access conditions, both internationally and domestically, for the small-scale fish subsector, but also in determining the efficiency of policy actions directed towards other SDGs.

F. Discussion

Findings discussed in the previous sections of this study revealed several important stylized facts. First, fisheries sector products are relatively more affected by NTMs, and more intensively, than products belonging to non-fisheries sectors. Second, fisheries sector products are mostly affected by technical regulations, particularly SPS measures. Third, almost all countries impose some SPS measures on all imports of fisheries sector products. Fourth, similar types of SPS measures and TBTs affect both fish and non-fish products. However, their incidence is much greater in fish products. Fifth, no product (or type of
product) of the fisheries sector appears to be more affected by NTMs than any other. Sixth, no systematic relationship between tariffs and NTM incidence can be identified.

The first four stylized facts suggest that the fisheries sector is highly regulated in most countries of the sample. However, that regulation appears to be more intensive in developed countries than in developing countries. Moreover, less convergence in terms of intensity use is observed among low-income countries. Another interesting finding is that a relative lack of convergence is found for most countries if fish and non-fish products are compared. It must be kept in mind however, that incidence expressed in terms of the average number of NTM types applied per product is lower for non-fish products. Taken together, these facts may indicate that a general trend towards a highly, and possibly uniformly, regulated sector is on its way. The converging point most probably corresponds to NTMs as imposed by developed countries that remain major export destinations. However, a global convergence process may have just started and several countries, especially the least economically advanced, are lagging behind.

Whether this convergence process is desirable or not is a sensible but also sensitive question that this study is not really able to answer. However, stylized facts five and six may be useful in determining part of the substance of a plausible answer. Having tariff rates and NTM incidence essentially uncorrelated, at least as far as technical regulations are concerned, can indicate a use of NTMs that is not motivated – at least not systematically by trade protectionist intentions.

This comment is consistent with recent trends observed in world demand for fisheries sector products. Estimates by FAO (2016) indicate that apparent world per capita fish consumption increased from an average of 9.9 kg in the 1960s to 14.4 kg in the 1990s, and about 20 kg in 2015, and that a growing proportion of world consumption is from imports. This is particularly the case in developed countries where regulatory intensity convergence is the strongest. A larger exposure to international trade flows has probably induced regulatory bodies to impose a larger set of measures in order to preserve food safety. A weaker convergence of regulatory intensity among developing countries, particularly the least advanced ones, may be a reflection of the fact that their consumption of fish and fish products tends to be based on locally available products being driven more by supply than demand. In that context, and considering that most production units are of modest size, regulatory interventions may have deliberately remained contained in order to avoid any strong negative supply shock, with probably devastating effects on production and subsequent income.
distress. An intensification in the use of regulation may be desirable in the medium- to long-term, especially if demand in developing countries has to rely increasingly on imports. Obviously, the main motivation should remain food safety and international initiatives in line with the FAO Blue Growth Initiative as well as corresponding to a precisely specified global agenda aimed at promoting food safety in a more general framework of food security should be encouraged. Nevertheless, intensification should occur along a reasonable path, with possibly some assistance being provided to small and medium production units. As discussed in section E, small-scale and artisanal fisheries could experience a severe impact from the implementation of new or more stringent technical regulations with possibly worrying implications. It is therefore a fundamental requirement for policies specifically dedicated to the small-scale sector be identified. Policy can be activated on several complementary grounds. First, access to crucial information concerning export requirements for specific products should be facilitated by all possible means. Moreover, advisory services related to the production-wise implementation of any specific requirements should be made available.

The success of such a policy approach is likely to be determined not only by the availability of public funds to cover the cost of advisory activities, but also by offering the possibility to firms to finance eventual upgrades of their productive technology. Facilitating access to finance is an additional accompanying measure that should be considered by policy makers. In addition to technical assistance and capacity- building programmes, private sector-based initiatives could promote the participation of small and medium-sized enterprises in export markets. Governmental and non-governmental organizations could initiate the establishment of cooperatives within which small and medium-sized enterprises could exchange information and collaborate on issues related to compliance with technical regulations in international markets.

It is also clear that support to artisanal fisheries will be most effective with enhanced coordination and collaboration among all relevant international and regional organizations. For example, the Aid for Trade initiative and other efforts can encourage exports and value-addition strategies for small scale and artisanal fishers.

The analytical results presented above provide a unique and broad picture of NTM incidence in fisheries trade. However, their scope remains somewhat limited due to the nature of available information. First, the context is a cross-country context with no consistent information about changes in NTM implementation and pervasiveness across time. This lack of a temporal dimension can only be partially compensated by the inclusion of countries with
relatively heterogeneous levels of development in the reference country sample. In other words, it is important to remain cautious when inferring any policy strategy involving a preponderant time dimension.

Second, the above analysis remains purely quantitative, and little can be said in terms of either the absolute or relative stringency of the various measures adopted by different countries. In order to get a better sense of stringency, an analysis of regulations texts will be necessary. Such an analysis will allow, for example, precise identification of tolerated levels of potentially noxious substances present due to bio-accumulation in fish flesh and fat (e.g., monomethyl mercury). Although this was beyond the scope of this study, it is part of UNCTAD’s future research agenda on NTMs.

As mentioned above, the HS classification – even in its latest version – does not allow for any distinction between capture and aquaculture products. This is regrettable, not only because of the impossibility to match precisely production trends and trade trends, but also because the match between trade data and NTM regulatory texts may also be affected. Some ongoing work is investigating the possible degree of a mismatch between products, as defined by the HS classification and NTM regulations. This, however, also requires further analysis and is relatively human capital intensive.

Finally, export-related measures were omitted from the above analysis. This omission was intentional as export-related measures are being assessed in a companion study that is still in progress, which looks more broadly at market access conditions and how they eventually affect export flows.
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Exploring non-tariff measures facing the fisheries trade in ASEAN: The case of Cambodia*

Seyhah Ven and Vutha Hing

Introduction

The Association of Southeast Asian Nations (ASEAN) has made good but uneven progress in attaining the regional integration goal through the establishment of the ASEAN Economic Community (AEC), which is aimed at transforming ASEAN into a single market and production base for a more integrated, dynamic and competitive region. According to the AEC Scorecard, which measures compliance with AEC deliverables by each member economy, ASEAN had completed 221 (79.7%) of the 277 measures by the end of 2013. A more optimistic view sees the progress of AEC as a major stepping stone to wider and deeper regional integration. But some critics argued that ASEAN has been "too slow" in addressing some major issues including non-tariff measures (NTMs) (Austria, 2013). While tariff rates of most goods have been reduced to zero, the use of non-tariff barriers such as discriminatory measures, diverse product standards, import bans, import licensing, additional import requirements, technical barriers to trade, and new import procedures has been increasing (Austria, 2013). The latest study by ERIA-UNCTAD (2016) demonstrated even more clearly that the number of NTMs imposed by ASEAN members increased from 1,634 in 2000 to 5,975 in 2015. The prevalence of NTMs could have detrimental effects on intraregional trade, thus requiring greater attention, both by policy and research circles.

* Please note that the Annex to this chapter is available digitally from http://www.unescap.org/resources/trade-integration-within-asean-role-non-tariff-measures-cambodia-laos-peoples-democratic
Cambodia’s fisheries sector has many important features that deserve research focus. First, it has been a priority sector in the country’s socio-economic development plan, in which management and development of sustainable fisheries resources could contribute to people’s rural livelihoods, food security and national economy. The Strategic Planning Framework for Fisheries set the vision, goals and action plan for the sector development, while the Cambodia Trade Integration Strategy (CTIS) put forward the roadmap and action plans for an export-oriented value chain of fisheries. Second, the fisheries industry has great growth potential not only due to the presence of large floodplains around the Great Lake as well as along the Tonle Sap and Mekong Rivers, and marine fish resources, but also more preferential access to international markets (CTIS, 2014). However, the biggest challenges are created by stringent NTMs imposed by importing countries and the lack of capacity to fulfil market requirements. Coincidently, Cambodia’s fishery exports are trivial – far behind its neighbouring countries, i.e., Thailand and Viet Nam, which are among the top five major fisheries exporters in the world. There is speculation that the prevalence of NTMs, especially stringent sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBT), together with the lack of knowledge and technical capacities among exporting firms to enable them to comply with required standards and quality result in stagnation of fisheries exports.

Despite the increasing use of NTMs on fisheries exports, research to map the coverage and its consequence on exports remains minimal. More research is needed to fill the knowledge gaps by addressing the following key questions:

(a) What types of NTMs are imposed on Cambodia’s fisheries exports?
(b) How do NTMs affect Cambodia’s fisheries exports?
(c) Does the country need to make any major improvements in the domestic standard-setting rules and facilities, as Mutual Recognition Agreements (MRAs) may require the improvement and upgrading of production methods to meet the required standards set by such agreements?

This chapter is structured as follows. Section A explains the reason why fisheries production and trade matter for developing countries. Section B examines Cambodia’s Fisheries Sector Profile. Section C explores NTMs and determines their impacts on Cambodia’s fisheries exports. Section D identifies the needs for regulatory convergence. Section E contains the conclusion.
A. Why do fisheries production and trade matter for developing countries?

The fisheries sector is, and will continue to be, vital for developing countries for several reasons. First, the sector plays an important role in generating revenue and employment as well as improving livelihoods. More specifically, in 2010, fisheries capture by Bangladesh, Cambodia, Comoros Islands, Sierra Leone and Uganda accounted for 4%, 10%, 15%, 9% and 3% of the gross domestic product (GDP), respectively (Golub and Varma, 2014). In addition to direct employment, fisheries and aquaculture generate employment across many subsectors including manufacturing fishing gear, processing, packaging and distributing. Fisheries also significantly contribute to food security in many developing countries. Protein consumption from fish accounts for a significant proportion of total animal protein consumed in many least developing countries including Bangladesh, Cambodia, Gambia, Guinea, Ghana, Indonesia, Sierra Leone, Togo, among others (Béné, 2006). In addition, artisanal fishing contributes significantly to poverty reduction (Golub and Varma, 2014). Artisanal fishing requires low skills and low capital investment, so it is easy for poor, unskilled people to engage in this subsector. The fisheries sector also contributes significantly to the empowerment of women by providing them with employment and income. According to the World Bank, women represent 47% of people engaged in fisheries worldwide. In particular, women’s involvement in fisheries in Nigeria, India, Cambodia, Senegal, China and Bangladesh amounts to 73%, 72%, 57%, 32%, 19% and 5%, respectively.

Second, fisheries production in developing countries account for a big share of world fisheries production, increasing steadily from 71.9 million metric tons (mt) in 1980 to 167.2 million mt in 2014 (annex figure 1). The production for the next decade is projected to increase although at a slower rate relative to the preceding decade (OECD/FAO, 2016). This will boost developing countries’ value-added and foreign exchange. In 2014, about 36% of the world fisheries production was exported (FAO, 2016). World exports of fish and fish products accelerated at an annual growth rate of 7%, from $15.4 billion in 1980 to $148.1 billion in 2014 (annex table 1). During the same period, by value, the share of developing countries in total fisheries exports increased steadily from 38.2% in 1980 to 52.5% in 2014. Net fisheries exports of developing countries rose from $16 billion in 1994 to $42 billion in 2014. This increase was considerably higher than for rice, coffee and tea (FAO, 2016). For the least developed countries, despite the fact that their fisheries exports accounted for only a small proportion of total world exports, the volume increased steadily during the past four decades, with an annual growth rate of 10.3% during the 1980s, 5.7% during the 1990s, 5.9% during the 2000s and 5.4% from 2010 to 2014 (annex table 2).
Finally, and most importantly, those countries have not been able to maximize the benefit from expanding fisheries trade. The least developing countries’ exports of fishery products face several major export constraints that prevent them from full participation in the world fisheries trade (Golub and Varma, 2014). Most export constraints are related to NTMs. While tariffs are no longer major barriers to exports of fish and fishery products, NTMs have become the major constraints (Usmaila and others, 2014; Golub and Varma, 2014; and UNCTAD, 2016a). Exporters of fish and fishery products have encountered a rising number of sanitary, safety, quality, environmental and consumer requirements that have been instituted to protect the consumers’ health, conserve environment, and facilitate trade. These requirements have become barriers to many exporting countries, especially the least developed countries, in entering the global fisheries value chain because their fisheries sectors are mainly artisanal, and lack technical and financial capacity to comply with those requirements. As of 1 November 2016, there were 1,189 SPS measures and 433 TBT imposed on fish and crustaceans, molluscs and other aquatic invertebrates (HS code 03), and 2,017 SPS measures and 917 TBT imposed on preparations of fish and of crustaceans, mollusc, and other aquatic invertebrates (HS code 1603, 1604 and 1605) (UNCTAD, 2016b).

Fulfilling requirements of new inspection methods have also emerged as new constraints on fisheries exports. During the past two decades, the inspection process changed from inspections of final product sampling to Hazard Analysis Critical Control Point (HACCP) method. This change has made it even more challenging for least developing countries to comply with the requirements (Ababouch and others, 2005). Specific HACCP codes for fisheries and aquaculture were adopted and developed by the Codex Alimentarius Commission (CAC). The objective of HACCP is to reduce risks and hazards that may occur during production and distribution of products instead of inspecting and testing the final product samplings. HACCP measures can be required at all levels of the value chain, including fishing, landing, storing, processing and distributing, because fish are highly perishable and sometimes contaminated (Golub and Varma, 2014).

In addition, many companies in the major importing countries, such as those in the European Union as well the United States and Japan, require fish and fisheries products to be certified by certain certification schemes, including private food safety and traceability as well as the private sustainability standard. The former emerged from the major food retailers in the European Union and North America. While vertical integration in the food supply chain is more widespread, companies require more certifications of food safety in their intermediate goods sourcing from other companies in the supply chain...
Companies require private sustainability standards in order to protect their reputations against risks related to potential negative effects of their suppliers on the environment as well as to obtain a unique competitive advantage (Washington and Ababouch, 2011).

Because of these stringent requirements, the fisheries sector in the fish-exporting developing countries has split into two streams of producers, i.e., large-scale and small-scale producers. The former have the capital required to comply with strict importing requirements in some major markets. The small-scale producers lack the technical and financial capacity to meet the import requirements, so they produce for domestic consumption and export to less stringent markets (UNCTAD, 2016a). Nonetheless, in many least developing countries, including Cambodia, the majority of fish producers are artisanal and lack capital to invest in processing facilities as well as the technical and financial capacity to fulfil the import requirements of major importing countries.

B. Cambodian fisheries sector profile

Fisheries in Cambodia are regarded as an important sector that contributes to sustaining rural livelihood and overall economy. This sector employs 6 million people working full-time, part-time and seasonally. It provides 81.5% of the national protein consumption, sustaining food security for the rural poor. In terms of value-added, it was estimated to be approximately $200 million-$300 million, equivalent to 8%-12% of GDP. The Inland Fisheries Research and Development Institute (IFReDI) estimates that one kilogramme of fish in Cambodia is worth $1.6 while the total economic value of freshwater fish and aquatic products is $1 billion per year, although this is a controversial valuation (Chap and others, 2016).

1. Fisheries regulations, policies and strategic plan

Cambodia’s fisheries regulations and policies have undergone important changes. Before 2000, the 1987 Fisheries Law primarily governed access to Tonle Sap Great Lake, which was divided into commercial fishing lots and some open access fishing areas. The former was subject to open auction at which fishers could bid for the concession in those commercial areas. The lot owners could have unlimited access to the fisheries resources in their lots and could even provide sub-access to other fishers, which led to overfishing. The open access fishing areas were available to local fishers. However, because of unclear regulations, fishers competed to get control over the best areas, by residing close to those areas. This led to many fishers residing in houses on stilts over the best areas. There were also conflicts between the lot owners and the local
fishers. The use of *samra* traps also adversely affected the well-being of fish resources in the Tonle Sap Great Lake.

During early 2001, inland fisheries in the Tonle Sap Great Lake encountered many crises that led to the depletion of fish stocks due to overfishing. Because of the concessions of large-scale aquatic resources, the elite exploited the fish stocks and paid minimal taxes to the Government (Chap and others, 2016). To address this crisis and raise the livelihood of small-scale fishers, the Government initiated two major reforms regarding inland fisheries in the Tonle Sap Great Lake. The first reform (2000-2001) started with two critical measures: (a) the cancellation of about 56% of the commercial fishing lot areas in the Tonle Sap Great Lake; and (b) the dissolution of KAMFIMEX’s monopolised rights for fisheries trade in Cambodia (Golub and Varma, 2014). The second reform abolished the remaining commercial fishing lots (Golub and Varma, 2014). Currently, small-scale fishers manage most fish resources in the Tonle Sap Great Lake. They have been formed into community fisheries or as a co-management arrangement with the fisheries administration.

The two fisheries reforms also led to the establishment of several State institutions, including the Community Fisheries Development Office (CFDO), the 2006 Law on Fisheries and the Community Fisheries Sub-decree (Golub and Varma, 2014). The purpose of the 2006 Law is to (a) protect fisheries resources, (b) encourage aquaculture expansion, and the management of production and processing, and (c) promote the livelihood of local people through social-economic and environmental benefits, such as the conservation of environmental and cultural heritages (Fisheries Administration, 2006).

*(a) Strategic Planning Framework for Fisheries, 2010-2019*

As noted by Cambodia’s Fisheries Administration (FiA, 2010), the National Strategic Development Plan (NSDP), 2009-2013 stressed the importance of the fisheries sector, stating that “fish continue to occupy a crucial position in terms of food, nutrition and income of millions of Cambodians”. In addition, according to the Strategic Planning Framework for Fisheries, 2010-2019, the Cambodian vision for this sector is “management, conservation and development of sustainable fisheries resources to contribute to ensuring people’s food security, and to socio-economic development in order to enhance people’s livelihood and the nation’s prosperity”. The development approach for the fisheries sector is based on three essential pillars: (a) fisheries – inland and

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1 KAMFIMEX was a state enterprise that had the monopoly rights for the fisheries trade before the first reform (2000-2001).
marine; (b) aquaculture – inland and marine; and (c) post-harvest and trade. In addition, the Government has set seven strategic goals related to the three essential pillars to be achieved by 2019. Table 1 lists the seven strategic goals and their linkages to the three essential pillars. Many specific indicators, related to the seven strategic goals, have been set, some of which are listed in table 2.

**Table 1. Strategic goals for the fisheries sector, 2010-2019**

<table>
<thead>
<tr>
<th>Goals</th>
<th>Overarching</th>
<th>Fisheries</th>
<th>Aquaculture</th>
<th>Post-harvest and trade</th>
<th>Regulatory and services</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The contribution of fisheries and aquaculture to national prosperity is high and sustained.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2. The livelihood of people in the sector are improving and above the national average.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>3. The fisheries domain and associated resources are in a healthy and resilient condition, and sustainably managed.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4. Fish are a plentiful, healthy and valuable source of food.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5. Fishing businesses are profitable, sustainable and responsible.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>6. The fisheries domain is managed, developed and conserved in close cooperation with neighbouring countries.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7. The policy, regulatory and support environment for the sector is sufficient, appropriate and enabling.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

*Source: FiA, 2010.*

**(b) Policies related to fisheries trade**

Although the strategic goals of the Strategic Planning Framework for Fisheries, 2010-2019, do not primarily address fisheries exports, several indicators of the strategic goals are related to such exports. As shown in table 2, the indicator No. 10 of strategic goal 1 concerns the growth of fish exports, which is planned to: (a) fully assess the potential for increased exports of wild and cultured fish as well as fisheries products by 2012; (b) fully formulate a comprehensive plan for the stimulation and growth of fish and fisheries products exports by 2015; and (c) achieve at least 50% of the export growth plan targets by 2019. Moreover, indicators 3, 4, and 5 of strategic goal 4 and indicator 12 of strategic goal 7
address plans to improve the safety and quality standards of fish and fisheries products to meet national and international standards and regulations. The achievement of these indicators will contribute to export growth. Measures related to fisheries trade are also articulated in the Cambodia Trade Integration Strategy, 2014-2018. The goal is to develop the fisheries sector through the export-oriented value chain. This can be achieved through: (a) improving the functioning of the post-harvest components of the fish supply chains; (b) enhancing hygiene and health standards among fish processors; and (c) increasing the knowledge of, and compliance with SPS requirements in international markets.

Table 2. Indicators and targets for the Cambodian fisheries sector, 2010-2019


<table>
<thead>
<tr>
<th>Strategic goal</th>
<th>Indicators</th>
<th>By the end of 2019 (10 years)</th>
</tr>
</thead>
</table>
| 1              | 1. The production level of wild harvested fish. | Wild-harvested fish production stable and sustained at not more than 500,000 mt per annum.
| 2              | 2. The production from ricefield fisheries | Rice field production increased by 15% per year to reach 500,000 mt.
| 4              | 4. The increase in aquaculture production in line with food security and export demands. | Aquaculture production increased by 15% per year to 185,000 mt.
| 10             | 10. The growth of fish exports. | At least 50% of export growth of total fisheries production targets achieved.
| 3              | 3. The value added to local products through improved processing, quality, packaging and safety. | Interventions leading to improved processing, quality, packaging and safety implemented in at least 150 communities nationwide.
| 4              | 4. The standard of fish processing and handling with respect to quality, safety and use of chemicals. | • A total of 80% of fish processors have implemented quality and safety control measures.  
• A total of 80% of fish produced comply with quality and safety assurance regulations and standards.
| 5              | 5. Effectiveness of fish quality control inspection processes, set out in compliance with international standards. | A total of 80% of processing facilities formally registered and inspected.
| 7              | 12. The availability of technical guidelines for product standards and good practice and laboratory facilities to support sector stakeholders. | All fish quality control and safety standards and systems implemented by all stakeholders to a level sufficient to meet all national and export requirements.
2. Cambodia fisheries production

Inland capture is very productive and makes up a major proportion of the total fisheries production because the annual flooding of the Tonle Sap Great Lake and the Mekong River. During the flooding season, the Tonle Sap Great Lake engulfs 44% of the country’s total area (ADB, 2005), including flooded forests, grasslands, ricefields and swamps that are highly fertile nesting grounds for a wide variety of fish. Figure 1 illustrates fisheries production trends from 1980 to 2014, including inland fishery capture, inland aquaculture, marine fishery capture and marine aquaculture, while figure 2 presents the share of each type of fisheries productions in total production. Overall Inland capture accounted for the largest proportion of total fisheries production. The second largest share of production is accounted for by marine capture, followed by inland aquaculture. The smallest proportion is that of marine aquaculture.

Figure 1 shows that inland capture drastically increased after 1998 when it was only around 76,000 metric tons. It rose to about 231,000 mt in 1999 and about 505,000 mt in 2014. This quantity makes Cambodia the fifth-largest producer of inland fisheries after China, Myanmar, India and Bangladesh (figure 3). In 2014, the inland capture share was 67.8% of total fishery production, 4.6 percentage points down from the previous year. Many conservation non-governmental organizations are concerned that the increasing level of inland fish capture will place significant pressure on fish stocks in the Tonle Sap Great Lake.

Recently the share of marine capture and the inland aquaculture has risen steadily, although still only a small proportion. In 2004, the marine capture was about 120,000 mt, 16% of total fisheries production. In the same year, inland aquaculture was about 116,000 mt, 15.5% of total fisheries production. Marine aquaculture was only 4,500 mt, 0.6% of total fisheries production. Although Cambodian aquaculture is still small, expansion of this sector will contribute significantly to export growth (CTIS, 2014). This assertion is already evident in the case of world fisheries exporting countries, including major exporters China, Thailand and Viet Nam, which are being driven by the rapid expansion of aquaculture.
Figure 1. Cambodian fisheries production in quantity, 1980-2014

Source: Authors’ calculation based on data from FAO FishStatJ 3.01.0.

Figure 2. Cambodia fisheries production category share in total production, 1980-2014

Source: Authors’ calculation based on data from FAO FishStatJ 3.01.0.

Figure 3. Top 10 producers of inland fisheries capture, 2014

Source: Authors’ calculation based on data from FAO FishStatJ 3.01.0.
The fish processing subsector, which primarily relies on traditional practices, is still a small-scale and household-based operation. According to the FiA estimation, 85,000 mt of inland capture and 6,200 mt of marine capture were processed in 2012, mainly into fish paste, fish sauce, salted dry fish, fermented fish and smoked fish. A large proportion of processed fishery is domestically consumed, and only a small percentage (7.5%) was exported in 2012. The demand for sun-dried fish for animal feed is rising as well as for export to Vietnam (CTIS, 2014). Four processing plants are operating in Cambodia to freeze fish for export, one of which is located in Phnom Penh and is processing inland fish. The other three plants, located in Shihanouk province, process marine fish. However, both inland and marine captures cannot provide a consistent supply of fish to the processing plants, due to the seasonality of inland fishing and inconsistency of marine capture (CTIS, 2014). Aquaculture generally provides a consistent supply for processing plants, but this subsector is still in the infant stage.

3. Cambodia fisheries exports

Following the fisheries reforms made during the past 15 years, which favoured local communities, most Cambodian fisheries products are directed to domestic consumption, with only a small proportion being exported. Figure 4 shows that during 1994 and 1998 the share of exports in total production fluctuated between 15% and 35%, while during 1999 and 2005 it was around 15%. During 2006 and 2013, exports accounted for only around 5% of total production despite a considerable increase in output.

During 1994-2013, Cambodian fisheries exports were trivial and sharply volatile (figure 5 and table 3), perhaps due to the lack of support by the Government for industrial fisheries production (Golub and Varma, 2014). The Government’s efforts to conserve fisheries resources and favour local fishers have been conducted at the expense of the export sector. Golub and Varma (2014) pointed out that recent government policy reforms caused exports to decline further. As shown in figure 5, after the close down of KAMFIMEX, exports rose briefly during 2001 and 2005 to their highest point at 56,800 mt, then dropped sharply to 24,100 mt in 2007 and 32,000 mt 2013. However, in terms of value, exports reached $60 million in 2011 and $62.5 million in 2013, which were the highest values ever recorded. Compared to other ASEAN members, Cambodia is the third smallest fisheries exporter, ahead of Brunei Darussalam and the Lao People’s Democratic Republic. Thailand, Viet Nam and Indonesia are, by far, the largest fisheries exporters in ASEAN (annex table 3). Together, they represent 85.5% of ASEAN’s total fisheries exports.
Figure 4. Cambodian fisheries exports, production quantity and export share in production, 1994-2013

Source: Authors’ calculation based on data from FAO FishStatJ 3.01.0.

Figure 5. Cambodian fisheries exports and imports, 1994-2013

Source: Authors’ calculation based on data from FAO FishStatJ 3.01.0.

Table 3. Cambodian fisheries exports by destinations, 2012-2015

<table>
<thead>
<tr>
<th>Trade partner</th>
<th>Trade value (United States dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2012</td>
</tr>
<tr>
<td>China</td>
<td>619 302</td>
</tr>
<tr>
<td>Hong Kong, China</td>
<td>166 231</td>
</tr>
<tr>
<td>Japan</td>
<td>591 056</td>
</tr>
<tr>
<td>Malaysia</td>
<td>37 621</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>150</td>
</tr>
<tr>
<td>Senegal</td>
<td>-</td>
</tr>
<tr>
<td>Singapore</td>
<td>47 860</td>
</tr>
<tr>
<td>Thailand</td>
<td>51 455</td>
</tr>
<tr>
<td>United States</td>
<td>548</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>177 885</td>
</tr>
</tbody>
</table>

Source: Authors’ calculation based on data from United Nations Comtrade.

From 2012 to 2015, Cambodia exported its fisheries products to China, Hong Kong, China; Japan, Malaysia, the Republic of Korea, Senegal, Singapore, Thailand, the United States and Viet Nam. The major fisheries trade partners of Cambodia were China, Viet Nam, Thailand, and Hong Kong, China (table 3).
In terms of value, Cambodia’s most exported fisheries commodities were lobster (not frozen) (6-digit HS code was 030622), followed by frozen cold-water shrimps and prawns (HS 030616), frozen other shrimps and prawns (HS 030617), and flat fish, excluding livers and roes (HS 030229) (table 4).

Cross-border fisheries trade also took place on a significant scale although always missing in the official trade statistics. For example, CTIS (2014) reported that a big proportion of Cambodia marine fisheries captures were landed in Thailand or Viet Nam; other captures were sold at sea to large fishing vessels from a few other countries as well as Taiwan Province of China and Hong Kong, China. This high proportion of unprocessed fish exports partly explains Cambodia’s lack of processing facilities. According to Golub and Varma (2014), Cambodia exported a large quantity of freshwater fish to Viet Nam and Thailand, where well-established processing facilities are available to add value to re-exports to the major importing markets.

Table 4. Top exported fishery exports commodity by value, (2013-2015)

<table>
<thead>
<tr>
<th>HS6</th>
<th>Value in United States dollars</th>
<th>Commodity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013</td>
<td>2014</td>
</tr>
<tr>
<td>030622</td>
<td>518,556</td>
<td>479,749</td>
</tr>
<tr>
<td>030616</td>
<td>104,618</td>
<td>65,598</td>
</tr>
<tr>
<td>030617</td>
<td>219,532</td>
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<tr>
<td>030629</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>1,153,960</td>
<td>720,737</td>
</tr>
</tbody>
</table>

Source: Authors’ calculation based on data from United Nations Comtrade.
4. Fisheries export constraints

Like other least developing countries, one of the main export constraints faced by Cambodia are stringent NTMs such as SPS, HACCP and private certification schemes described in section B above (see also the list in the box below). Although Cambodia was able to export to the United States and Japan up to 2012, Cambodia fisheries exporters have never had access to the European Union market because Cambodia cannot comply with HACCP inspection systems (Golub and Varma, 2014). In particular, in late November 2013 the European Commission proposed placing an embargo on Cambodia’s fisheries products because foreign fishing vessels bearing the Cambodian flag had illegally fished in international waters and sold fish to the European Union. Although the embargo did not affect Cambodia’s fisheries exports, it damaged Cambodia’s reputation. Since then, Cambodia has not exported fisheries products to the European Union (Xinhua, 2013).

On the supply side, fisheries export constraints include the lack of government support and poor institutional capacity (CTIS, 2014). The lack of the capacity to inspect and enforce the quality and safety standards of fisheries products obstructs the sector’s export potential. Similarly, Golub and Varma (2014) stated that Cambodia’s export potential was deteriorating due to the Government’s strict control over export distribution. Furthermore, a processing plant in Cambodia complained that the 10% export tax on seafood was a major barrier to the development of fisheries processing and exporting (Golub and Varma, 2014).

In addition, the lack of storage, handling, packaging, and processing facilities at landing sites are major constraints that are resulting in low value-added of Cambodia’s exports of unprocessed fish to Thai and Vietnamese processing centres. Cambodia’s fish processing industry is based on a century-old tradition of processing freshwater fish mainly by the artisan fishers (CTIS, 2014). The lack of knowledge about contemporary processing methods or international sanitation standards among the majority of small-scale fishers has hindered the conversion from traditional to industrial fishing (Golub and Varma, 2014). The lack of consistent supplies of fish is also a constraint on exports as well as the processing sector. As mentioned above, inland fish capture is highly seasonal while marine capture provides inconsistent quantities. Aquaculture has high potential to be able to provide a consistent supply of fish if it is properly managed. However, Cambodia’s aquaculture subsector is in its early stage of development. The Government’s fisheries policy reforms during recent decades have mainly been aimed at conserving the freshwater fisheries resources. These reforms restrict the expansion of fisheries captures and exports.
5. Prospects for fisheries exports

It was suggested by CTIS (2014) that the FiA should enhance its capacity and accreditation in order to become a “Competent Authority” so that it can coordinate exports to the European Union markets. In addition, it recommended that Cambodia should make efforts to combat illegal, unreported and unregulated (IUU) fishing in its exclusive economic zone (EEZ) as well as prevent the vessels bearing the Cambodian flag from illegally fishing elsewhere, in order to get the European Union to lift its embargo on Cambodian fisheries products.

Associations of small-scale producers of marine fisheries and community-based co-management of inland fisheries have been established with support from the FiA. Therefore, the FiA should initiate and implement a campaign or programme to raise their awareness about NTMs and international standards.

While the fisheries policy aims to conserve the wild freshwater fisheries resources, freshwater fisheries production is less likely to expand and the sector’s potential for exports is unlikely to be realized. In contrast, aquaculture is the most promising sector for industrialisation and acceleration of Cambodia’s fisheries production and exports. Rapid expansion of aquaculture in China, Thailand and Viet Nam has been the driving force for their rise as world fisheries exporting countries. However, a feasibility study and environmental impact

<table>
<thead>
<tr>
<th>Constraints on Cambodian fisheries exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>In brief, Cambodia’s fisheries exports face the following constraints:</td>
</tr>
<tr>
<td>(a) Stringent NTMs such as SPS, HACCP and private certification schemes;</td>
</tr>
<tr>
<td>(b) A lack of the capacity to inspect and enforce the quality and safety standards of fisheries products;</td>
</tr>
<tr>
<td>(c) Cambodia’s fish processing industry is based on a century-old tradition of handling and processing;</td>
</tr>
<tr>
<td>(d) Inadequate knowledge of contemporary processing methods or international sanitation standards;</td>
</tr>
<tr>
<td>(e) A lack of storage, handling, packaging, and processing and supporting facilities at landing sites;</td>
</tr>
<tr>
<td>(f) A lack of a consistent supply of fishery and an underdeveloped aquaculture subsector;</td>
</tr>
<tr>
<td>(g) The Government’s strict control over export distribution;</td>
</tr>
<tr>
<td>(h) Fishery policies aimed at conserving freshwater fishery resources and restriction of captures.</td>
</tr>
</tbody>
</table>
assessment should first be conducted to clarify whether Cambodia has the appropriate endowments for development of sustainable aquaculture as well as to avoid negative impacts on the environment and society. One approach to rapid aquaculture development is for Cambodia to attract foreign direct investment (FDI) and domestic investment in this sector. FDI will bring technical skills and facilities such as storage, processing and testing facilities that Cambodia needs to comply with NTMs and international standards.

C. NTMs and their impacts on Cambodia’s fisheries exports

1. Coverage ratio of NTMs in Cambodia fishery export

The ASEAN members impose NTMs on all fisheries commodities exported by Cambodia. As shown in figure 6, coverage by SPS measures, TBT and NTB is 100%, except Malaysia whose NTB coverage is 26%. Annex tables 4, to 7 present the number of NTMs imposed by selected ASEAN members on fisheries products that are most exported by Cambodia. In general, Viet Nam imposes the most measures – 167 NTMs. On average, each fishery commodity is subject to between 22 and 27 NTMs including 19 SPS measures, five TBT, one price control measure, one finance measure and one measure affecting competition. Singapore is the second-most stringent country in terms of the number of NTMs. Singapore has 111 NTMs, comprising 13 SPS, seven TBT, and two price control measures. About 13 to 18 NTMs are applied to each fishery product that are most exported by Cambodia. Malaysia imposes 93 NTMs including eight SPS, seven TBT and one price control measure. On average, each fishery commodity faces about 13 NTMs. Thailand imposes the least NTMs on fisheries products that are most exported by Cambodia – nine NTMs, including seven SPS measures, one TBT measure and one price control measure.

---

3 The non-technical barriers discussed in this chapter are NTMs that are not included in categories A (SPS) and B (TBT).
2. Regulatory distances of ASEAN members’ NTM regimes

This subsection examines the regulatory distances between Cambodia and its fisheries export partners as well as other ASEAN members and the implications for MRAs. Regulatory distance was introduced by Cadot and others (2015) to determine the differences between NTM regimes. In this analysis, if two countries apply \( l \) type of NTM to fisheries commodity \( k \) at 6-digit HS, then regulatory difference is \( RD_{lk} = 0; \) and \( RD_{lk} = 1, \) otherwise. The following formula was used to calculate the regulatory distance \( D_{ij} \) between the two countries. Then all the values of \( D_{ij} \) were converted to an asymmetry matrix and plotted in a graph produced in multi-dimensional scaling of proximity data using STATA (figure 7).

\[
D_{ij} = \frac{\text{sum of } RD_{lk}}{\text{count of } RD_{lk}}
\]

Figure 6. Major ASEAN partners’ NTM coverage of fisheries imports from Cambodia

Source: Authors’ calculation based on data from the World Bank’s World Integrated Trade Solution (WITS).

Figure 7. Regulatory distance of NTMs among ASEAN members

Source: Authors’ calculation based on data from the World Bank’s World Integrated Trade Solution. Note: Modern MDS (loss=stress; transform=identify); loss criterion = 0.2584.
Figure 7 suggests that Cambodia has the smallest regulatory distance with Singapore, one of Cambodia’s fisheries export partners. Cambodia also has relative small regulatory distances with the Lao People’s Democratic Republic and the Philippines. It should be noted that Singapore is in the centre of the graph, indicating that it has relatively smaller regulatory distances to all other ASEAN members, while Viet Nam, Indonesia and the Philippines are in similar NTM regimes.

Questions have been raised about the implication of regulatory distances of NTM regimes on trade. However, no empirical study on the effects of regulatory distance on trade has been conducted yet, so there is not enough empirical evidence to assert that closer regulatory distance associates with more trade or wider regulatory distance associates with less trade. Nonetheless, closer RD may make it easier to have an MRA and to harmonize NTM regimes because both countries already have similar NTMs, so little change is needed to harmonize NTMs and implement MRA. The justification is that although two countries implement the same NTMs on a commodity, if both countries do not recognize each other’s testing or certification, the exporters must have their commodities tested and certified by the regulatory body in the importing country. However, if both countries have harmonized standards and regulations or an MRA related to the commodities, the exporters only conduct testing or certification once.

Regarding MRAs, under the ASEAN Sectoral Integration Protocol for Fisheries approved by the ASEAN members on 29 November 2004 and which came into force on 31 August 2015 together with many other measures, it was agreed to:

(a) Accelerate the implementation/development of sectorial (MRAs);
(b) Encourage domestic regulators to recognize test reports issued by testing laboratories already accredited by National Accreditation Bodies in ASEAN that are signatories to ILAC and APLAC MRA (ASEAN, 2004);
(c) Develop and implement MRAs for selected fisheries products (ASEAN Sectoral Integration Protocol for Fisheries, 2004, pp. 3-9).

3. The impacts of NTMs on Cambodian fisheries exports (a gravity model)

This subsection uses a gravity model to determine the effect of NTMs applied by the export partners to Cambodia’s fisheries exports. The gravity model equation is:
\[ \ln X_{ijt} = \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln dist_{ij} + \beta_4 cont_{ij} + \beta_5 AMS_j + \beta_6 \ln(1 + SPScount_{ij}) + \beta_7 \ln(1 + TBTcount_{ij}) + \varepsilon_{ijt} \]

(a) \( X_{ij} \) is the total export value of fisheries commodities (HS03) from Cambodia to country \( j \) at time \( t \);
(b) \( GDP_{i} \) is the gross domestic product of Cambodia at time \( i \);
(c) \( GDP_{j} \) is the country \( j \)'s GDP at time \( t \);
(d) \( dist_{ij} \) denotes the distances between Cambodia and country \( j \);
(e) \( cont_{ij} \) is a dummy denoting common border between Cambodia and country \( j \);
(f) \( AMS_j \) is a dummy denoting ASEAN membership of country \( j \);
(g) \( SPScount_{ij} \) designates the total number of SPS measures imposed by country \( j \) on fisheries products;
(h) \( TBTcount_{ij} \) designates the total number of TBT measures imposed by country \( j \) on fisheries products.

(a) Data

The dependent variable is the aggregate value of fisheries commodities (HS03) exported by Cambodia to her trade partners from 2011 to 2015. During that period, Cambodia’s partners in fisheries exports included: Australia; China; Hong Kong, China; Japan; Malaysia; the Republic of Korea; Senegal; Singapore; Thailand; the United States; and Viet Nam. However, the export data for the Republic of Korea were dropped because that country’s NTM data could not be used. In cases where the data for certain partners and years did not exist, the export value was assumed to be zero, but this move was not applied to any countries to which Cambodia did not export during 2011-2015.

The NTM data were gathered from World Integrated Trade Solution (WITS) for each partner during the period that include the most NTMs, so the periods are different from partner to partner. However, it was assumed that the NTMs in the collected data were applied by the importing partners throughout the period of the study; therefore, the NTM variables are time invariant. The data were collected from the following sources:

(a) Trade data was collected from United Nations Comtrade, available at: https://comtrade.un.org/;
(b) NTM data were collected from WITS available at http://wits.worldbank.org/;
(c) GDP data were collected from the World Bank World Development Indicators (WDI), available at http://data.worldbank.org/data-catalog/world-development-indicators;
(d) Other gravity model data were collected from CEPII, available at www.cepii.fr/CEPII/en/bdd_modele/presentation.asp?id=8.
(b) Model estimation

The data were treated as balanced panel variables for 10 country pairs (Cambodia and partners). The time variable was for 2011-2015, so there are 50 observations. A random-effects panel regression was adopted by using the `xtreg` command of STATA with a robust option in order to identify the effects of NTMs that were time-invariant. Fixed effects cannot be used for this purpose.

(c) Results

Table 5 shows the results of the gravity model estimations. The significant variables are lngdp_partner lngdp_reporter, contig, ASEAN members, lnSPScount and lnTBTcount. lngdp_partner has a positive coefficient, indicating a 1% increase in the partners’ GDP could expand Cambodia’s fisheries by 2.2%. lngdp_reporter has a negative coefficient (-16.30) (table 5), indicating that Cambodian fisheries exports have strong negative elasticity in its GDP. Based on the literature review, the significant coefficient of an exporter’s GDP is an indication of the important of home market effect and intra-industrial trade. For the home market effect, it can be in line with the fact that most of Cambodian fisheries production is directed to domestic consumption. However, in the case of Cambodian fisheries, intra-industrial trade is not relevant.

Table 5 shows that contig has a positive coefficient as expected, indicating that Cambodia is more likely to export fisheries products to the countries adjacent to its borders, i.e., Thailand and Viet Nam. Likewise, ASEAN members have a positive coefficient, suggesting that Cambodia tends to export fisheries products to ASEAN members more than to non-members.

Table 5 also shows that the countSPS and countTBT have negative coefficients, indicating that Cambodia’s export value has negative elasticity with the number of SPS and TBT measures. For every 1% rise in the number of SPS measures, Cambodia’s fisheries exports are likely to drop by 4%, while a 1% increase in the number of TBTs may cut Cambodia’s fisheries exports by 3.3%. This result may imply that Cambodian fisheries products can barely meet the requirements of SPS and TBT measures imposed by its trade partners. This result can be justified by the fact that Cambodia’s fisheries sector is still underdeveloped, and lacks technical capacity and facilities for compliance with NTMs and international standards, as highlighted in section B.
Table 5. Results of gravity model estimations

<table>
<thead>
<tr>
<th>Panel regression</th>
<th>Random-effects, robust estimator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations</td>
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</tr>
<tr>
<td>Number of pairs</td>
<td>10</td>
</tr>
<tr>
<td>Wald chi², df</td>
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</tr>
<tr>
<td>Prob &gt; chi²</td>
<td>0.000</td>
</tr>
<tr>
<td>Overall R²</td>
<td>0.59</td>
</tr>
<tr>
<td>Rho</td>
<td>0.13</td>
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</tbody>
</table>

**Coefficients**

<table>
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<tr>
<th>lngdp_partner</th>
<th>2.23***</th>
</tr>
</thead>
<tbody>
<tr>
<td>lngdp_reporter</td>
<td>-16.30**</td>
</tr>
<tr>
<td>Lndist</td>
<td>-0.612</td>
</tr>
<tr>
<td>Contig</td>
<td>5.13**</td>
</tr>
<tr>
<td>IncountSPS</td>
<td>-4.61**</td>
</tr>
<tr>
<td>IncountTBT</td>
<td>-3.30***</td>
</tr>
<tr>
<td>ASEAN members</td>
<td>4.18**</td>
</tr>
<tr>
<td>Constant</td>
<td>348.20**</td>
</tr>
</tbody>
</table>

Source: Authors’ calculation.

Note: *** p<0.01, ** p<0.05, * p<0.1; robust standard errors in parentheses; estimator: xtreg, robust re of STATA.

D. The need for ASEAN to accelerate regulatory convergence

Like other trade blocs, ASEAN has viewed NTMs as a vital component in its economic integration efforts. In the endeavour to expedite greater efficiency and improve the cost-effectiveness of regional trade through ASEAN Economic Community 2015 (AEC) Blueprint, ASEAN members set forth several actions to deal with NTMs, including: (a) harmonizing standards, technical regulations and conformity assessment procedures; (b) establishing and applying sectorial MRAs on Conformity Assessment for specific sectors; (c) improving technical infrastructure and capability in laboratory testing, calibration, inspection, certification and accreditation; and (d) enhancing post-market surveillance systems.
Several advances have been completed by the establishment of the ASEAN Cooperation on Standards and Conformance to Facilitate Trade as well as the setting up of the ASEAN Consultative Committee on Standards and Quality (ACCSQ). The Committee’s primary goal is to homogenize national standards to international standards and to adopt MRAs on conformity assessment to attain its ultimate objective of “One Standard, One Test, Accepted Everywhere”. ACCSQ has founded horizontal working groups\textsuperscript{4} for standards and conformity assessment procedures for the purpose of eliminating NTBs.

Additionally, the Committee established the Policy Guideline on Standards and Conformance in order to lead ASEAN bodies working in the areas of standards and conformance. The purpose was to assist the fast-track integration of priority sectors by 2010 and speeding up the accomplishment of the AEC by 2020 as the ultimate objective. The guideline contains regulations pertaining to the standard harmonization, technical regulations, conformity assessment, post-market surveillance and transparency. Moreover, the national standards agency should accept and comply with the Code of Good Practice for the Preparation, Adoption and Application of Standards as provided in Annex 3 of the WTO Agreement on Technical Barriers to Trade.

The policy guideline stated that ASEAN members have to adopt any or a combination of these measures in order to accelerate the accomplishment of a single market and single production base by:

\begin{itemize}
\item[(a)] Standardizing national standards with the pertinent international ones;
\item[(b)] Inspiring involvement in the establishment of international standards, specifically the ones related to ASEAN trade;
\item[(c)] Taking conformity assessment procedures in line with international standards and guidelines, or minimizing differences wherever full conformity is impossible due to differences in legitimate objectives;
\item[(d)] Enforcing MRAs in regulated areas wherever possible, by means of the ASEAN Framework Agreement on Mutual Recognition Arrangements as the basis; and
\item[(e)] Accelerating cooperation among National Accreditation Bodies and National Metrology Institutes in ASEAN to enforce MRAs.
\end{itemize}

\textsuperscript{4} Those working groups include: (1) Working Group on Standards and Mutual Recognition Agreements; (2) Working Group on Accreditation and Conformity Assessment; (3) Working Group on Legal Metrology; (4) Joint Sectoral Committee for ASEAN Sectoral MRA for Electrical and Electronic Equipment; (5) ASEAN Cosmetic Committee; (6) Pharmaceutical Product Working Group; (7) Prepared Foodstuff Product Working Group; (8) Automotive Product Working Group; (9) Traditional Medicines and Health Supplements Product Working Group; (10) Medical Device Product Working Group; (11) Wood-Based Product Working Group; and (12) Rubber-Based Product Working Group.
The fisheries sector is one of ASEAN’s 12 priority integration sectors. Four areas for integration include: (a) food safety; (b) research and development; (c) human resources development; (d) and information sharing. The main NTMs regarding SPS measures and TBT include: (a) the establishment of a scheme of fisheries quality and management; (b) the adoption of international good practices, standards, and international and regional regulation; (c) the strengthening of test amenities and appreciation of testing and certification; (d) regulatory standardization; and (e) mutual recognition of certain fisheries products.

Although ASEAN has done much to achieve the harmonization of standards, the region is still struggling to effectively address NTMs, thus making them one of the obstructions to trade in the region (Narjoko, 2015). The NTM incidence is high for some ASEAN members, and the main perceived barriers include procedures or requirements for product certification or for acquiring an import or export licence. This includes the requirement by officials for excessive documentation, the time for document processing and unclear information provided by officials and results in significant additional costs for importers and manufacturers (Narjoko, 2015). The latest study on NTMs in ASEAN by ERIA-UNCTAD (2016) also drew a similar conclusion that the number of NTMs imposed by ASEAN members is increasing. More specifically, the total number of NTMs in the 10 ASEAN members was 5,975 measures in 2015, an increase from 1,634 measures in 2000 (ERIA-UNCTAD, 2016). Of the total NTMs, 33.2% were SPS measures, 43.1% were TBT, 12.8% were export-related measures, and the remaining 10.9% were other measures (Narjoko, 2015). What make NTMs an even greater impediment to trade is the lack of capacity, especially among newer ASEAN members, to comply with the requirements. At the State level, some Governments lack qualified testing laboratories, a competent accreditation body and adequate manpower to implement the post-market surveillance (Pettman, 2013). At the industry level, in addition to the lack of government support, firms (especially small and medium-sized enterprises) lack the capacity to meet the identified standards (Narjoko, 2015).

E. Conclusion

The preceding analysis of NTMs imposed by other ASEAN members on Cambodia’s fisheries exports provides country- and sector-specific evidence of their prevalence. The results indicate significant variations in NTMs among ASEAN members, reflecting the lack of regulatory harmonization in practice. Viet Nam imposed the highest number of NTMs on fisheries, compared with other partners of Cambodian fisheries exports, followed by Singapore, Malaysia
and Thailand. In other words, ASEAN members have heterogeneous NTM regulatory regimes. Cambodia has quite wide regulatory distances from the country's major export partners including Thailand and Viet Nam. Like other least developing countries, Cambodia faces both demand-side and supply-side constraints. The demand-side constraints include stringent NTMs such as SPS measures, HACCP and private certificate schemes applied by importing countries. The supply-side constraints include poor infrastructure, a lack of technical and financial capacities to comply with NTMs, and poor production capacity. The empirical results derived from the gravity model estimation also clearly show the cost of NTMs resulting from declining exports. Despite a country case study, the empirical result is as expected and provides further firm evidence of the cost of NTMs and the need to address the problem.

The findings echo the urgent need for ASEAN as regional trading bloc to accelerate the efforts to address NTMs, especially the areas of standard harmonization and conformity procedures. This can be done through expediting regional efforts and commitment to conclude MRAs in fisheries. As well as helping to reduce the regulatory distance among ASEAN members, MRAs will likely reduce the compliance and costs burden, and thus increase intraregional fisheries trade. The good news is that ASEAN members are continuing to reduce NTMs as firmly articulated in the AEC Blueprint 2025. It will involve: (a) the elimination of NTBs; (b) standards and conformity measures; and (c) streamlining procedures and reducing requirements for certificates, permits and licences to import or export. However, given the gap in development and the difference in regulatory frameworks, it remains to be seen whether ASEAN members are willing to cooperate in reaching equivalence in technical regulations, standards harmonization and MRAs. Yet, such progress is critical to effectively addressing NTMs to help ASEAN achieve deeper integration.

It is also clear that public institutions and the private sector in Cambodia both lack capacity and resources to meet stringent quality and safety standards imposed on fisheries products. This means that the country needs to build technical capacity and strong institutional mechanisms to achieve effective enforcement of quality and standard conformity.

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Barriers facing Myanmar’s non-implementers of the European Union HACCP\(^1\) standards system*

*Wai Yee Lin*

Introduction

This chapter examines barriers facing non-implementers of the European Union HACCP standard for fishery processing plants in Myanmar, which are hindering them from taking part in the global value chains. The survey results discussed here show that a quarter of the respondents were unable to export to European Union markets because of technical barriers. More than 90% did not have any financial problem for the integration of their production systems to be able to export to the European Union, and no more than one-third saw the required change in scale and scope as a barrier to such integration. Moreover, a positive strong correlation between technical barriers and the scale and scope of change was found with \( r \) value 0.816, \( n=36 \), \( p=0.01 \). China was the main market for one-fifth of respondents, while ASEAN members and China were main markets for more than half of the respondents. As such, fisheries exports by Myanmar are currently mainly regional rather than global, which is a major reason for Myanmar’s non-implementation of production systems with the European Union’s HACCP system.

However, the adoption of food safety management systems such as HACCP, GAP, GHP, GMP\(^2\) etc. is becoming common practice in the fragmented global food production chain. This is not only aimed at fulfilling market quality and

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\(^1\) Hazard analysis and critical control points is a systematic preventive approach to food safety from biological, chemical, and physical hazards in production processes that can cause the finished product to be unsafe, and designs measurements to reduce these risks to a safe level.

\(^2\) GAP = good agricultural practices; GHP = good hygiene practices; and GMP = good manufacturing practice.

* Please note that the Annex to this chapter is available digitally from http://www.unescap.org/resources/trade-integration-within-asean-role-non-tariff-measures-cambodia-lao-peoples-democratic
safety requirements but also at overcoming non-tariff measures (NTMs) or technical barriers to trade (TBT) in transboundary food exports. It is clear that the global agro-food business is being increasingly dominated by the value chain relationship in which leading firms exercise vertical coordination, thus driving product differentiation and innovation as well as a shift from final product quality control (just by testing) to process control based upon the HACCP concept (Humphrey and Memedovic, 2006). However, at the regional level, practical activities may be different to what is expounded by various theories. Therefore, it is necessary to find out the actual practices within the region.

It was suggested that food safety standards can act both as a barrier to trade and as a basis of competitive positioning for developing countries in international markets (Henson and Jaffee, 2006). Meanwhile, standards can be classified into processing and product standards. The enforcement of technical regulations is most effective when the market is focused on process conformity rather than product conformity. Process conformity is less restrictive than product conformity but it can still ensure that the desired requirements are met for health and safety standards (Tippmann, 2013). However, both are necessary for market differentiation. Public and private food safety standards are fundamentally about establishing controls and conformance in production, transport and processing of food (Henson and Humphrey, 2009).

The European Union market has been at the forefront of developing food safety standards and has had a profound influence on the development of the food export industry (Greenhalgh, 2004). Its regulatory environment provides a wider range of cost-effective opportunities through closer collaboration between regulatory agencies and producers, while putting safe food production responsibility on producers (Martinez and others, 2007).

Achieving food safety in international trade is regarded as a public goal that must be shared by global consumers without rivalry. As export success and lucrative market access are in the interests of Government and firms in exporting countries, they must invest in food control.

The restructuring of requirements for food control in major food importing countries is observed in the form of closer collaboration between competent authorities (CAs) of exporting and importing countries (Wai and others, 2015). The CAs of food exporting countries integrate overall capacity of the food control system vertically by adopting importing countries’ food safety regulatory requirements. In this case, the CA of an exporting country is responsible for controlling safety along the food chain, through a precautionary approach, on behalf of the CA of the importing country.
At the firm level, processors need to be controlled by the CAs. Firms must integrate their food safety management systems in order to acquire CA approval. This is known as horizontal integration. Introduced by the European Union in 2009, these two types of integration must now be implemented.

Taking part in international trade requires government investment in quality infrastructure (Hochman and others, 2013) due to ever-increasing consumer demand, market requirements etc. It is no longer just a public health issue but also a market development issue (Unnevehr and others, 2003). Thus, export promotion policies need to look beyond tariffs and subsidies towards the establishment of standards (FAO, 2012). Small-scale producers in developing countries face challenges in fulfilling export requirements, mainly due to technical and financial limitations.

The level of food safety standards in the European Union is regarded as the highest in the world. Although Myanmar’s fisheries sector was the country’s first food subsector to export to the European Union, so far only 14% of the sector’s producers are able export to European Union markets.

**A. Methodology**

The study area included Yangon and four coastal-area States and Divisions. The duration of the study was from December 2016 to February 2017. The sample size was n=36 Primary and secondary data used in the study comprised a field survey and available academic articles, respectively. Data collection was carried out through telephone and face-to-face interviews.

The study was conducted with two objectives. The first objective was to investigate barriers facing fisheries processing that were non-implementers of HACCP, while the second was to examine policy support and food control system integration by the CA, with particular focus on how Mutual Recognition Agreements (MRAs) meshed with CA food control and the impact on MRA trading partner countries.

Interviews were held with the responsible personnel of the Research and Development Section of the Fish Inspection Quality Control Division: the delegated CA of the European Union was conducted to gain in-depth information. The Fish Inspection Quality Control Division and the Myanmar Fishery Exporters Association helped the research team, especially with interviews, the provision of data and general communication with the firms concerned.
Of Myanmar’s 112 fishery processing plants, 94 were non-approved factories at the time of the survey. A total of 56% of all non-implementers were in Yangon and 44% of all non-implementers in other states and regions. Of those that replied to the telephone survey, a structured questionnaire was used. The overall response rate was 42.8%.

**B. Barriers to HACCP**

This study explored four broad types of barriers – questionable appropriateness, the scale and scope of change, low priority and financial constraints – based on a study by Herath and Henson (2010). As these four barriers impeded the adoption of HACCP by food processing firms in Canada they were relevant to this study. Therefore, this study was also able to identify whether the non-HACCP implementers/firms were facing the same barriers.

**C. Mutual Recognition Agreements**

A Mutual Recognition Agreement or Arrangement is a voluntary agreement between Governments on the conformity of assessment bodies; simply put, two or more parties mutually accept each other’s regulations. Typically, an MRA provides an exporting party with the authority to test, inspect and/or certify products, in its own territory and prior to export, for conformity with the regulatory requirements of the importing party (ASEAN, 2014). The purpose of MRAs is to facilitate trade by enabling conformity assessment to be performed in the country of origin to be accepted in order to avoid duplication in the importing country (ITC, 2015).

**D. Myanmar fisheries trade**

1. **Myanmar fisheries exports to the world**

Figure 1 the average pattern of Myanmar fisheries exports to the world during 2010-2015 while table 1 lists the value of Myanmar fisheries exports to the world from 2010 to 2015. Figure 2 shows the value of Myanmar fisheries exports to ASEAN members, 2015 while figure 3 shows the total value of fisheries imports by ASEAN members, 2015.
Figure 1. Average Myanmar Fisheries exports to the world (% of product code)

Source: Data from ITC calculations based on UN COMTRADE statistics

Table 1. Value of Myanmar’s fisheries exports to the world, 2010-2015

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>'0306</td>
<td>Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine.</td>
<td>502 896</td>
<td>715 816</td>
<td>782 573</td>
<td>869 589</td>
<td>1 224 474</td>
<td>999 064</td>
</tr>
<tr>
<td>'0304</td>
<td>Fish fillets and other fish meat, whether or not minced, fresh, chilled or frozen.</td>
<td>260 160</td>
<td>335 202</td>
<td>380 064</td>
<td>397 718</td>
<td>483 432</td>
<td>536 833</td>
</tr>
<tr>
<td>'0305</td>
<td>Fish, fit for human consumption, dried, salted or in brine; smoked fish, fit for human consumption.</td>
<td>110 420</td>
<td>109 384</td>
<td>127 313</td>
<td>117 404</td>
<td>110 071</td>
<td>116 511</td>
</tr>
<tr>
<td>'0307</td>
<td>Molluscs, fit for human consumption, even smoked, whether in shell or not, live, fresh, chilled.</td>
<td>351 566</td>
<td>458 782</td>
<td>439 053</td>
<td>566 625</td>
<td>600 502</td>
<td>614 155</td>
</tr>
<tr>
<td>'0302</td>
<td>Fish, fresh or chilled (excluding fish fillets and other fish meat of heading 0304).</td>
<td>373 046</td>
<td>408 042</td>
<td>418 385</td>
<td>441 130</td>
<td>447 351</td>
<td>426 337</td>
</tr>
<tr>
<td>'0308</td>
<td>Aquatic invertebrates other than crustaceans and molluscs, live, fresh, chilled, frozen, dried.</td>
<td>29 497</td>
<td>35 574</td>
<td>41 246</td>
<td>43 265</td>
<td></td>
<td></td>
</tr>
<tr>
<td>'0303</td>
<td>Frozen fish (excluding fish fillets and other fish meat under heading 0304).</td>
<td>2 460 811</td>
<td>3 130 093</td>
<td>3 409 749</td>
<td>3 315 871</td>
<td>2 848 009</td>
<td>2 690 643</td>
</tr>
<tr>
<td>'0301</td>
<td>Live fish.</td>
<td>790 74</td>
<td>79 089</td>
<td>81 399</td>
<td>67 957</td>
<td>64 969</td>
<td>57 907</td>
</tr>
</tbody>
</table>

Source: Data from ITC calculations based on UN COMTRADE statistics.
Figure 2. Total value of fisheries exports by ASEAN members, 2015

Source: Data from ITC calculations based on UN COMTRADE statistics.

Figure 3. Value of total fisheries imports by ASEAN members, 2015

Source: Data from ITC calculations based on UN COMTRADE statistics.
2. Fisheries industry in Myanmar

Myanmar is traditionally an agrarian country that exports a variety of primary produce cultivated by 70% of the population. However, little investment in quality infrastructure has been made during the past 30 years, which has impeded export (UNIDO, 2013). It was stressed that trade-supported industries were not so successful in exporting to lucrative markets (ITC, 2015).

The image of Myanmar food products is limited due to having no strong brand image (e.g., seafood) in international markets (CBI, 2012). However, neighbouring countries as well as the world largest exporters, e.g., China, Thailand and Bangladesh, are still buyers and re-exporters of Myanmar (fisheries) products. Thus, there is room for Myanmar’s fisheries sector to develop and sell to end markets directly.

There are two broad types of fisheries processing firms in Myanmar:

(a) Firms that can export to the European Union market due to having been approved by the CA of Myanmar as implementing the European Union HACCP system at their factories, especially in processing;

(b) Firms that cannot export to European Union markets because they have not introduced the HACCP system in the processing of their products.

Only about 15% of Myanmar’s fisheries firms are equipped to meet the European Union HACCP standard requirements (Wai and others, 2015). Therefore, it is necessary to understand how the other firms set up their food safety management systems and what level of HACCP has been achieved by them. Moreover, this study examined the types of barriers that exist for those firms wanting to integrate the HACCP system in their processing. At the time of this survey, there were 18 approved factories with European Union standard HACCP 94 unapproved factories registered with the Department of Fisheries. According to the Department, of the 94 unapproved processing plants, 50 had implemented the Department’s HACCP standard while 40 were preparing to implement it.

The reasons for non-implementation of HACCP are more complicated than is often recognized, and cannot be explained solely in terms of the “unwillingness” (Herath and Henson, 2010). Table 2 shows the types of fishery processing plants in Myanmar in 2016-2017.
Table 2. Types of fisheries processing plants in Myanmar, 2016-2017

E. Results and discussion

<table>
<thead>
<tr>
<th>No.</th>
<th>State/Division</th>
<th>Cold storage and processing plants</th>
<th>Surimi</th>
<th>Fish-meal</th>
<th>Dry prawns</th>
<th>Prawn -shell dust</th>
<th>Canning</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yangon</td>
<td>63</td>
<td>2</td>
<td>4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>69</td>
</tr>
<tr>
<td>2</td>
<td>Taninthary</td>
<td>10</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>19</td>
</tr>
<tr>
<td>3</td>
<td>Ayeyarwaddy</td>
<td>8</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>Mon</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Rakhine</td>
<td>8</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>Shan</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>95</td>
<td>4</td>
<td>11</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>112</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on Department of Fisheries data.

E. Results and discussion

This section is divided into three subsections. The first subsection provides descriptive statistics of the respondent processing plants, while the second subsection discusses barriers facing non-implementers of the European Union HACCP standard. The third subsection reviews the regional fisheries trade and potential role of MRAs.

1. Descriptive statistics of respondent processing plants

A total of 47% of Myanmar’s fisheries processing plants constructed 2000, of which more than 44% of the respondent plants were established during 1995-2000. Less than 9% were built before 1995 (table 3).

In terms of ISO possession, a great majority did not possess ISO series and only 5.6% of the responding plants said they had ISO certificates such as ISO 9000 series on quality management, HACCP system etc.

Regarding ownership, most of the responding factories (91%) are owned by Myanmar nationals. Currently, only 5% are joint ventures and 3% are owned by foreigners. However, as a result of the recently promulgated investment law, it is expected that the number of joint-venture plants and foreign-owned factory will increase in the near future.

The size of a plant is typically judged by the number of employees. More than half of the respondent plants (55.6%) had more than 100 employees, while 14% had between 50 and 100 employees and 25% had less than 50 employees.
With regard to specific requirements for the processing workforce, none were reported, even though specific requirements were needed for the managerial staff. A large majority of the workforce (73%) were women, for which there no specific requirements.

**Table 3. Characteristics of the surveyed fishery processing plants**

<table>
<thead>
<tr>
<th>Variables</th>
<th>%</th>
<th>Mean</th>
<th>Std. deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year of establishment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before 1995</td>
<td>8.3</td>
<td>2.39</td>
<td>0.645</td>
</tr>
<tr>
<td>1995-2000</td>
<td>44.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>After 2000</td>
<td>47.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Having ISO certificates</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>5.6</td>
<td>1.94</td>
<td>0.232</td>
</tr>
<tr>
<td>No</td>
<td>94.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Firm size (number of employees)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 50</td>
<td>26.5</td>
<td>2.32</td>
<td>0.878</td>
</tr>
<tr>
<td>50-100</td>
<td>14.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than 100</td>
<td>58.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ownership</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National</td>
<td>91.7</td>
<td>1.11</td>
<td>0.398</td>
</tr>
<tr>
<td>Joint ventures</td>
<td>5.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreigns</td>
<td>2.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Type of business (processing plant)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processor-cum-exporter</td>
<td>36.1</td>
<td>1.64</td>
<td>0.487</td>
</tr>
<tr>
<td>Processor</td>
<td>63.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Have foreign experts</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8.6</td>
<td>1.91</td>
<td>2.84</td>
</tr>
<tr>
<td>No</td>
<td>91.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Main markets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>19.4</td>
<td>3.53</td>
<td>1.362</td>
</tr>
<tr>
<td>ASEAN</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>8.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other countries including ASEAN members</td>
<td>52.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Domestic (ex: to Yangon)</td>
<td>19.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Buyers’ quality control (person)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes (visit before buying)</td>
<td>60</td>
<td>1.40</td>
<td>0.497</td>
</tr>
<tr>
<td>No</td>
<td>40</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Author’s survey*

Only 8.3% had hired foreign experts, while 89% of the respondents did not have foreign experts. However, 60% said that buyer quality control experts inspected their plant before finalising contracts. Two-thirds (66.7%) had internal quality control staff, while 33% said they did not have internal quality control staff. Around 61% said that their internal quality control staff attended training courses including those conducted by the Department of Fisheries.

A total of 44% were aware of the safety and quality requirements of markets because of their experience, while 36% reported that they had learnt the requirements through their buyers or agents. Regarding the use of ICT, 86% reported that they used a variety of ways, such as e-mail, fax and local agents,
for accepting orders from potential buyers. The majority (86%) had cold storage facilities at their plants; the capacity of cold storage varied with the largest one at about 6,000 metric tons.

The majority of the respondents (81%) said they did not have mini-laboratory or other facilities for testing some parameters at their factories. Other respondents (19%) said that they had some facilities for testing. Actually having mini-laboratory or related facilities is not a technical requirement for the respondent factories. It was found that 63.9% of the plants only did processing while 36% were processor-cum-exporters.

Safety and quality, and packing size are considered major requirements. A total of 44% said they were aware of the safety and quality requirements of markets from previous experience. However, 36% of the respondents said that they learnt detailed requirements from their buyers or agent. Packing size is typically 20 kilograms per pack; however this requirement was changed to 10 kilograms in 2016.

Regarding main markets, 19% of the respondents said that their main market was China, while 53% said they exported to other ASEAN members as well as China. About 8% said they exported mainly to Japan, while 19% sell their products on the domestic market (mainly Yangon). With regard to potential exports to the European Union, 39% of the respondents were planning to export to the European Union; a similar number of respondents (39%) said that they were not planning to export to the European Union. A further 22% replied that they were unsure about for exporting in the future to the European Union.

2. Barriers facing non-implementers of the European Union HACCP system

With regard to financial barriers, 90% of the respondents said they did not face any barriers regarding finance, while 8% said that they had a financial problem. The Department of Fisheries (2012) reported that in fiscal year 2010-11, the Livestock and Fisheries Development Bank (LFDB) loaned 96.85 billion kyat to the owners of aquaculture farms and factories, and a total 105.25 billion kyat to the owners of businesses related to the fisheries sector up to 31 July in fiscal year 2011-12 for the development of Myanmar’s fisheries sector.

With regard to the required scale and scope of change, 33% of the respondents said they would be barriers when applying for access to European Union markets, while the remaining 67% did not see them as barriers.

A few of the respondents (11%) agreed that applying to be registered in the European Union approved factory list had low priority, while 89% perceived
integration as having low priority. Questionable appropriateness was not regarded as a barrier by 89% of the firms. A total of 25% of the respondents considered technical requirements to be a barrier in the integration needed for exporting to European Union markets, while 75% did not consider that to be a barrier. A positive strong correlation was found between the technical requirements barrier and the scale of change with r value 0.816, n=36, p=0.01. There was a positive strong correlation between questionable appropriateness and low priority with r=0.719, n=36, p=0.01. Moreover, a positive moderate correlation was found between the scope of change and financial barriers with r value 0.426, n=36, p=0.01.

3. Capacity of the fisheries processing infrastructure in ASEAN members and regional fisheries trade

The approved fisheries establishments in the ASEAN members are listed in table 4. There are six types of fishery establishments, i.e., aquaculture farms, processing plants for wild-caught (PP for WC), freezing vessels (ZV), cold storage (CS), refer vessels (RV) and factory vessels (FV).

Viet Nam possesses the highest number of approved establishments among ASEAN members, followed by Thailand and Indonesia. Cambodia and the Lao People’s Democratic Republic have no approved establishments, most likely because they are small, landlocked countries. Of the 10 countries listed, Myanmar ranks sixth with only 18 (2%) of its fisheries establishments having received approval.
### Table 4. Approved establishment capacity of ASEAN countries

<table>
<thead>
<tr>
<th>ASEAN member</th>
<th>Aquaculture farms</th>
<th>PP for WC</th>
<th>ZV freezing vessel</th>
<th>CS cold store</th>
<th>RV Reefer vessel</th>
<th>FV factory vessel</th>
<th>Total establishments (each member)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viet Nam</td>
<td>415</td>
<td>71</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>486</td>
</tr>
<tr>
<td>Thailand</td>
<td>137</td>
<td>81</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>0</td>
<td>230</td>
</tr>
<tr>
<td>Indonesia</td>
<td>105</td>
<td>98</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>212</td>
</tr>
<tr>
<td>Philippines</td>
<td>13</td>
<td>116</td>
<td>34</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>138</td>
</tr>
<tr>
<td>Malaysia</td>
<td>13</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>22</td>
</tr>
<tr>
<td>Myanmar</td>
<td>0</td>
<td>18</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Singapore</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Cambodia</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

| ASEAN members (total) | 685 | 398 | 43  | 4   | 12  | 0   | 1113 |

| Capacity of Myanmar fisheries (%) | 0   | 4.52 | 0   | 0   | 0   | 0   | 1.62 |

Fluctuations in fisheries trade (in terms of value) were found among ASEAN members. Figure 4 shows the values of fisheries exports and imports trade in 2015.

**Figure 4. ASEAN members competing for investment in the fisheries industry**

![Fisheries trade values](source-image-url)

Source: www.trademap.org/tradestat/Country_SelProductCountry_TS.aspx. Figure 5 shows the percentage of Myanmar’s fisheries exports to ASEAN members from 2005-2016. Thailand accounted for the largest share, followed by Malaysia and then Singapore.
Figure 5 shows the percentage of Myanmar’s fisheries exports to ASEAN members from 2005-2016. Thailand accounted for the largest share, followed by Malaysia and then Singapore.

**Figure 5. Share of Myanmar fisheries exports to ASEAN members**

![Pie chart showing the share of Myanmar fisheries exports to ASEAN members from 2005-2016. Thailand accounted for the largest share, followed by Malaysia and then Singapore.]

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei Darussalam</td>
<td>1 453</td>
<td>2 471</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>3</td>
<td>55</td>
<td>10</td>
<td>540</td>
<td>343</td>
<td>90</td>
<td>28</td>
</tr>
<tr>
<td>Cambodia</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Indonesia</td>
<td>897</td>
<td>469</td>
<td>1 507</td>
<td>2 245</td>
<td>1 559</td>
<td>1 800</td>
<td>974</td>
<td>186</td>
<td>103</td>
<td>888</td>
<td>1 503</td>
<td>507</td>
</tr>
<tr>
<td>Malaysia</td>
<td>26 487</td>
<td>30 892</td>
<td>29 570</td>
<td>29 622</td>
<td>31 600</td>
<td>35 167</td>
<td>39 595</td>
<td>38 529</td>
<td>38 183</td>
<td>35 679</td>
<td>34 117</td>
<td>37 036</td>
</tr>
<tr>
<td>Philippines</td>
<td>35 82</td>
<td>7</td>
<td>0</td>
<td>26</td>
<td>15</td>
<td>20</td>
<td>19</td>
<td>0</td>
<td>0</td>
<td>27 88</td>
<td>5 969</td>
<td>-</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>83 935</td>
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<td>1 224</td>
<td>1 740</td>
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<td>96 523</td>
<td>124 527</td>
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<td>119 463</td>
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<td>83 252</td>
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<td>255 449</td>
<td>306 307</td>
<td>299 950</td>
<td>303 065</td>
<td>313 516</td>
<td>349 373</td>
<td>359 429</td>
<td>431 987</td>
<td>315 072</td>
<td>374 839</td>
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</table>

4. Mutual Recognition Arrangements for ASEAN

In the ASEAN region, MRAs also aim at removing technical barriers by:

(a) Accepting the results of testing, inspection and certification undertaken by exporting countries, if they meet with the requirements of importing countries;
(b) Abolishing (unnecessary) reassessments when testing, inspection and certification are harmonized or accepted as the equivalent;
(c) Accepting assessment by exporting countries’ testing, inspection and certification services using the standard of importing countries to confirm the competency of the procedures on behalf of the importing countries.

The fisheries sector is one of the 12 priority integration sectors in terms of preconditions and preparatory processes for developing MRAs in the region (ASEAN, 2014).

Article 19 of the ASEAN Economic Community (AEC) calls for harmonizing standards, regulations and conformity assessment procedures by using international practices (ASEAN, 2015). Chapter 7 of the ASEAN Trade in Goods Agreement (ATIGA) requires ASEAN members to harmonize their standards with international standards in order to remove unnecessary barriers. The sixth principle of ASEAN Food Safety Policy encourages ASEAN members to establish MRAs or equivalent arrangements with each other in order to facilitate economic integration (ASEAN, 2016).

In the case of Thailand, there are two types of MRAs from the point of view of importing countries. The first type of MRA is made when the partner countries have equivalence in standards and inspection/certification systems, and the importing country accepts the exporting country’s certificate/certificate mark. The second type of MRA is practiced even though the importing and exporting countries have different standards but equivalence in their inspection/certification systems, and the exporting country’s certification is accepted, based on the importing country’s (agricultural) standard (Pongsapitch, 2011). Countries may have different level of standards but exporting countries need to agree on an equivalence arrangement in terms of inspection/certification, based on the requirements or the standards of the importing country.
MRAs fall into two categories:

(a) Type 1 – Intraregional or intra-community. Once the region prevails on MRA within the region, it will also arrange MRAs with trading partner countries outside the region. This category can be found in the European Union;

(b) Type 2 – MRAs between trading partner countries. This type of mutual recognition among the competent authorities of trading countries is now becoming the norm.

Table 6 shows the requirement for mutual recognition in vertical integration in some of Myanmar’s major importing markets including the European Union.

Table 6. Major markets with different levels of vertical integration requirements

<table>
<thead>
<tr>
<th>Import country/region markets</th>
<th>Second stage of vertical integration</th>
<th>Third stage of vertical integration</th>
<th>Number of Myanmar fisheries plants approved by importing country’s CA in 2016 (2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmonization</td>
<td>Verification visit</td>
<td>Mutual recognition between CAs</td>
<td>Alert system websites</td>
</tr>
<tr>
<td>European Union</td>
<td>Required</td>
<td>Required</td>
<td>RASFF</td>
</tr>
<tr>
<td>Japan</td>
<td>Unnecessary</td>
<td>Unnecessary</td>
<td>-</td>
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<tr>
<td>United States</td>
<td>Unnecessary</td>
<td>Unnecessary</td>
<td>US-FDA</td>
</tr>
<tr>
<td>China</td>
<td>Required</td>
<td>Required</td>
<td>CNCA-AQSIQ</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Required</td>
<td>Not yet</td>
<td>NAIFIQAD</td>
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<tr>
<td>ASEAN</td>
<td>At the preparation stage</td>
<td>Not yet</td>
<td>ARASFF (ASEAN alert)</td>
</tr>
<tr>
<td>Gulf Cooperation Council member countries</td>
<td>Unnecessary</td>
<td>Unnecessary</td>
<td>-</td>
</tr>
</tbody>
</table>

Eighteen fisheries processing plants in Myanmar have been approved by the European Union (Rapid Alert System for Food and Feed – RASFF). Those plants have received approval from different markets, and 61.11% (11 plants) can export to the European Union, Viet Nam and China. A total 72.22% (13 plants) have been approved by the European Union (RASFF) and China (National Certification and Accreditation Administration), 72.22% (13 plants) approved by the European Union (RASFF) and Viet Nam (National Agro-Forestry-Fisheries Quality Assurance Department). A total of 16.67% (three plants) have received approval only for European Union markets (RASFF).
Table 7. Value of Myanmar fisheries exports, by destination, 1997-2010
(Unit: United States dollars, millions)

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<tr>
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</tbody>
</table>

Source: Based on data of Department of Fisheries

F. Conclusion

This study provides an insight into the characteristics of fisheries firms in Myanmar, their type of relationship with supply chain actors, target markets and opinions on barriers to the adoption of European Union HACCP standards in their plants. It is shown that non-implementers in Myanmar do not face any specific, statistically significant barriers if they want to integrate with European Union markets.

Although their exports so far are mainly regional rather than global, they still make up the major share (86%) among fisheries processors in Myanmar. Regarding MRAs, the MRA between Myanmar and the European Union for fisheries trade is type 2. Mutual recognition not only facilitates trade but also encourages the enhancement of technical competency, especially in inspection and testing capacities. In this era of increasing utilization of NTMs, MRAs provide small exporting countries with the opportunity to gain market access as long as they fulfill the requirements of trading partners. The share of Myanmar’s approved fisheries plants is only 2% of the total approved plants in ASEAN members, as overall development is still in its infancy.
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Part II
Chapter 4

Barriers to fisheries exports in Viet Nam and potential roles of mutual recognition of standards for goods in ASEAN

Tran Binh Minh and Vo Tri Thanh

Introduction

Agriculture has been considered as one of the key economic sectors for ensuring food security and sustainable development in Viet Nam. During the past few decades, since the "Renovation Programme" was launched in mid-1980s, a long series of agriculture policy changes have continued to be made in Viet Nam, including: (a) the replacement of cooperatives by households as the basic decision-making unit in production; (b) the security of land tenure for farmers; (c) the reduction of domestic trade barriers and facilitation of market access through international economic integration; and (d) the fostering of linkages between industry (processing sector) with agriculture. The results to date have been very impressive. Viet Nam's agricultural production has made significant achievements, contributing to national food security, economic development and inflation reduction, poverty reduction, trade balance, territory defence and stabilization of the socio-political situation in the country. The reforms have also created conditions for strong agricultural supply in response to growing domestic demand and improved international market opportunities. Agricultural production more than tripled in volume between 1990 and 2013, with agro-food exports soaring. Viet Nam is now world's largest exporter of cashews and black pepper, the second-largest exporter of coffee and cassava, and the third-largest exporter of rice and fisheries (OECD, 2015).

In line with domestic agricultural reforms, Viet Nam has made proactive efforts at international economic integration, which have enhanced the opportunities for agricultural development. In addition to numerous bilateral trade agreements, the country joined the Association of Southeast Asian Nations (ASEAN) and the associated ASEAN Free Trade Area (AFTA) in 1995, entered a bilateral
trade agreement with the United States in 2000 and became 150th member of WTO in 2007. Those are regarded as the biggest milestones in the proactive efforts to integrate the national economy with regional and global economies.

However, new challenges are emerging. So far, 70% of the Vietnamese population lives in rural areas; therefore, agriculture production is their main livelihood. Production growth rates are slowing for a number of commodities, and prices of some commodities have declined in recent years. Under the national strategy for agricultural development in 2011-2020, Viet Nam is seeking to achieve high-quality output and competitiveness in order to increase the living standards and rural incomes of farmers as well as maintain food sufficiency.

With regard to international economic integration, Viet Nam has taken steps to reform its border protection measures and improve trade openness. Tariffs on agro-food imports have fallen. The average most-favoured nation (MFN) applied tariff dropped from 24% in 2000 to 16% in 2013 (OECD, 2015). MFN applied tariffs are significantly lower for imports from ASEAN countries and China. Import and export requirements, or non-tariff barriers, are more stringent in agricultural sector, including packaging, labelling, traceability requirements, and the most seen sanitary and phytosanitary (SPS) measures. Despite arguably serving different non-economic objectives, these non-tariff barriers (NTBs) often fail to be adequately justified, while significantly adding to the cost of importing. That is also the reason for an increasing interest in the topic of barriers Vietnamese enterprises face in accessing regional and global markets, particularly for sectors such as fisheries.

This study is structured as follows. Section A describes the approach and methodologies used. Section B reviews the overall performance of the Vietnamese fisheries sector together with a specific analysis of trade patterns. Section C identifies barriers to fisheries exports that are faced by Vietnamese firms while some findings of the enterprise survey are shown in section D. Section E concludes with some policy implications and recommendations.

A. Approach and methodologies

In obtaining the overall objectives of a Viet Nam case study on measuring the economic benefits gained from mutual recognition of standards for agricultural sector goods since post-WTO accession, this study considered the following questions:
(a) How are exports from Viet Nam affected by NTBs (ASEAN/non-ASEAN)?
(b) Whether these exports require any Mutual Recognition Agreements (MRAs) in order to improve the capacity of Viet Nam?
(c) What improvements required on domestic setting rules and facilities?

To answer the above-mentioned questions, secondary data for analysing the fisheries sector were collected from the following sources:

(a) Trade data from the United Nations Comtrade database;
(b) The non-tariff measures (NTM) database of the United Nations Conference on Trade and Development (UNCTAD) and the Economic Research Institute for ASEAN and East Asia (ERIA);
(c) Data from the General Statistics Office (GSO) of Viet Nam;
(d) Export-import statistics compiled by Viet Nam’s General Department of Customs.

Face-to-face, in-depth interviews were held with relevant stakeholders, including the Ministry of Agriculture and Rural Development, the Ministry of Health (Department of Food Administration), the SPS Office of Viet Nam, the Technical Barriers to Trade (TBT) Office of Viet Nam, the Viet Nam Chamber of Commerce and Industry, the General Department of Viet Nam Customs, and the Viet Nam Association of Seafood Exports and Producers (VASEP).

In addition, a questionnaire was sent to 50 fisheries firms. The key components of the questionnaire included: (a) the overall characteristics of the firms; (b) the firms’ understanding of Free Trade Agreements (FTAs), Bilateral Investment Treaties (BITs) and related issues; (c) policy support at the sectoral level (benefits and difficulties); and (d) their outlook and recommendations.

**B. Performance of the fisheries sector in Viet Nam**

1. Agricultural development in Viet Nam

The growth patterns of the agricultural, forestry and fisheries sectors during 2001-2016, which are shown in table 1, recorded a decreasing trend in overall growth, from 3.52% in 2001-2010 to only 1.36% in 2016. Among the three sectors, the fisheries sector recorded the fastest overall growth rate. During 2001-2010, the sector’s average growth rate was almost 7.6% per annum, followed by around 5% in subsequent years before declining to 2.8% in 2015 and 2016. Meanwhile, the average growth rates of the agriculture and forestry sectors reached about 3% per annum during 2001-2010, before slowing down during 2011-2016. Both the agricultural and fisheries sectors experienced slower
growth rates recently due to domestic economic hardship, unfavourable weather conditions and slow progress in agricultural restructuring.

Table 1. Growth rates of the agriculture, forestry and fisheries sectors, 2001-2016

(Unit: Per cent)

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</thead>
<tbody>
<tr>
<td>Overall GDP growth</td>
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<td>5.89</td>
<td>5.03</td>
<td>5.42</td>
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<td>6.68</td>
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<td>4.52</td>
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<td>7.14</td>
<td>9.64</td>
<td>7.57</td>
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</table>

Source: Author’s calculation based on GSO data.

Table 2 shows the shares of the agriculture, forestry and fisheries sectors in Viet Nam’s gross domestic product (GDP) during 2010-2016. With its higher growth rate, the fisheries sector saw its share of GDP increase steadily from 3.7% in 2010 to 4.2% in 2012, before fluctuating at around 3.8% during 2014-2016. The forestry sector’s contribution to GDP fell almost continuously from over 1.3% in 2001 to just over 0.7% in 2010, and 2012-2016. The share of the agricultural sector declined from 18.2% in 2001 to 16.7% in 2012, after which it ranged between 13-14% in 2013-2016. Altogether, the share of the agricultural, forestry and fisheries sectors contracted from over 23.2% in 2001 to 21.6% in 2012 and to slightly more than 18% in 2013-2016. The smaller overall share of the agricultural, forestry and fisheries sectors was also associated with the move by the Government of Viet Nam towards accelerating industrialization of the economy, which in turn led to expansion of the industry-construction and services sectors.

Table 2. Share of agriculture, forestry and fisheries of GDP, 2010-2016

(Unit: Per cent)

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<tr>
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<td>44.16</td>
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</table>

Source: Author’s calculation based on GSO data.
2. Key agriculture-related policies in Viet Nam

After the Renovation programme of the country in 1986, agricultural development could be classified and summarized as four key stages:

(a) Renovation (1986-1993). The key milestone of this period was the issuance of Resolution No.10/1998/NQ-TW on the renovation of agricultural management, shifting the focus of agriculture and rural development from cooperatives to farm households. There was a reduction of government control over prices and it opened markets to greater domestic and international competition. However, prices remained regulated for a limited number of products that were economically and/or socially essential to the country, including fertilizer, sugar and rice;

(b) Expansion period (1993-2000). The Government promulgated a series of regulations on institutional reforms and on improving investment and technological innovation such as: (i) the establishment and development of agricultural extension to transfer technology to farmers; (ii) credit policy for family farms, allowing rural households to borrow from commercial banks; (iii) extending land-use rights, granting land-use certificates (red book) and the expansion of rights on exchanging, transferring, leasing and inheriting land (land Law 1993); (iv) the replacement of compulsory quota systems and agricultural output tax with a land-use tax (Law on Agricultural Land Use Tax 1993); (v) regulating and stabilizing the prices of essential commodities; and (vi) relaxation of rice exports;

(c) Consolidation (2000-2008). The overall target of this period was strengthening market price transmission, and mobilizing essential resources to step up agricultural and rural modernization and industrialization. Four broad policies were implemented: (i) encouraging domestic production of primary and processed products; (ii) quality improvement; (iii) encouraging domestic and international trade; and (iv) increasing investment from various sources in physical and social infrastructure:

(d) Reorientation (2008 onwards):

   (i) The issuance of Resolution No.26/2008/NQ-TW on agriculture, farmers and rural areas (Tam Nong);
   (ii) In response to a sharp rise in international food prices during 2007-2009, Resolution No. 63/2009/NQ-TW was issued to ensure national food security;
   (iii) The overall framework for policy implementation under the
Socio-Economic Development Strategy for 2011-2020 was approved by the Prime Minister in January 2011 as well as the five-year Socio-Economic Development Plans (SEDP) for 2011-2015 and 2016-2020 (table 3). While the former reinforced the overall objective of making Viet Nam a modern and industrialized country by 2020, the latest five-year Socio-Economic Development Plan, 2016-2020, specified the targets.

Table 3. Some key objectives of SEDP for agriculture, 2016-2020

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GDP growth rate of AFF</td>
<td>%</td>
<td>3.3-3.5</td>
<td>3.5-4.0</td>
</tr>
<tr>
<td>2</td>
<td>Growth rate of output</td>
<td>%</td>
<td>4.0-4.5</td>
<td>4.0-4.5</td>
</tr>
<tr>
<td>3</td>
<td>Total export revenue</td>
<td>Billion United States dollars</td>
<td>20 - 21</td>
<td>39 – 40</td>
</tr>
<tr>
<td></td>
<td>- Agricultural products</td>
<td></td>
<td>9.5-10</td>
<td>21-22</td>
</tr>
<tr>
<td></td>
<td>- Fishery</td>
<td></td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>- Forestry</td>
<td></td>
<td>4.5-5</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Average export growth</td>
<td>%</td>
<td>6.5</td>
<td>5 per annum</td>
</tr>
</tbody>
</table>

Source: Ministry of Agriculture and Rural Development.

With specific regard to the fisheries sector, the Government promulgated a national strategy on development of fisheries up to 2020, under Decision 1690/QD-TTg, on 16 September 2010, focusing on: (a) developing a sustainable fisheries sector with a reasonable structure and production organization, raising the living standard for fishermen and the general population while protecting the ecological environment as well as national defence and security of the country; (ii) contributing 30%-35% of GDP in the agriculture, forestry and fisheries sectors with a growth rate of 8-10% per year, an export turnover of seafood valued at $8 billion-$9 billion, and total output of fisheries from 6.5 million to 7 million tons, of which aquaculture accounts for 65-70% of total production; and (iii) creating jobs for 5 million fishermen, with an income per capita that is three times higher, training for more than 40% of fishermen, building coastal fishing villages and islands.

In addition, a series of policies have been issued, including Decree 67/2014/ND-CP on policies for fisheries development, Decree 36/2014/ND-CP on the raising, processing and export of catfish, a restructuring programme on agriculture (Decision 899/QD-TTg on 10 June 2013), and the restructuring of the fisheries sector (Decision 2760/QD-BNN-TCTS on 22 November 2013 by the Ministry of Agriculture and Rural Development).
(a) Trade patterns of fishery products

(i) Fishery exports

Fishery exports have played an important role in the economy. By the end of 2016, total fishery exports value reached $7.05 billion, a growth rate of 7.4% compared with that of 2015 (Figure 1), accounting for 22.3% of the export value of the agriculture, forestry and fisheries sectors and 4.1% of the Viet Nam’s total export value.

![Figure 1. Fishery exports, 2005-2016](image)

Source: General Department of Viet Nam Customs.

As figure 1 shows, the value of Viet Nam’s fishery exports did not change much during 2011-2016. In 2013-2014, the export growth of the fisheries sector exceeded that of the agriculture and forestry sectors, demonstrating an increasingly important role. However, in 2015, the growth rate fell sharply by -16.1%, due to: (a) an increase in competitive pressure from Indonesia, India and Thailand; (b) a decline in average import prices; and (iii) a slow-down in import demand in major markets. The average growth rate of seafood exports during this period was 7.5% per annum.
Viet Nam’s exports of fishery products are quite concentrated. The two largest product categories at the 6-digit level cover frozen fish fillets (HS 030420), and frozen shrimps and prawns (HS 030613). The next-largest export product under Chapter 3 (Fish and crustaceans, mollusc and other aquatic invertebrates) includes frozen fish meat, excl. fillets (HS 030490), cuttle fish and squid (HS 030749) and octopus (HS 030759). Altogether, the top five largest export products accounted for about 90% of total exports.

**Table 5. Export of HS16 in major market, 2009-2015**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>636 553</td>
<td>910 012</td>
<td>1 174 553</td>
<td>1 224 622</td>
<td>1 610 704</td>
<td>2 007 717</td>
<td>1 712 594</td>
</tr>
<tr>
<td>ASEAN</td>
<td>31 033</td>
<td>31 196</td>
<td>58 365</td>
<td>64 634</td>
<td>71 549</td>
<td>79 350</td>
<td>74 528</td>
</tr>
<tr>
<td>European Union</td>
<td>119 901</td>
<td>164 273</td>
<td>239 526</td>
<td>231 088</td>
<td>279 783</td>
<td>399 073</td>
<td>383 427</td>
</tr>
<tr>
<td>Japan</td>
<td>171 922</td>
<td>212 584</td>
<td>271 064</td>
<td>301 477</td>
<td>351 613</td>
<td>399 526</td>
<td>341 890</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>66 494</td>
<td>75 904</td>
<td>91 733</td>
<td>106 423</td>
<td>109 499</td>
<td>148 749</td>
<td>135 174</td>
</tr>
<tr>
<td>United States</td>
<td>170 820</td>
<td>280 495</td>
<td>333 524</td>
<td>312 169</td>
<td>528 187</td>
<td>646 698</td>
<td>502 152</td>
</tr>
<tr>
<td>China</td>
<td>268</td>
<td>802</td>
<td>1 048</td>
<td>4 351</td>
<td>7 348</td>
<td>9 158</td>
<td>12 142</td>
</tr>
<tr>
<td>Others</td>
<td>76 114</td>
<td>144 758</td>
<td>179 293</td>
<td>204 479</td>
<td>262 725</td>
<td>325 163</td>
<td>263 281</td>
</tr>
</tbody>
</table>

The European Union has been one of Viet Nam’s major seafood importers, together with Japan and the United States. However, the United States has gradually replaced the European Union as Viet Nam’s largest fishery importer since 2013 (table 4 and table 5). The growth rate of exports to European Union markets experienced abnormal fluctuations during 2008-2014, with a large decrease of -19.5% in 2012. During the same period, the average growth rate of seafood exports to European Union markets showed a downward trend of 0.98%.

Overall, Viet Nam has enjoyed significant and continuous export expansion of fishery products. This has resulted in particular from penetration of key traditional markets, which are largely developed economies with high income levels. However, such export expansion has failed to be accompanied by greater diversity of exported products. As such, the target of further increases in exports of HS03 products in particular, and fishery products in general, may require closer linkages with import channels of fishery inputs, given that the domestic cultivation and exploitation capacity appears to have reached its limit.

(ii) Fishery imports

The import value of fisheries has been on the increase since 2010. By 2016, Viet Nam’s total seafood imports had reached over $1.1 billion, up from more than $300 million in 2010, but not much different to 2014 (figure 2). This amount accounted for 12% of the total imports of agriculture, forestry and fisheries sectors in the same year.

Figure 2. Imports of seafood in Viet Nam, 2010-2015

Source: General Department of Viet Nam Customs.
The growth rate of imports fluctuated during 2010-2015. After experiencing high growth in 2011, seafood imports recorded a slowdown during 2012-2013, before rising again in 2014. However, in general, from 2011 onwards, the imports of seafood recorded a growth rate that was bigger than the imports of agriculture and forestry sectors.

Table 6. Key seafood products in some recent years  
(Unit: Million United States dollars)

<table>
<thead>
<tr>
<th>Products</th>
<th>HS codes</th>
<th>Total value in 2013</th>
<th>Total value in 2014</th>
<th>Total value in 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frozen shrimp</td>
<td>030617</td>
<td>201.7</td>
<td>436.5</td>
<td></td>
</tr>
<tr>
<td>Lobsters and other shrimps</td>
<td>030621, 030622, 030611, 030612</td>
<td>8.7</td>
<td>7.1</td>
<td></td>
</tr>
<tr>
<td>Coldwater shrimps and other shrimps (black-tiger and white shrimp)</td>
<td>030616, 030626, 030627</td>
<td>25.4</td>
<td>22.7</td>
<td>426.0</td>
</tr>
<tr>
<td>Frozen crab and other crabs</td>
<td>030614, 030624</td>
<td>15.9</td>
<td>22.8</td>
<td>112.1</td>
</tr>
<tr>
<td>Fresh/frozen sea fish</td>
<td>0302, 0303</td>
<td>349.4</td>
<td>419.1</td>
<td>283.0</td>
</tr>
</tbody>
</table>

Source: Author’s compilation.

In recent years, there has been an increasing trend in fisheries imports, especially materials for processing, due to a shortage of domestic materials mostly attributed to loss of crops. For example, in 2015, such imports totalled $426 million, accounting for about 40% of total seafood imports. The value of imported tuna was also high, reaching $215 million, equivalent to 20% of total imports in 2015. According to the Viet Nam Association of Seafood Exporters and Producers (VASEP), seafood imported by Viet Nam mainly comprises fresh/frozen and frozen fish and shellfish for processing and exporting (table 6).
India is the largest exporter of seafood for processing in Viet Nam (figures 3-4). In 2016, the import value from India reached $276.4 million, accounting for 25% of the total seafood imports. In particular, the share of shrimp imports was about 74.7% of total shrimp imports in 2016. Followed by India, both Indonesia and China are large exporters of fisheries products to Viet Nam, with significant increase in 2016 of 85% and 33% respectively. The two other major imports markets included Norway and Japan with the fillets of salmon and tuna. However, these type of imports were mostly for domestic consumption.

(a) Domestic fisheries regulatory framework

The overarching regulatory framework of the fisheries industry is the Law on Fishery, which was enacted and became into effect from 1 July 2004. The document is considered to be a comprehensive regulation governing: (a) the protection and development of fisheries resources; (b) fishing; (c) aquaculture; (d) management of fishing exploitation and fisheries service; (i) fisheries processing, trading, exporting and importing of aquatic products; (f) international cooperation in fisheries activities; and (g) State management of the fisheries industry. In addition to the Law on Fishery, some sub-law guidance documents have been issued (table 7).
### Table 7. Existing regulatory documents on fishery

<table>
<thead>
<tr>
<th>Document</th>
<th>Content</th>
<th>Issuing date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decree 27/2005/ND-CP</td>
<td>Guide on detailed implementation of some articles of the Law on Fishery.</td>
<td>8 March 2005</td>
</tr>
<tr>
<td>Decree 66/2005/ND-CP</td>
<td>Regulation on ensuring safety for people and fishing vessels in exploiting fisheries resources.</td>
<td>19 May 2005</td>
</tr>
<tr>
<td>Decree 33/2010/ND-CP</td>
<td>Governmental Decree on management of fisheries exploitation in Vietnamese sea areas.</td>
<td>31 March 2010</td>
</tr>
<tr>
<td>Decree 32/2010/ND-CP</td>
<td>Regulation by the Government on management of foreign vessels in Vietnamese sea areas.</td>
<td>30 March 2010</td>
</tr>
<tr>
<td>Decree 59/2005/ND-CP</td>
<td>Regulation on conditions on business and production of fisheries.</td>
<td>4 May 2005</td>
</tr>
<tr>
<td>Decree 80/2012/ND-CP</td>
<td>Regulating the management of seaports, storm shelters for fishing vessels.</td>
<td>8 October 2012</td>
</tr>
<tr>
<td>Decree 103/2013/ND-CP</td>
<td>Regulations on sanctioning of administrative violations in fisheries activities.</td>
<td>12 September 2013</td>
</tr>
<tr>
<td>Decree 53/2012/ND-CP</td>
<td>Amending and supplementing some articles of Decrees on fisheries.</td>
<td>20 June 2012</td>
</tr>
<tr>
<td>Decision 1445/QD-TTg</td>
<td>Approval by Prime Minister on the Master Plan for fishery development to 2020 vision to 2030.</td>
<td>16 August 2013</td>
</tr>
<tr>
<td>Decision 375/QD-TTg</td>
<td>Approval by the Prime Minister on reorganization of production in exploiting aquaculture products in order to protect and effectively use resources, and applying traceability systems to create favourable conditions for exporting.</td>
<td>1 March 2013</td>
</tr>
<tr>
<td>Decision 2760/QD-BNN-TCTS</td>
<td>Decision of the Minister of Agriculture and Rural Development on approving the restructuring of the fisheries sector.</td>
<td>25 November 2013</td>
</tr>
<tr>
<td>Directive 12/CT-BCT</td>
<td>Directive of the Ministry of Industry and Trade on enhancing market information, trade promotion, and market development for boosting seafood export in the upcoming time.</td>
<td>28 April 2014</td>
</tr>
</tbody>
</table>

**Source:** Author’s compilation.
The objectives of the Master Plan on fisheries development to 2020 and Vision to 2030, which were approved by the Prime Minister under Decision 1445/QĐ-TTg, include the important targets detailed below.

(a) By 2020: (i) total output reaches about 7 million tons (35% of exploitation and 65% of production); (ii) export value reaches $11 billion, growth rate of 7%-8% per year during 2011-2020; (iii) about 50% of fishermen are trained, with average earnings three times higher; and (iv) a reduction of post-harvest losses from 20% to 10%.

(b) By 2030: (i) total output reaches 9 million tons (30% of exploitation and 70% of production); (ii) export value reaches $20 billion, a growth rate of 6%-7% per year during 2020-2030; (iii) value-added reaches 60% of exports; and (iv) 80% of fishermen are trained.

(c) *International Mutual Agreement on Fisheries*

By the end of 2016, Viet Nam had entered 17 cooperative agreements/memorandums of understanding (MoUs) with its partners in the field of fisheries. All 17 agreements and MoUs are on a bilateral basis, with common characteristics on controlling safety and SPS measures (Table 8). It is worth noting that Viet Nam has also signed bilateral agreements with ASEAN partners such as Cambodia, Indonesia, Myanmar, the Philippines and Thailand on fisheries.
Table 8. Bilateral Agreement on Fisheries, end of 2016

<table>
<thead>
<tr>
<th>Signing partner</th>
<th>Year</th>
<th>Main content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Republic of Korea</td>
<td>2016</td>
<td>Cooperative agreement on food safety control, and fisheries and aquatic product quarantine.</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>2012</td>
<td>MoU on fisheries and livestock.</td>
</tr>
<tr>
<td>Indonesia</td>
<td>2012</td>
<td>Agreement between Viet Nam and Indonesia on food safety control and fishery products.</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>2011</td>
<td>Cooperative Agreement on fisheries and food safety control.</td>
</tr>
<tr>
<td>New Zealand</td>
<td>2010</td>
<td>Agreement on bi-valve mollusc control in Viet Nam on exports to New Zealand.</td>
</tr>
<tr>
<td>Myanmar</td>
<td>2010</td>
<td>MoU on fisheries cooperation between Viet Nam and Myanmar.</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>2010</td>
<td>MoU on bilateral cooperation in the fisheries sector.</td>
</tr>
<tr>
<td>Philippines</td>
<td>2010</td>
<td>Agreement on Bilateral Cooperation in Fisheries between Viet Nam and the Philippines.</td>
</tr>
<tr>
<td>Italy</td>
<td>2008</td>
<td>MoU between Viet Nam and Italy in the field of quality control and food hygiene.</td>
</tr>
<tr>
<td>China</td>
<td>2008</td>
<td>Cooperation Agreement on quality control and food safety.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>2007</td>
<td>Agreement on quality management of fisheries products and food safety.</td>
</tr>
<tr>
<td>Canada</td>
<td>2006</td>
<td>MoU between Viet Nam and Canada on fisheries.</td>
</tr>
<tr>
<td>Cambodia</td>
<td>2006</td>
<td>Agreement on technical cooperation in quality of fish safety, amphibians and aquatic animal health protection.</td>
</tr>
<tr>
<td>Canada</td>
<td>2006</td>
<td>Agreement on issues related to inspection and certification of drug residues in Viet Nam’s aquatic products and fisheries exports to Canada.</td>
</tr>
<tr>
<td>Thailand</td>
<td>2006</td>
<td>Agreement on technical cooperation in controlling animal disease and fisheries safety.</td>
</tr>
<tr>
<td>China</td>
<td>2004</td>
<td>Cooperative Agreement on veterinary and quarantine inspection, and inspection of imported and exported fisheries products.</td>
</tr>
<tr>
<td>France</td>
<td>2004</td>
<td>MoU on controlling aquaculture sanitation.</td>
</tr>
</tbody>
</table>

Source: Author’s compilation

C. Barriers to fisheries exports

Most fisheries products under Chapter 03 and Chapter 16 enjoy the favourable tariff reductions when entering a free trade agreement (FTA). For example, according to Viet Nam’s Central Institute for Economic Management (CIEM), under the Viet Nam-European Union FTA (EVFTA), tariffs for most fisheries products will be reduced/eliminated under a specific schedule and commitments (table 9) when EVFTA comes into force. The remaining products will be subject to tariff quotas at the rate of zero per cent (table 9).
Table 9. Tariff preferential treatment under EVFTA

<table>
<thead>
<tr>
<th>~ 50% tariff lines:</th>
<th>~ 50% remaining tariff lines:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Base rate: zero-22%, most of which with high rate of 6-22%</td>
<td>- Base rate: 5.5%-26%</td>
</tr>
<tr>
<td>- Zero per cent when the Agreement takes effect</td>
<td>- Zero per cent after 3-7 years</td>
</tr>
</tbody>
</table>

Quota tariff for canned tuna and fish balls at 11,500 tons and 500 tons, respectively (zero per cent for in-quota quantity)

<table>
<thead>
<tr>
<th>Ratio of exports enjoying elimination of tariffs</th>
</tr>
</thead>
<tbody>
<tr>
<td>- After 3 years: 86.5%</td>
</tr>
<tr>
<td>- After 5 years: 90.3%</td>
</tr>
<tr>
<td>- After 7 years: 100%</td>
</tr>
</tbody>
</table>

Source: Vo and others (2016).

In addition to favourable tariff treatment, Viet Nam’s fisheries sector can enjoy significant opportunities from the transferring of input materials for export processing. Recently, due to the reduction of domestic inputs for fisheries, the country has started increasing its imports of inputs and materials for export processing. Through its participation in several recent and planned mega-FTAs (EVFTA, TPP and RCEP), Viet Nam can benefit from increased opportunities for importing of inputs from large trading partners (e.g., ASEAN, Japan, the Republic of Korea and the European Union) in the form of better exploitation capacity and cheaper prices. Moreover, with advanced processing capacity, Viet Nam’s seafood enterprises can benefit from the accumulated Rules of Origin in other bilateral agreements, thus enhancing market access.

Another important factor is that the competitiveness of Viet Nam’s fisheries sector will be enhanced compared to other countries, such as China. Under the framework of some non-China FTAs, there may be a shift from China to other countries with more favourable manufacturing and labour conditions, including Viet Nam.

Despite the rapid export growth of fisheries products as well as the above-mentioned opportunities, the industry is also facing emerging concerns and constraints that can be barriers to exports, thereby preventing further improvement of the industry, which include increasing NTMs, including TBTs and SPS measures.

A recent report by CIEM (2016) showed that in Viet Nam SPS measures and TBTs constituted the most popular NTMs. Both accounted for almost 37.5% of NTMs (Table 10) of current existing regulations.
Table 10. Summary of non-tariff measures by type

<table>
<thead>
<tr>
<th>Code</th>
<th>NTM by type</th>
<th>Number of NTMs</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Sanitary and phytosanitary measures</td>
<td>142</td>
<td>37.47</td>
</tr>
<tr>
<td>B</td>
<td>Technical barriers to trade</td>
<td>142</td>
<td>37.47</td>
</tr>
<tr>
<td>C</td>
<td>Pre-shipment inspection and other formalities</td>
<td>5</td>
<td>1.32</td>
</tr>
<tr>
<td>E</td>
<td>Non-automatic licensing, quotas, prohibition and quantity control measures other than SPS or TBTs</td>
<td>9</td>
<td>2.37</td>
</tr>
<tr>
<td>F</td>
<td>Price control measures including additional taxes and charges</td>
<td>7</td>
<td>1.85</td>
</tr>
<tr>
<td>G</td>
<td>Finance measures</td>
<td>2</td>
<td>0.53</td>
</tr>
<tr>
<td>H</td>
<td>Measures affecting competition</td>
<td>8</td>
<td>2.11</td>
</tr>
<tr>
<td>J</td>
<td>Distribution restrictions</td>
<td>1</td>
<td>0.26</td>
</tr>
<tr>
<td>P</td>
<td>Export-related measures</td>
<td>63</td>
<td>16.62</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>379</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: Vo and others (2016).

Product groups in the agro-food sector, including fisheries products, have experienced the most NTMs. The classification and database of NTMs show that those product groups had experienced, on average, more than 10 NTMs, particularly; vegetable products experienced at least 20 NTMs (CIEM, 2016).

Figure 5. Number of NTMs by product group

Source: Vo and others (2016).
Moreover, the industry has experienced stringent SPS measures by advanced markets such as Japan, the European Union and the United States. According to a report by the European Trade Policy and Investment Support Project (EU-MUTRAP), fisheries products, especially shrimp, squid and tilapia, were the most often rejected with the common reason related to excess of standard value of certain antibiotics (e.g., Ethoxyquin) or appearance of prohibited antibiotics (e.g., Enrofloxacin, Chloramphenicol, Furazolidone). Bacterial contamination including coliform bacteria, such as E. coli, and bacteria counts, were also recorded as frequent violations of Viet Nam’s frozen fisheries products imported by Japan. In the United States market, bacterial contamination, hygienic condition/control and labelling were the most common reasons for import rejections of Viet Nam’s fisheries products. Meanwhile, in the European Union, bacterial contamination, veterinary drug residues, additives and heavy metal were seen as big problems with Viet Nam’s fisheries exports (Table 11). During the first nine months of 2015, warnings of antibiotic contamination in 27 export shipments to the European Union were received, which was 1.28 times higher than in 2014.

### Table 11. Reasons for rejections of Viet Nam imports of fisheries products by major markets

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mycotoxins</td>
<td>-</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Additives</td>
<td>120</td>
<td>33</td>
<td>32</td>
</tr>
<tr>
<td>Bacterial contamination</td>
<td>961</td>
<td>127</td>
<td>145</td>
</tr>
<tr>
<td>Veterinary drug residues</td>
<td>170</td>
<td>172</td>
<td>297</td>
</tr>
<tr>
<td>Pesticide residues</td>
<td>0</td>
<td>4</td>
<td>50</td>
</tr>
<tr>
<td>Other contaminants</td>
<td>209</td>
<td>24</td>
<td>1</td>
</tr>
<tr>
<td>Heavy metals</td>
<td>0</td>
<td>61</td>
<td>0</td>
</tr>
<tr>
<td>Adulteration/missing documentation</td>
<td>103</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Hygienic condition/controls</td>
<td>981</td>
<td>20</td>
<td>23</td>
</tr>
<tr>
<td>Other microbiological contaminants</td>
<td>-</td>
<td>26</td>
<td>0</td>
</tr>
<tr>
<td>Labeling</td>
<td>349</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Packing</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Others</td>
<td>21</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

*Source: MUTRAP (2014)*
D. Some preliminary findings from the SME survey

Responses were received from the sample of 40 respondents in enterprises in the domestic fisheries sector. It should be noted that all the respondents were in Hanoi. A total of 95% of the sample comprised private firms, with the remainder being state-owned enterprises. (table 12)

Table 12: Structure of surveyed enterprises by ownership

<table>
<thead>
<tr>
<th>Number of responses</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic private firms</td>
<td>38</td>
</tr>
<tr>
<td>State-owned enterprises</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

Source: Authors’ calculation.

1. Understanding of FTAs/BITs and related issues

A total of 55% of the surveyed enterprises demonstrated a reasonable knowledge of BITs and FTAs, while only 12.5% had a good understanding of BITs and FTAs. At the same time, almost one-third of the surveyed enterprises had a poor understanding of such agreements. The enterprises were also requested to assess the provision of information on FTAs and BITs in Viet Nam (including those pending) (table 13). Half of the surveyed enterprises were of the opinion that such the provision of such information had been rather poor. Around 42% of the respondents rated information provision as fair. Very few enterprises considered the information provided so far as being good.

Table 13: Assessment of information provision regarding FTAs and BITs

<table>
<thead>
<tr>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of responses</td>
<td>3</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>Share (%)</td>
<td>7.5</td>
<td>42.5</td>
<td>50.0</td>
</tr>
</tbody>
</table>

Source: Authors’ calculation.
The knowledge of the surveyed enterprises regarding the pace of tariff reduction under FTA commitments is summarized in. Alarmingly, 40% of the surveyed enterprises knew nothing about such tariff reductions. The same proportion of enterprises only knew a little about the FTA commitments related to tariff reductions. Only one-fifth of the enterprises had a thorough understanding of the tariff reductions.

The survey also sought answers on the perception of enterprises regarding the preferential treatment currently granted to foreign direct investment (FDI) enterprises in the same sector. Half of the enterprises knew nothing about such preferential treatment. This may imply significant challenges for such enterprises in coping with competition pressures from FDI enterprises. Meanwhile, only 10% of the surveyed enterprises had a good understanding of the competition advantages for FDI enterprises as a result of preferential treatment.

The respondents were also asked to indicate the extent to which their production depended on imported inputs and materials (table 14). As shown in the table, 45% of the respondents depended completely or significantly on imported input materials. About 40% only used domestic inputs for production. It can be said that the reliance on domestic inputs is sufficient at this stage.

Table 14. Dependence of surveyed enterprises on imported inputs

<table>
<thead>
<tr>
<th></th>
<th>Complete dependence</th>
<th>Significant dependence</th>
<th>Insignificant dependence</th>
<th>No dependence</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of responses</td>
<td>6</td>
<td>12</td>
<td>6</td>
<td>16</td>
<td>40</td>
</tr>
<tr>
<td>Share (%)</td>
<td>15.0</td>
<td>30.0</td>
<td>15.0</td>
<td>40.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Authors’ calculation.
The survey questionnaires also asked the respondents how they rated the competition pressures from FDI counterparts in the same sector (figure 7). A total of 26% of the respondents said that such competition pressure was very tough. More than a half of the enterprises saw no difference between competition from local enterprises and from FDI enterprises, 23% of the respondents did not perceive a significant increase in competition from FDI enterprises (compared with competition from local enterprises).

In consistency with the above discussion, 27.5% of the fisheries enterprises said they had become more exposed to competition from foreign goods. Meanwhile, around 35% of the respondents said that such competition from local enterprise had not increased much. More importantly, 37.5% of the respondents said that competition from imported products was not tough at all (figure 8). This may reflect competitiveness of domestic enterprises on the one hand, but may also imply ignorance of information regarding market access that could leverage imported products’ advantages in the years ahead.

2. Understanding about policy support at the sectoral level

This subsection looks at how the surveyed enterprises assess policy support to the fisheries sector. To begin with, the questions were designed to identify whether the respondents learnt about the types of policy support available to them. Sixty per cent of surveyed enterprises have fair or adequate awareness of supporting policies (figure 9). However, 40% of the respondents had a limited understanding of sectoral policy support. This implies that negotiation and/or implementation of FTAs/BITs will affect their operations in the future. A further
implication was that they would not benefit adequately from policy support even after improving their competitiveness.

**Figure 9. Knowledge of sectoral policy support**

![Pie chart showing knowledge of sectoral policy support](image)

- Complete knowledge: 15.0%
- Mostly known: 30.0%
- Adequately known: 30.0%
- Largely unknown: 10.0%
- Completely unknown: 10.0%

*Source: Authors’ calculation.*

The perception of policy support that is available to the fisheries sector, relative to the rest of the economy, was also reflected in the answers to the questionnaire (figure 10). More than 52.6% of the surveyed enterprises claimed that preferential treatment was almost equal between the selected sectors and the rest of the economy. Only about 13.2% of respondents contended that sectoral policy support went beyond the national level. However, more than one-third of the respondents claimed that they were not sufficiently supported compared to the rest of the economy. The implication is that the faster the liberalization of a sector than the liberalization level of the general economy, the more challenges the enterprises in that sector will have to face.
Economic integration brings about both opportunities and challenges for firms. Figure 11 looks more closely into the impediments and/or difficulties facing enterprises due to various factors related to FTAs/BITs. The figure summarizes the perceived difficulties for the respondents due to insufficient information on such arrangements. As can be seen, the surveyed enterprises had rather dispersed views about the impacts of information deficiency which were viewed as significant. The risk to enterprises in Viet Nam, then, is that a large proportion of them have inadequate knowledge about FTAs/BITs, including both signed and pending ones, which may affect their decisions on making long-term investment or divestment. The difficulties due to insufficient policy support are less profound than the difficulties due to FTA information deficiency. The findings further justify the need for involving enterprises, right from the inception of FTAs/BITs (at best), to ensure they are properly informed. Competitiveness of FDI enterprises imposes a factor of significant concern for domestic enterprises in the fisheries sector. Last, the sectors see short tenure (and experience) as the key impediment to their operations. Therefore, retaining policy support – or at least the industrial policy instruments until the deadline for phasing out – is critical for a portion of the enterprises in developing themselves.

Source: Authors’ calculation.

Note: Ranking of support from 1 to 10, in which 1 is the lowest benefit and 10 is the highest benefit.
Figure 11. Difficulties related to FTAs/BITs

Source: Authors’ calculation.

Note: Ranking of difficulty from 1 to 10, in which 1 is the least difficult and 10 is the most difficult.

E. Conclusion and policy implications

The above analysis reaffirms the importance of fisheries exports in Viet Nam’s agro-food sector. It is clear that barriers to exports still exist and that one of the main challenges related to market access is how to comply with technical regulations and standards imposed by importing partners, mostly SPS and TBT measures. Findings from the survey also revealed that opportunities have been increasing for the fisheries sector in Viet Nam; however, barriers are also increasing, and the faster the liberalization of sector, the more challenges there are to Vietnamese firms.

The ASEAN Economic Community Blueprint 2025 aims to minimize trade protection and compliance costs in dealing with NTMs such as SPS issues by, among other approaches, working on Mutual Recognition Agreements (MRAs). Fisheries is one of the 12 prioritized sectors for integration; therefore the need for improving regulatory convergence is increasing. The issue for the CLMV countries in general, and Viet Nam in particular, is whether they are able to economically benefit from mutual recognition agreements, as they may lack the knowledge and technical capabilities required for ensuring that their products and services meet the standards set by the more developed nations. Hence
the need to set up or share facilities as well as request technical and capacity-building assistance, as allowed under the SPS Agreement of WTO and as envisaged in the AEC Blueprint.

In the light of this situation, and the above-mentioned analysis shows that Viet Nam has gradually promulgated relevant regulations on controlling quality and harmonization with regional and international standards, especially in response to regional and international economic integration and for trading activities. The study also identified existing cooperative agreements and MoUs between Viet Nam and its partners with regard to the fisheries industry. As most such agreements are on a bilateral basis, it appears that reaching a common regional mutual agreement on the fisheries industry will be difficult. However, ASEAN members, including Viet Nam, can also discuss and consider recognition of standards and quality certification by designated laboratory facilities, in order to reduce the compliance costs incurred by exporters and importers.

The survey-based analysis was subject to two limitations. On the one hand, the sample size was rather small, which casts some doubt about the representatives of the domestic fisheries sector. On the other hand, given its limited scope, the survey could not incorporate detailed quantitative indicators needed to support a more rigorous analysis (such as an econometric analysis).

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CIEM (2016). Opportunities and Challenges under EVFTA for fishery industry, Policy Paper Prepared for MUTRAP.


NTMs and agriculture exports
Non-tariff measures (NTMs) are policy measures, other than customs tariffs, that potentially can have an economic effect on international trade in goods, thus changing quantities traded or prices, or both. NTMs do not offer any judgment over legitimacy or lawfulness, and are different from the concept of “Procedural Obstacles”. NTMs are very diverse, as is their impact on trade, NTMs are associated with the production stage of a product up to its marketing and distribution stage. They can add costs to trade (for example, standards requiring information and compliance) and preclude trade through prohibitions, stringent requirements etc. They can also divert trade, due to quotas and standards, and create trade, for example, through sanitary and phytosanitary measures (SPS) and technical barriers to trade (TBT), which guarantee quality, help to identify those that are safe etc.

The costs associated with NTMs, such as preparing documentation as well as other import and export procedures for international trade, can account for a substantial part of the value of traded goods. Trade facilitation has, therefore, gained a high profile in South-East Asia. Cutting additional costs by removing unnecessary NTMs, streamlining NTMs, and attaining improved trade facilitation have helped countries to raise trade flows and/or diversify exports to newer markets – regionally or otherwise. Simplification of trade processes and procedures, the harmonization of trade transaction data and documents, and easier compliance with standards are thus envisaged as keys to improving the competitiveness of exports across most of the Asian countries, including the Lao People’s Democratic Republic.

Agriculture remains the most challenged sector in Cambodia and the Lao People’s Democratic Republic, and agricultural exports face several SPS measures and TBTs. Multilateral and bilateral trade agreements have minimized

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1As obvious from table 5 in Chapter 1, Part II of this volume.
tariffs, but the use of NTMs has increased considerably in recent years. The three chapters in Part III of this publication deal with NTMs in Cambodia and the Lao People’s Democratic Republic and identify several policy measures aimed at facilitating agricultural trade.

The first chapter, “Non-tariff measures affecting Cambodia’s maize exports to Thailand”, presents a detailed account of such exports and identifies the barriers faced by Cambodian exporters. Maize is one of the top three crops grown in Cambodia, in terms of cultivation area and overall production. The chapter identifies two important policy recommendations: (a) quantitative restrictions and similar limitations should not be used; and (b) the application of NTMs needs to be implemented for legitimate reasons. Unnecessary NTMs also need to be streamlined and the Mutual Recognition Agreement (MRA) between Cambodia and Thailand should be taken into consideration in seeking to promote better trade.

The second chapter, “The effects of non-tariff measures on Cambodian agricultural exports: A gravity model”, identifies the NTMs faced by Cambodia’s agricultural exports through gravity modelling. Almost all of Cambodia’s agricultural products are subject to NTMs. SPS measures and TBTs have higher coverage ratios than NTBs, with SPS measures being the most prevalent NTMs imposed by major importing countries of Cambodia’s agricultural products. Cambodia has an NTM regime that is different from all its major export partners. However, it is somewhat similar to those of Viet Nam and Singapore compared to other partners. SPS measures and TBT are unlikely to be barriers to Cambodia’s agricultural exports as the country’s main agricultural products meet the requirements of SPS measures and TBT applied by partners such as the European Union, the United States, China, Malaysia, Singapore, Thailand, and Viet Nam. Nonetheless, NTBs are likely to hold back Cambodia’s agricultural exports.

The results of the gravity model show that if NTBs imposed by importing partners of Cambodia’s agricultural products are reduced by 10%, such exports are likely to expand by 2.7%. The chapter’s authors recommend that Cambodia’s regulatory conformity agency should make efforts to reduce the procedural obstacles of testing and certification by creating its own testing laboratories that meet international standards.

The third chapter, “Non-tariff measures faced by exporters in the Lao People’s Democratic Republic: An assessment”, evaluates the extent of the barriers faced by Lao exporters in accessing their markets, and identifies the obstacles
faced by them in meeting technical requirements and complying with conformity assessment procedures. The assessment was made from a survey of exports of selected products by firms in the Lao People’s Democratic Republic. The field level data indicate that about 80% of Lao exporters have been facing difficulties with NTMs, of which 87% are agricultural firms (SPS) and 76% are manufacturing firms (TBT). The exporters identified labelling requirements (B31), and inspection requirements (B84) as common TBTs applied by the country’s trade partners.

With regard to the eight products covered by the study, Lao exporters are of the opinion that they do not face much restrictiveness from SPS and TBT measures, with the exception of one or two cases. Although labelling (B31) and inspection (B84) requirements are the two most common TBT measures faced by Lao exporters, they were not identified as restrictive. In its conclusion, the study notes that the Lao People’s Democratic Republic needs to pursue a phased, focused and incremental approach to facilitating exports. This will require further advisory and preparatory technical assistance as well as policy reform.
Part III
Chapter 1

Non-tariff measures affecting Cambodia’s maize exports to Thailand¹

*Ratha Kong, Rithymony Uy, Ea Hai Khov and Liyean Slot*

Introduction

The Kingdom of Cambodia became a member of the Association of Southeast Asian Nations (ASEAN) in 1999 and the World Trade Organization (WTO) in 2004. Cambodia has experienced remarkably robust economic growth since the 1990s. As one among the six fastest growing economies in the world, the GDP growth rate of Cambodia averaged 7.6% during the past two decades (1995-2014).² There are at least four key driving sectors in the Cambodian economy – the garment and textile industry, agriculture, tourism and construction.

Of these four driving forces of growth, the agricultural sector remains the most challenged by unfavourable requirements for trade with its neighbours, although all of them belong to the ASEAN Economic Community (AEC) that is aimed at creating single market among all its members. Tariff elimination/reduction is one of the key achievements of the regional economic integration for the free flow of goods between the ASEAN members. Nonetheless, both technical and non-technical requirements – for example, sanitary and phytosanitary (SPS) measures, technical barriers to trade (TBTs), pre-shipment inspection, non-automatic licensing, quotas, prohibitions and quantity-control measures – are still a burden to the free flow of commodity trade.

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¹ Additional resources for this chapter are available online at http://www.unescap.org/resources/trade-integration-within-asean-role-non-tariff-measures-cambodia-lao-peoples-democratic

Both Cambodia and Thailand are members of ASEAN, and neighbouring countries, sharing comparable cultures, traditions and religious practices. The two countries have long enjoyed a strong friendship and partnership through diplomatic relations, political cooperation and cross-border trade. With regard to cross-border trade, due to the different stages of development and implementation of trade policies in the two countries, a huge imbalance of trade between Cambodia and Thailand continues to exist. In 2015, Cambodian imports from Thailand totalled $4,881 million, while Thailand’s imports from Cambodia only amounted to $638 million. For trade in goods, all ASEAN members, including Cambodia and Thailand, are bound by the ASEAN Trade in Goods Agreement (ATIGA, 2013) with a wide range of obligations for regional trade liberalization and trade facilitation. ATIGA has resulted in significant consolidated provisions from the Common Effective Preferential Tariff for ASEAN Free Trade Agreement, and it has provided comprehensive coverage of commitments, including tariff liberalization, removal of non-tariff barriers (NTBs) and the application of non-tariff measures (NTMs) etc. (ASEAN Secretariat, 2013).

Maize is one among the top three crops cultivated in Cambodia, in terms of cultivation area and overall production. This study focused on a specific case of Cambodia’s maize exports to Thailand. In addition, the study analysed the incidence and frequency of NTMs through the UNCTAD classification by utilizing various sources of information. Section A details the research objectives and methodology while section B focuses on trends in maize production in Cambodia. Section C presents an analysis of Thailand’s regulations on maize trade and its NTM classification. Section D provides policy recommendations for more liberalizing trade and better trade facilitation.

A. Research objectives and methodology

The objectives of this study are to (a) fill the knowledge gap on practical NTMs affecting maize product 1005 HS-2012, (b) identify the types of NTMs faced by exports from Cambodia to Thailand and (c) ultimately seek better trade liberalization mechanisms with regard to NTM utilization.

Based on the United Nations Conference on Trade and Development (UNCTAD) definition, “NTMs are generally defined as policy measures other than ordinary customs tariffs that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both” (UNCTAD, 2015). It

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should be also acknowledged that different products might have similar applied NTMs, and that several types of NTMs can be imposed on the same products. In this regard, the research questions are:

(a) What types of NTMs have been imposed on Cambodia’s maize exports to Thailand?
(b) How do NTMs imposed by Thailand affect maize exports from Cambodia?
(c) What can be done by Thailand and Cambodia to improve the situation?

Methodology

The study uses a descriptive approach as its methodology based on past research papers, consultations with government officials from different line ministries, and interviews with representatives of traders and farmers located in maize-growing provinces. Questionnaires, in the Khmer language, were developed for collecting relevant information and data from a number of key stakeholders. Face-to-face interviews with public servants from the Department of Export-Import under the General Department of Trade Services, Ministry of Commerce, discussed the NTMs that had been imposed by Thailand on Cambodia’s maize exports during past years. At the same time, administrative information on the maize issue was collected from the Ministry of Agriculture, Forestry and Fisheries (MAFF) as well as the Ministry of Economy and Finance on the development of maize productivity in Cambodia and the implications of ATIGA. In addition, four exporters/middlemen and farmers were interviewed through informal phone calls to gather information on the recent challenges to exporting maize to Thailand. This approach made it possible to assess the export climate and the perception of Cambodia’s maize farmers and exporters.

This study also used information available from the Food and Agriculture Organization of the United Nations (FAO, 2016) for cross-checking facts on maize production in Cambodia. The study used the UNCTAD (2015) International Classification of Non-Tariff Measures, 2012 version, for classifying NTMs to find the practical frequency of NTMs and the number of different NTM incidences associated with maize exports from Cambodia to Thailand. In addition, various information was extracted from the National Trade Repository, Trade Intelligence Portal (I-TIP), UNCTAD and United Nation Comtrade database. Based on the available information for 2010 to 2015, the study reviewed the NTMs that have been imposed annually.
The study also examines maize cultivation areas, production and trade flow to determine the trends in Cambodia’s animal feed maize before and after the imposition by Thailand of multiple NTMs on maize, which provoked a public outcry in 2011. In this connection, the study provides policymakers and other players in both countries with an overall view of the practical impacts of NTMs and the consequences as well as a way forward in addressing NTMs.

B. Maize production trends in Cambodia

According to the World Bank (2015), agricultural production in Cambodia (rice, followed by maize, cassava and vegetables) has significantly contributed to the country’s development. Rice is the most important crop in terms of GDP contribution, employment, food security and exports. Meanwhile, maize has been characterized by its rapid adoption of improved seeds as well as its integration with the feed industry, while growth in cassava production has been exceptional even though its development is subject to sustainability and biodiversity conservation. Vegetables are a major product due to their importance to nutrition and food safety as well as being a good product for import substitution.

In the case of maize, it is the second most important crop for Cambodia “after rice in terms of cultivated area and production,” and “the third-largest crop in Cambodia (behind rice and cassava) based on its annual average production” (MAFF, 2016). Maize production has remained an important staple food crop for Cambodia’s agriculture industry and farmers’ living standards. Although the market keeps fluctuating due to difficulties over market access and other issues, Cambodian farmers have continued to cultivate maize. Production of red and yellow maize is mostly for animal feed such as for pigs, chickens, ducks etc., while the standard white maize is typically grown for human consumption in Cambodia, but in much lower amounts compared with red or yellow maize. Animal feed maize is an essential input for supporting the animal feed industry as well as accounting for a large share of the costs of the livestock industry. Cambodia’s animal feed maize is usually sown during May and June, and harvested during September and October (figure 1). According to FAO (2016), “the bulk of the 2016 maize crop was harvested by October”. After October, farmers start to cultivate their rice crop which is normally sown during November and December, and harvested during March and April (figure 1). Farmers utilize their land from rice after harvesting to cultivate other crops such as maize, cassava and vegetables.
According to MAFF, at least seven major provinces – Pursat, Banteay Meanchey, Battambang, Pailin, Preah Vihear, Kandal and Kampong Cham – are cultivating maize, mostly in the western region of the country near the border between Cambodia and Thailand. Battambang and Pailin provinces are also the main production areas in Cambodia for animal feed maize. The average animal feed maize yield per hectare is 5.4 tons/ha in Battambang, which is higher than the national average yield of 4.3 tons/ha (Mund, 2011). These feed maize production areas, located in north-west Cambodia, “peaked at 147,300 ha in 2009 […] the area of maize in the rest of Cambodia remained relatively stable at around 50,000 ha from 1998 to 2009” (Martin and others, 2016).
Geographically located close to the maize farming provinces in Cambodia, Thailand has been traditionally one of the major markets for maize exports from Cambodia. When exporting to Thailand, maize exports usually go through Cambodia-Thai border checkpoints at Pailin and Poipet (both in Banteay Meanchey province).

According to United Nations Comtrade data, in 2008 Cambodia exported 310,966,969 kg of maize to Thailand; however, the amount steadily declined annually to 20,326,000 kg in 2015 (table 1), with exception of 2012 and 2013 when there was an increase due to a new Thai policy that was made to meet demand for more maize for animal feed processing. The Bangkok Post reported in January 2013 that “the Thai Cabinet approved the import of 450,000 tons of tariff-free maize from Cambodia and the Lao People’s Democratic Republic.” Similarly, the export value decreased from $31,834,970 in 2008 to $2,451,758 in 2015 (table 1). Taking 2008 as the base year, by 2015 Thai maize imports had declined significantly by approximately 93% in terms of both quantity and value.

<table>
<thead>
<tr>
<th>Year</th>
<th>Trade value ($)</th>
<th>Net weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>31 834 970</td>
<td>310 966 969</td>
</tr>
<tr>
<td>2009</td>
<td>8 876 142</td>
<td>95 733 296</td>
</tr>
<tr>
<td>2010</td>
<td>25 973 758</td>
<td>224 742 232</td>
</tr>
<tr>
<td>2011</td>
<td>3 869 026</td>
<td>28 324 600</td>
</tr>
<tr>
<td>2012</td>
<td>6 107 076</td>
<td>44 738 950</td>
</tr>
<tr>
<td>2013</td>
<td>9 419 381</td>
<td>65 412 000</td>
</tr>
<tr>
<td>2014</td>
<td>3 810 405</td>
<td>27 220 128</td>
</tr>
<tr>
<td>2015</td>
<td>2 451 758</td>
<td>20 326 000</td>
</tr>
</tbody>
</table>


From 2011 to 2015, average maize production in Cambodia was about 709,000 tons annually (table 2). In 2015, maize production declined by approximately 400,000 tons. However, the forecast for production in 2016 was about 750,000 tons (FAO, 2016). The percentage change of maize production in 2016 was therefore 88% which was extremely high compared with production in 2015.
Table 2. Cereal production in Cambodia

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice (paddy)</td>
<td>9 224</td>
<td>9 335</td>
<td>9 500</td>
<td>2</td>
</tr>
<tr>
<td>Maize</td>
<td>709</td>
<td>400</td>
<td>750</td>
<td>88</td>
</tr>
<tr>
<td>Total</td>
<td>9 933</td>
<td>9 735</td>
<td>10 250</td>
<td>5</td>
</tr>
</tbody>
</table>


According to the interviewees in this study, most Cambodian farmers usually sell their wet maize to collectors or middlemen for further processing. It is then sold to Thai traders. In the past two years, storage facilities for drying and storing maize have been established at Sampov Loun, Malai, Kamrieng, Pailin and Phnom Proek. Those facilities are capable to store up to 30,000 tons of wet maize, soybeans or other crops, and it has enough abilities to dry up to 30 tons per hour for each facility.

Figure 2. Cambodia’s major export markets for maize, 2012-2015

Source: United Nations Comtrade Database.

Viet Nam is another important market for Cambodia’s maize exports (figure 2). According to interviewees, after exporting to Thailand the remaining maize will be sold to Viet Nam or absorbed by the local market. A maize collector in Pursat claimed that “we mostly need to transport our maize by (our own) trucks
from north-west Cambodia to south-east Cambodia to be sold." This leads to higher transportation costs. Only when demand is high, Vietnamese buyers sometimes go to purchase maize directly from the farms. Therefore, since 2012, Viet Nam has replaced Thailand as the largest market for Cambodia's animal feed maize. Pailin, which is one of the major producing-maize provinces in Cambodia, has shifted its cropping pattern from maize to cassava since 2011 (figure 5). Maize, which traditionally was the second-largest crop after rice, has now become third-ranked after cassava. The trend in maize production has not shown any indication of an increase, and is continuing to decline. A maize collector in Battambang claimed during an interview that “I quit my job as a maize collector and moved to work in Phnom Penh for the past two of years, after facing difficulties in the maize business. I have no more interest in maize or any other agricultural business.”

C. Analysis of Thailand's regulations on the maize trade and its NTM classifications

Following regional liberalization through tariff reduction, a great deal of attention has been given to the role of NTMs. It is of paramount importance that international trade is made more transparent, predictable and accountable by having the NTMs in place that ensure public goods, human welfare, environmental protection and State security rather than becoming the unnecessary obstacles to trade. Newly-initiated NTMs, which have been notified to WTO, increased significantly “from 1,200 in 2002 to surpass 2,500 in 2013, globally. The Asia-Pacific region has accounted for a fifth of these newly-initiated NTMs” (Heal and Palmioli, 2015). Numerous international and regional organizations have been making substantial progress in promoting better NTM applications with transparency and accountability; thus, they have become good sources of information and data for analysing the implementation of NTMs and for comparing actual trade with the administrative information.

1. NTM identification based on I-TIP

According to the UNCTAD Integrated Trade Intelligence Portal (I-TIP), dated 21 February 2017, several NTMs imposed by Thailand appear to have affected Cambodia and other relevant partners. In accordance with I-TIP, one NTM has had an effect on maize since 1998, while the remaining NTMs have been enforced only since 2015 (table 3).
According to I-TIP, at least two existing Thai regulations are currently being enforced on animal feed maize imports: (a) the Ministry of Commerce’s Ministerial Notice to determine import fees for maize, fish meal and soybean meal; and (b) Ministry of Commerce’s Ministerial Notice on imports of maize as an ingredient of animal feed under AFTA.

Under the first Ministerial Notice (in force since 1998), I-TIP has classified only one NTM (F69: Additional charges). However, it lists two substantial NTMs – a special fee and certificates of origin (Rules of Origin). More interestingly, the purpose given for collecting the special fee is to protect the domestic industry as stated in the description in I-TIP.

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The latter Ministerial Notice (in force in 2015), as appear in the table 3, two different NTMs have been categorized by I-TIP, namely C3 (the requirement to pass through specified port of customs) and H11 (State-trading enterprises, for importing). However, under the second row of the table 3, there should not be only C3, as the notice also comes along with plant inspection which is A84 (Inspection Requirement). Similarly, under the third row of the table 3, there should not only be H11, since the notice has also the conditions on the period of time for importation of maize in Thailand, either through PWO or other importers. The limitation for period of importation could be acknowledged as the F5 (Seasonal duties) since it is applicable at certain times of the year for animal feed maize. The limitation for period of importation could be acknowledged as the F5 (Seasonal duties) since it is applicable at certain times of the year for animal feed maize (figure 3).

**Figure 3. Cambodia’s maize cultivation period, 2015**

Through other importers, 1 March-31 August 2015.

Through PWO, 1 January-31 December 2015.

One of the major challenges posed by the above NTMs is the time limitation given to other importers during a certain interval before the maize harvesting period of Cambodia. This has raised the following questions:

(a) Why does Thailand need to differentiate the permitted maize import period for PWO and other importers?
(b) Why does Thailand allow other importers several months only, and not the whole year?
(c) What is the rationale behind the role of PWO in maize trading?
2. NTM identification and classification based on legal analysis

The information from I-TIP somehow covers only those NTMs for maize trading that have remained in force until today; therefore, inactive measures are not covered in the table above. Thus, there is a loophole as a number of measures or requirements have been replaced since the new regulations were released. According to Heal and Palmioli (2015), NTMs are often contained in complicated legislation comprising multiple overlapping rules. Thus, there is a need to consider the progress of the regulations concerning NTMs imposed on maize production during past years. Examination of recent applications could perhaps provide some important evidence on the development of NTMs imposed on maize imports from Cambodia. However, it should be also noted that there are challenges to collect such information as these legal documents are only available in the Thai language.

The following legal documents and information were provided by various stakeholders. Based on the interviews, consultations and administrative information supplied by the line ministries, it is known that Thailand has apparently continued to impose new trade regulations on maize imports since 2011, which was only one year after ATIGA came into effect in 2010, which basically affects Cambodia and the Lao People’s Democratic Republic. Protests were made by farmers expressing concern since they faced difficulties in exporting maize to Thailand, i.e., only certain periods of the year were permitted for maize imports by Thailand, while in the remaining periods imports were restricted or less preferences were given. Since 2011 NTMs have increasingly been imposed with various requirements, such as SPS measures, set periods for exports to Thailand, permitting specific importers and restricted amounts only. However, such measures have been updated annually since 2011.

The new NTMs have become an obstacle to the flow of maize exports to Thailand. More interestingly, the regulation containing the NTMs has emphasized specific countries and defined the product supply. Given the fact that on 22 February 2011, a proclamation was issued by the Thai Ministry of Commerce (detailed in annex 1 available in the online version of this publication) specifying measures imposed on corn imports (animal feed maize) as stated in both Article 1 and Article 3 (1005.90.90) from the Kingdom of Cambodia:
**Article 1:** The subject of this Prakas (Proclamation) by the Ministry of Commerce is imports of corn for the production of animal feed supply from the Kingdom of Cambodia under the Regional Free Trade Agreement for the Buddhist Calendar Year 2554 [2011].

**Article 2:** This Prakas comes into force from 1 March in Buddhist Calendar Year 2554 [2011].

**Article 3:** Corn, which serves as a raw material for the production of animal feed supply, with an import tariff of 1005.90.90, originating from ASEAN in accordance with Agreements under the Regional Free Trade Areas, is a product that shall be certified by authorised government agencies and presented to customs for importation by the Kingdom [of Thailand] in order to benefit from special preferential tariff treatment. [...]^5

In complying with Article 1, imports of maize from Cambodia to Thailand are subject to the imposition of all NTMs under these Articles. This Prakas imposed some NTMs that can be found in other Articles such as Articles 3, 4 and 6. After analysing the NTMs under these Articles, it was found that the classification of several NTMs was based on the UNCTAD International Classification of NTMs (version 2012), such as Product Registration Requirement (A81), Rules of Origin (O), Seasonal Duties (F5) and Inspection Requirement (A84), which can be found in Articles 3, 4(1) and 4(2), respectively, in the Prakas.

**Table 4. Non-tariff measures imposed by Thailand on 22 February of the Buddhist Calendar Year 2554 (2011)**

<table>
<thead>
<tr>
<th>Article</th>
<th>NTM requirements</th>
<th>Measure</th>
</tr>
</thead>
</table>
| Art.1, 2, 3, 5 and 6 | • Requirement to benefit from full or partial exemption of taxes under AFTA.  
                      • Certificate only valid for a month and cannot exceed 30 June 2011.  
                      • Certificate only issued between 3 March and 10 June for the quantities requested. | A83 Certification requirement |
| Art. 2(1), 3 | Importers had to be registered before they could import. | A15 Registration requirements for importers |
| Art. 5 | • Lower rates applied for certain periods, and higher rates charged on imports that exceeded those periods.  
       • Certificate issued for requested quantities only. | E23 Temporary, E6 Tariff-rate quotas, F5 Seasonal duties |

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^5 Prakas of the Ministry of Commerce (Thailand) on the Importation of Corn for the Production of Animal Feed Supply (unofficial translation), see details in annex 1 available in the electronic version of this publication.
Among the above four NTMs imposed on Cambodian maize, the time-bound NTM is the most critical barrier to maize trading. When applying the newly-initiated NTMs imposed by Thailand to Cambodia’s maize production calendar, the permitted period for exports to Thailand is only five months, starting before the harvesting season of maize (figure 4).

Six days after the 22 Feb 2011 Prakas, another trade regulation has issued new NTMs on maize products. Differing from the 22 February 2011 Prakas, it contained a statement on the “Standards, Methods and Conditions for Requesting and Issuing Certificates of Full or Partial Exemption of taxes regarding corn used as cooked feed for animals and imported into the Kingdom of Thailand” (see annex 2 available in the electronic version of this publication). The Thai Department of Foreign Trade issued an additional trade regulation on 28 February 2011, imposed three major requirements: (a) exporters must register (Article 2) and provide a certificate for corn (Article 1 and Article 6): imports limited to between 3 March 2011 and 10 June 2011 (Article 5) in order to receive the ATIGA tariff rate zero per cent, or otherwise use MFN under the WTO scheme for which the import duty for maize is about 73% with a charge of 180 baht per ton. These measures took effect from 11 March 2011⁶ (figure 5)

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⁶ See detailed information on the statement by the Thai Department of Foreign Trade on the standards, methods and conditions for requesting and issuance of Certificates of Full or Partial Exemption from Taxes regarding the corn to be used as cooked feed for animals and imported into the Kingdom of Thailand according to the AFTA (see annex 2 available in the electronic version of this publication).
The regulation issued on 28 February 2011 was probably a correction of the 22 February 2011 Prakas, which did not state a specific country and permitted maize imports by Thailand during a similar period. However, new measures were issued with different conditions for the preferential tariff in the period of imports into Thailand. Those Articles contain NTMs in accordance with NTM Classifications (table 5).

**Table 5. Non-tariff measures imposed by Thailand on 28 Feb 2011**

<table>
<thead>
<tr>
<th>Article</th>
<th>NTM requirements</th>
<th>Measure</th>
</tr>
</thead>
</table>
| Art. 1, 2, 3, 5 and 6 | • Requirement to benefit from full or partial exemption of taxes under AFTA.  
• Certificate only valid for a month and cannot exceed 30 June 2011.  
• Certificate only issued between 3 March and 10 June for the quantities requested. | A83 Certification requirement |
| Art. 2(1), 3 | Importers had to be registered before they could import. | A15 Registration requirements for importers |
| Art. 5 | • Lower rates applied for certain periods, and higher rates charged on imports that exceeded those periods.  
• Certificate issued for requested quantities only. | E23 Temporary, E6 Tariff-rate quotas, F5 Seasonal duties |

The attempt to regulate measures to be imposed on maize continued after 2011 with new types of NTMs. On 29 December 2011, another regulation was adopted for managing the flow of trade in maize (table 6). In this connection, at least two major NTMs were put in place that permitted the PWO to control the quantity of each import and the period during which such imports would...
be permitted. In the case of the PWO, maize imports are allowed throughout the year (i.e., the whole of 2012). In the case of other importers, the period of importation was between 1 March and 31 July 2012 (figure 6)

Table 6. Non-tariff measures imposed by Thailand, 2012

<table>
<thead>
<tr>
<th>NTM requirements</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>For other importers the period was between 1 March 2012 and 31 July 2012.</td>
<td>F5 – seasonal duties</td>
</tr>
</tbody>
</table>

Beyond certain requirements, such as a certificate of origin, SPS, registration, and inspection, imposed in 2012, exporters of maize to Thailand were required to meet additional conditions when going through the PWO to receive the preferential tariff.

Figure 6. Cambodia’s maize production and Thailand’s NTMs in 2012

Through other importers between 1 March and 30 July 2012

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7 The role of the Public Warehouse Organization operates under the authority of the Ministry of Commerce with the purpose “of carrying out all activities related to rice, and other agricultural and non-agricultural products to ensure that quantity, quality and price are appropriate to the public as was agreed by the Government” (Ministry of Commerce, 2016).
In some cases, there was even a limit on the quantity of maize imports by Thailand although they had to go through the PWO within a similar period in 2012. Then Secretary of State for Cambodia’s Ministry of Commerce, Chan Nora, said that “this year (2012), the [Thai] regulations for the import of agricultural goods are very strict. They are different from last year” (Sieam Bunthy, 2012). Cambodia’s exporters in the private sector viewed the PWO as a restrictive mechanism with no transparency in its requirements imposed on maize supplies. According to the interviewees, the PWO had increasingly imposed restrictions not only on maize, but also on other agricultural products such as soybean and cassava. At the same time, they said that they were confronted with number of hurdles in complying with the administrative procedures, in addition to the limited import period within the year. These NTMs inevitably limited the capacity of the exporters to trade freely, even under the framework of the ASEAN Free Trade Agreement.

Similar NTMs were imposed on maize imports in 2013. However, the 2013 measures permitted quantities that were higher than those permitted period for maize importation with preferential tariff. On 1 February 2013, the Government of Thailand allowed maize for animal feed in grain from Cambodia. To be imported through PWO: 150,000 tons from November 2012 to Jan 2013, and 100,000 tons during August 2013 at zero import duty (table 7 and figure 7).

### Table 7. Non-tariff measures Imposed by Thailand, 2013

<table>
<thead>
<tr>
<th>NTM requirements</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Maize to go through the PWO.</td>
<td>▪ H11 – state-trading enterprises, for importing.</td>
</tr>
<tr>
<td>▪ Certain period from Nov 2012 to Jan 2013 and certain amount with 150,000 tons for zero per cent.</td>
<td>▪ F5 – seasonal duty.</td>
</tr>
<tr>
<td>▪ In Aug 2013 with 100,000 tons for zero per cent.</td>
<td></td>
</tr>
</tbody>
</table>

### Figure 7. Cambodia’s maize production and Thailand’s NTMs in 2013

Through the PWO from November 2012 to January 2013, 150,000 tons, zero per cent.

Through the PWO in August 2013, 100,000 tons, zero per cent.
In Cambodia, maize is usually sown in May and June, and harvested between September and October. In this regard, NTMs imposed by Thailand on maize imports from March to June or July with more preferential trade would appear to be meaningless as Cambodia’s farmers are harvesting rice at that time. In other words, increases in requirements and restriction measures have created a wide range of challenges for maize production and maize exports by Cambodia. Thai policy measures, not only in terms of timeframe allocation, but also in quantities traded, involvement of the PWO among various other measures, potentially have a negative economic effect on Cambodia’s maize trade. In addition, the constant annual updating of measures has resulted in confusion and difficulties for traders in following-up and implementing them.

Table 8. Timeline of the Non-Tariff Measures Imposed by Thailand

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-tariff measures</th>
<th>Trade value</th>
<th>Net weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>Special fee and Certificate of Origin (1996 Ministerial Notice)</td>
<td>31 834 970</td>
<td>310 966 969</td>
</tr>
<tr>
<td>2009</td>
<td>Special fee and Certificate of Origin</td>
<td>8 876 142</td>
<td>95 733 296</td>
</tr>
<tr>
<td>2010</td>
<td>Special fee and Certificate of Origin</td>
<td>25 973 758</td>
<td>224 742 232</td>
</tr>
<tr>
<td>2011</td>
<td>Special fee and Certificate of Origin</td>
<td>3 869 026</td>
<td>28 324 600</td>
</tr>
<tr>
<td></td>
<td>Between 3 March 2011 and 10 June 2011 according to the quantities requested to benefit from zero per cent import duty granted under ATIGA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower rates apply for certain periods and higher rates are charged on imports that exceed this period</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Products must be certified by government agencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The certificates issued are valid for a period of one month from the issuing date and may not exceed 30 June 2011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>Special fee and Certificate of Origin</td>
<td>6 107 076</td>
<td>44 738 950</td>
</tr>
<tr>
<td></td>
<td>Importing can be done for a whole year if done through the PWO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If through other importers, the import period will be between 1 March 2012 and 31 July 2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>Special fee and Certificate of Origin</td>
<td>9 419 381</td>
<td>65 412 000</td>
</tr>
<tr>
<td></td>
<td>Imports must go through the PWO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The quantity of maize imports is set at 150,000 tons from November 2012 to Jan 2013, and 100,000 tons during August 2013 at 0% import duty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>(No available regulation, but assumed to be similar as 2013 or 2015)</td>
<td>3 810 405</td>
<td>27 220 128</td>
</tr>
<tr>
<td>2015</td>
<td>Special fee and Certificate of Origin</td>
<td>2 451 758</td>
<td>20 326 000</td>
</tr>
<tr>
<td></td>
<td>For maize originating in, and exported by an AFTA member, the importer can be either the PWO or other importers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>For the PWO, imports must be between 1 January and 31 December through a purchasing plan corresponding to the domestic situation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>For other importers, shipments can be received between 1 February and 31 August</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Non-tariff measures imposed on maize from 2011 led to street protests by Cambodian farmers to draw the attention of the Government of Cambodia to the fact that they could not export.*
As a consequence of introducing various types of “unfriendly” NTMs each year, the annual quantities and trade value of Cambodia’s maize exports to Thailand have been decreasing. The impact of these measures is not only felt by the exporters, but also by farmers who annually cultivate maize. Some farmers have given up maize production and begun cultivating other types of crops as they have repeatedly confronted difficulties in selling to middlemen. A former maize collector in Battambang province explained that he had “quit his job, and has been working for a couple of years in Phnom Penh instead as he could not make any profit from maize exports”. Cambodia’s customs officials also confirmed the maize bans by Thailand. Cambodia farmers who live close to the border between Cambodia and Thailand claimed that “corn prices have fallen as the result of an import ban” by the latter country (Rann Reuy, 2012). However, Jiranun Wongmongkol, who was Commercial Counsellor in 2012 at the Embassy of Thailand in Phnom Penh, also confirmed that there had a ban, but he claimed that “any ban must have been initiated by the private sector, not by the Government of Thailand” (Rann Reuy, 2013). However, the fact that only the Government has the legitimate power to authorise and implement a trade policy which must be reasonable and not in violation of WTO principles and the relevant provisions of any relevant other FTAs.

D. Policy recommendations

The Government of Cambodia raised the maize export issue with the Coordinating Committee on the Implementation of ATIGA (CCA) after the public protests in 2011, as not complying with ATIGA provisions. At the same time, in order to minimize the damage caused by Thailand’s NTMs, Cambodia’s Ministry of Commerce encouraged farmers to consider cultivating other sorts of crops. Until now, the available alternatives for Cambodia are to:

(a) Pursue its efforts through the available bilateral mechanism, a process that could end up with same result as already exists;
(b) Continue to pursue efforts through the CCA by use of the multilateral dialogue and consultation mechanism, which might not be fruitful as the disagreement has been continuous since 2011;
(c) Invoke a dispute settlement mechanism, which could be the ASEAN Dispute Settlement Mechanism or WTO Dispute Settlement Understanding (which would require extensive input of resources, both human and financial); or

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9 The interviewee had worked in Oh Krouch village, Boeung Raing commune, Kom Reang district, Battambang province
(d) Introduce trade retaliation measures on Thai products by using similar NTMs to those imposed by Thailand. However, this approach could either achieve a better outcome or lead to trade conflict.

The imposition of the above measures by Thailand is obviously inconsistent with the provision of ATIGA, particularly with regard to Article 11 on the Notification Procedures,\textsuperscript{10} which states that any imposed measure must be notified to the Senior Economic Officials’ Meeting (SEOM) and the ASEAN Secretariat in Jakarta at least 60 days before such measure takes effect. The provision also provides sufficient time for other member States that might have an interest in prior clarification, discussion and comments, both directly and indirectly, regarding the measure concerned. However, according to Cambodia’s Ministry of Economy and Finance, “until now Thailand has not notified her measures properly to SEOM and the ASEAN Secretariat,” in the case of NTMs on maize. Cambodia and other member States with substantial interests in such measures have had no opportunity to submit their comments before newly imposed measures have taken effect each year. At the same time, the regulations in question are only available in the Thai language. Article 15 of ATIGA states that conducting official communications and documentation must be “in writing and in the English Language” for exchange among ASEAN members.\textsuperscript{11}

With regard to the application of NTMs, Article 40 requires all countries to take into account the need to promote better transparency the allowing public access to information and regulations related to trade, especially interested trading partners, relevant private traders and other stakeholders. All ASEAN members are actually bound by the commitment to “ensure that any such measures are not prepared, adopted or applied with the view to, or with effect of, creating unnecessary obstacles in trade among the member States.”\textsuperscript{12} At the same time, Article 40 states that NTMs will be established covering the aggregated international community and not specifically discriminate any particular country (as reflected in the 22 February 2011 Prakas, in which Article 1 specifically emphasizes Cambodia, with certain NTMs that effectively restrict exports of Cambodian maize to Thailand appearing in other Articles). Those NTMs, such as time bound-measures for certain importers, have become effective tools for hindering maize imports by Thailand. NTMs that have not been legitimated need to be immediately eliminated in response to Article 42 of ATIGA.

\textsuperscript{10} ASEAN Secretariat, Jakarta, July 2013, p. 13.
\textsuperscript{11} ASEAN Secretariat, Jakarta, July 2013, p. 16.
\textsuperscript{12} Article 40, Application of Non-Tariff Measures, ATIGA, ASEAN Secretariat, Jakarta, July 2013, p. 41.
More importantly, the PWO is believed to have become an active player in terms of both technical and non-technical NTM utilization to create administrative obstacles through high-level intervention by the Thai Government to protect domestic farmers and stabilize prices as stated in its objectives. Together with the limitation of the trading period at the first stage, and later allowed only through PWO or with certain conditions for receiving preferential tariff, these NTMs became restrictive measures on trade in animal feed maize between Cambodia and Thailand. It is the yellow maize market that is much more protected by the Government. However, this is not a reasonable or legitimate action by the Government to intervene, as it is not necessary to do so in this case. Thailand should therefore review the role of the PWO with regard to its obligation under ATIGA to facilitate the free flow of trade. In this connection, there are at least three factors that Thailand needs to take into account in the case of PWO.

First, quantitative restrictions and similar limitations should not be used. So far, quantitative and other restrictions have been practiced, hindering trade across borders, as was the case in 2011, as stated in Article 5 (Appendix 2): “The Department of Foreign Trade will issue certificates for cases of importation of corn used as cooked feed for animals between 3 March and 10 June 2011, according to the quantities requested.” This is often seen as a restrictive measure or as a policy tool implemented by the Government of Thailand in order to protect the country’s domestic producers. This type of policy choice could protect the domestic producers for a certain period. However, the protected sector will not gain a comparative advantage for the country due to depending largely on government subsidies as well as no longer retaining its competitive potential for trade and investment. Thailand should therefore make efforts to strengthen a sector that has good growth perspective, rather than subsidizing a weakening sector, under the liberalization process. The practical challenges that Thailand has to confront are the adjustment costs in this transformation under trade liberalization. If this step is not taken, Thailand will have unavoidably violated ATIGA since all ASEAN members must undertake any necessary means to eliminate quantitative restrictions (Article 41), even in the case of the tariff rate quotas (Article 20). This particular type of measure, designed as a protectionist

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13 The Warehouse Division became the Public Warehouse Organization, a state enterprise under the authority of the Thai Ministry of Commerce, with the objective of enabling more flexible operations and greater efficiency than the private sector in carrying out all activities related to rice and other agricultural products to ensure that their quantity, quality and price were appropriate and acceptable to the public as agreed on by the Government.” History of the Public Warehouse Organization, Ministry of Commerce, Thailand, available at www.pwo.co.th/ewtadmin/ewt/pwo_eng/ewt_news.php?nid=226&filename=index (accessed in March 2017).

14 For Thailand, the tariff rate quotas will be eliminated the 3 stages by 1 January 2008, 2009 and 2010. (ATIGA, Article 20).
policy to keep products out of an importing country’s market, will lead to an international trade dispute and trade retaliation though the imposition of similar practices. To resolve this problem, Thailand needs to: (a) eliminate quotas and similar actions; (b) allow all-year-round maize imports rather than limiting them to a specific period; and (c) with no conditions set for being granted the preferential tariff if maize imports are made through the PWO.15 The quantity of such imports will thus be determined by actual demand among Thailand’s domestic industries, thus promoting greater trade in animal feed maize.

Second, the application of NTMs needs to be implemented for legitimate reasons. This has become a controversial topic for debate. An importing country might argue that certain health conditions and safety regulations were necessary to protect and promote the welfare of its population or of its environment from negative externalities arising from specific imports. However, NTMs can be imposed with reasonable legitimacy for security, health or environmental concerns based on logic, scientific proof or other evidence, rather than for trade restriction purposes. Although a major role of the PWO is to maintain the quantity, quality and price of maize at a certain level, the Government needs to take into account the fact that the price of any commodity will be determined by supply and demand; therefore, there is no need for any government body or state-owned enterprise to be responsible for stabilizing prices in a free market. This is because intervention by the Government will only distort a free market as well as increase costs for traders and end-consumers (WTO, 2012). Since feed maize is used as a raw material by animal feed and meat product industries among others, any intervention will create higher prices in other areas. The price of maize could have a direct effect on the competitiveness of meat products because it accounts for the largest share of input costs, i.e., up to 70% of the production cost of meat, eggs and poultry (Agriculture and Agri-food Canada, 2009). This presents an opportunity for Thailand to reduce production costs and make food cheaper in the market, and ultimately create higher growth since it supports the supply chains of domestic industries. However, such results can only be achieved by reviewing the role of PWO with regard to intervention in price control.

Last but not least, unnecessary NTMs also need to be streamlined and the Mutual Recognition Agreement (MRA) between Cambodia and Thailand should be taken into consideration in seeking to promote better trade. Applying different

15 In 2015, maize imported through the PWO were permitted between 1 January and 31 December by provision of a purchasing plan corresponding to the Thai domestic situation. Maize imports through other sources, were only permitted from 1 February to 31 Aug in the same year.
NTMs to the same product will also create additional costs in international trade due to various additional requirements and administrative procedures. For example, in the case of maize imports by Thailand, multiple NTMs have been imposed, such as product registration, Certificate of Origin, inspection requirements and importation through customs at a specific port. However, the best approach is to harmonize or conclude an MRA for certain agricultural products between the two countries.

An MRA can be a bilateral, multilateral or regional mechanism for promoting economic integration by liberalizing trade through: (a) mutual recognition of conformity assessments, standards and procedures; (b) the reduction of regulatory impediments to trade in goods; and (c) the introduction of equivalence platforms for smoothing the free flow of trade. The result of an MRA will be lower costs, more competitive products, better market access and a freer flow of trade (University of Queensland, 2012). This type of arrangement is not something new for Cambodia and Thailand. Under the ASEAN Framework, ASEAN members have established MRAs on eight professional services related to the movement of natural persons or skilled labour: (a) engineering services (Kuala Lumpur, 2005); (b) nursing services (the Philippines, 2007); (c) architectural services (Singapore, 2007); (d) surveying qualifications (Singapore, 2007); (e) accountancy services (Thailand, 2009); (f) dental practitioners (Thailand, 2009); and (g) tourism professionals, (Thailand, 2012) (Fukunaga, 2015).

In addition, under a smaller umbrella such as the Greater Mekong Subregion Cross-Border Transport Facilitation Agreement (GMS CBTA) or the Southern Economic Corridor, Cambodia and Thailand have implemented mutual recognition of duly licensed transport operators of the contracting parties. This mutual recognition provides acceptance for both countries’ vehicle registration certificates, licence plates, vehicle inspection certificates and driving licences (Prarputitum, 2015). In this sense, the possibility of streamlining or signing MRAs can be achieved in parallel with the above frameworks for formulating mechanisms that facilitate the flow of trade in feed maize or other agricultural products.
E. Conclusion

On the one hand, the application of NTMs is aimed at protecting consumers by ensuring food safety and quality standards, protecting the environment and preventing the spread of diseases and pests etc. On the other hand, it is clear that some existing NTMs are designed as government policy intervention, intentionally or unintentionally, which has a negative effect on international trade.

Since 2011, a wide range of NTMs on feed maize have resulted in Cambodian farmers ending their cultivation of maize and increasingly focusing on cassava cultivation instead. One of the factors hindering the flow of trade is the intervention by Thailand’s PWO in quantitative and price controls, limitations on import periods and required conditions for receiving a preferential tariff. Those NTMs are therefore restrictive measures on trade in feed maize between Cambodia and Thailand.

The multiple NTMs imposed on maize by Thailand are not only affecting Cambodia’s maize exports, but are also having a negative impact on the animal feed and meat industries in Thailand by directly contributing a very large share of input costs, which play a critical role in determining competitiveness both in the local and international markets. Indirectly, they also result in end-consumers having to pay higher prices for some livestock products such as meat, eggs and poultry. To resolve this issue and avoid the worst-case scenario in which the affected country eventually takes a similar approach – either through trade retaliation measures or by invoking dispute settlement mechanisms – the recommended approach is to: (a) abide by the relevant rules under ATIGA; (b) review the roles of the PWO; (c) eliminate quantitative restrictions and similar limitations; (d) remove price control; and (e) consider the possibility of a Mutual Recognition Agreement.

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Part III
Chapter 2

The effects of non-tariff measures on Cambodian agricultural exports: A gravity model

Seyhah Ven

Introduction

Decades of robust economic growth have pushed Cambodia up to the lower-middle income status. This robust growth has been driven mainly by the export sector, which was valued at $10.7 billion in 2016, accounting for 61.7% of gross domestic product (GDP). However, Cambodia's exports depend primarily on garment and footwear exports, which accounted for 50.4% of total exports in 2014. Agricultural products have great potential for the diversification and expansion Cambodia's exports. During the past two decades, production and exports of commodities such as rice, cassava and natural rubber have expanded drastically, although still only accounting for a small share in total exports. The steady growth of Cambodia's exports is a result of many factors such as (a) favourable modifications of the rule of origin governing the European Union's Everything but Arms (EBA) initiative, (b) the advantages gained from several duty-free, quota-free (DFQF) programmes, and (c) the application of free trade agreements with ASEAN Dialogue Partners.

However, Cambodia still faces challenges in complying with stringent non-tariff measures (NTMs) imposed by importing countries, such as Sanitary and Phytosanitary (SPS) regulations and Technical Barriers to Trade (TBTs) imposed on agricultural products. In Cambodia, the proportion of export companies affected by NTMs in 2014 was 82%, which was the highest rate in ASEAN (ITC, 2014). The average tariff equivalent of NTMs was 7.7% on Cambodia's exports to the European Union, even with duty-free access (Brenton, 2003). The academia, policymakers, and practitioners in the trade sector have paid considerable attention to the effect of NTMs. Multilateral and bilateral trade agreements have minimised tariffs, but the use of NTMs has been increased
considerably to protect consumers’ health or the environment. Nevertheless, because exporters in the least developing countries such as Cambodia may lack the financial and technical capacity to conform to NTMs, they see NTMs as barriers to their exports.

A. Literature review

1. What are NTMs?

Issued in the form of complex legal texts, NTMs are imposed by importing countries on specific commodities for the purpose of protecting human health, animals and the environment. However, NTMs are also considered as alternative measures for safeguarding domestic products or industries. Developing countries, especially least developed countries, are most affected by NTMs because they do not have sufficient financial and technical capacity as well as infrastructure to comply with them. Many definitions of NTMs have been proposed, but none of them are sufficiently comprehensive because NTMs are extremely diverse and heterogamous, i.e., NTMs are not what they are supposed to be. Therefore, UNCTAD has classified and coded NTMs into 16 categories in order to provide better identification. In a broad sense, the World Trade Organization defines NTMs as follows (WTO, 2012):¹

“NTMs are policy measures other than ordinary customs tariffs that affect international trade in goods at the border by changing quantities traded, prices or both. NTMs include a wide range of instruments such as quotas, licences, technical barriers to trade (TBTs), sanitary and phytosanitary (SPS) measures, export restrictions, custom surcharges, financial measures and anti-dumping measures.”

2. Analytical methods for studying NTMs

Deb (2006) pointed out 11 methods for studying NTMs, i.e., (a) inventory approach, (b) frequency approach, (c) price differential approach, (d) quota auction price measures, (e) survey-based approach, (f) tariff equivalents, (g) measure of equivalent of nominal rates of assistance, (h) trade restrictiveness index (TRI), (i) effective protection, (j) gravity model and (k) computational general equilibrium (CGE) model. Additionally, recently Cadot and others (2015)

¹ See also Table 5 in Chapter 1, part II of this volume.
introduced analytical tools to calculate regulatory distance and stringency among different countries.

3. Empirical study on the effects of NTMs

There is extensive existing literature on NTMs, but empirical literature on how least developed countries are affected by NTMs is limited (Deb, 2006). Numerous empirical studies have examined the effect of NTMs, using price differential methods. Some studies have found that NTMs have little effects on prices. For example, Fukao and others (2003) examined the effects of Japan’s NTMs on the price of beef, rice, steel and petroleum by using the price differential approach. They found that the differences in the domestic and imported prices of beef, rice and steel were not affected by NTMs, but were more likely to be influenced by other factors such as consumer preferences.

Haveman and Thursby (1999) used time series panel data of 34 importers and 67 exporters from 1994 and 1998 to study the effect of tariffs and four kinds of NTMs on agricultural trade. They found that most of the effects of NTMs were not significantly different from zero. However, in those cases that were different from zero, they were found to have had a strong positive effect on the trade value. It should be noted that the positive sign of the effect of NTMs was as expected, because theoretically NTMs can have either positive or negative effects on the trade value, depending on domestic elasticity.

Another study showed that importers’ NTM reductions would not lead to significant gain for exporters. Yue, Beghin, and Jensen (2005) employed the price-wedge method to study the apple trade between Japan and the United States. The study indicated that Japan’s TBT reduction did not yield considerable export gain for the United States.

Few empirical studies have investigated the effects of NTMs on Cambodia’s trade. An ITC (2014) study conducted a survey of the perception of Cambodian trading companies regarding NTMs. ITC held telephone interviews with 502 companies, of which 242 (those that reportedly faced difficulties with NTMs) were followed up with detailed face-to-face interviews. The study showed that 69% of the companies interviewed by telephone said they faced trade barriers. Among the ASEAN members, Cambodia had the highest proportion of companies affected by stringent NTMs (82%). Agro-food commodities were the most affected. Eighty-nine per cent of agricultural exporters faced burdensome difficulties. Exporters in Cambodia thought that getting the Certificate of Origin was the most difficult requirement. The second-most difficult process was
complying with conformity assessment requirements. Another study (Dourng and Sok, 2005) appeared to have conducted a trading enterprise survey, although the authors did not mention this very clearly. That study concluded that Cambodian exporting companies mostly faced sanitary and phytosanitary (SPS) measures. Other NTMs imposed on Cambodian exports included government aid, customs and administrative procedures and Technical Barriers to Trade (TBTs). The lack of technical capacity and international standard laboratories led to difficulties in conforming with NTMs. The study also speculated on the possibility that if NTMs were eliminated, Cambodian exports would diversify and expand, yielding economic growth and poverty reduction. However, no comprehensive supporting evidence or data were available, and the speculation of removing all NTMs is impractical because NTMs are used to facilitate trade and protect human health, animals and the environment.

B. Research question(s) and scope of study

Based on the literature review above, it can be concluded that the empirical research on the effects of NTMs on Cambodian trade is still limited, especially in the case of studies that use sound analytical tools taught in the WTO/ESCAP twelfth ARTNeT Capacity-Building Workshop on “Empirical methods in trade: Analysing non-tariff measures”. Most previous research efforts used a survey-based or perception-based approach. Sound statistical methods regarding NTMs imposed on Cambodian trade and their effects are rare.

To fill this gap, this study was aimed at determining the effects of NTMs on Cambodian agricultural exports, using the analytical tools that the author learnt from the above-mentioned Workshop. The research addressed the following questions:

(a) What are the NTM coverage ratios of Cambodian agricultural exports?
(b) What are the most prevalent NTMs imposed on Cambodian agricultural exports by the country’s trade partners?
(c) What are the regulatory distances between Cambodia and its agricultural export partners?
(d) What are the effects of NTMs on Cambodian agricultural exports?
(e) What policy measures should Cambodia adopt to address the effects of NTMs?

The research focused on NTMs in the SPS and TBT categories (i.e., Categories A and B) of Cambodian exports of agricultural products, because those categories are the most prevalent NTMs imposed on agricultural products.
C. Overview of the agricultural sector of Cambodia

1. Agricultural production

Following the Paris Peace Accord in 1993 which brought peace and stability to Cambodia, the country’s GDP expanded remarkably from about $2.5 billion in 1993 to $18.05 billion in 2015. This rapid growth rate has mainly been driven by garment and footwear manufacturing, construction, tourism and rice production. However, this is a narrow-based growth rate that may become vulnerable when the sectors forming the basis for growth are not doing well economically. In addition, that economic growth has limited linkages with the domestic economy, especially the rural agrarian sector. The agriculture sector received limited attention and budgetary allocations of 3%-5% of the total national budget (UNDP Cambodia, 2013). The budget appropriation for the Ministry of Agriculture, Forestry and Fisheries, the Ministry of Water Resources and Meteorology and the Ministry of Rural Development was less than 1% of GDP in 2016 (Martin and others, 2016). Based on the experience of South-East Asia, the agriculture sector formed the base for industrialization. For example, during the 1960s and 1970s, Malaysia allocated about 25%-30% of the national budget to the agriculture sector (UNDP Cambodia, 2013).

Agricultural production of Cambodia increased progressively from around $1.1 billion in 1993 to approximately $4.8 billion in 2015 (figure 1). The agriculture sector employed 64.3% of the labour force in 2014 (figure 2). The majority of Cambodian farmers are smallholder households who own agricultural land of less than two hectares. However, rapid economic growth has enabled a considerable transition in the economic structure. The agricultural share in Cambodia’s GDP shrank from 44.5% in 1998 to 32.8% in 2008 and 26.6% in 2015 (figure 3).

![Figure 1. Structure of the Cambodian economy, 1993-2015](source: World Bank, World Development Indicators.)
Figure 2. Labour force by sector, 2014

- Employed, agriculture, forestry, and fishing: 64.3%
- Employed, mining and quarrying: 26.6%
- Employed, manufacturing: 8.1%
- Employed, other sectors/services: 1.0%


Figure 3. Agriculture production share of GDP, 1998-2015


Figure 3 also illustrates the fact that crop production, which has the largest share of total agricultural production, accounted for 20% of overall GDP in 1998, 17.9% in 2008 and 15.8% in 2013. The second-largest segment of agricultural production is fisheries, representing 12.5% of GDP in 1998, 7.4% in 2008 and 5.9% in 2013. Fishery products are mainly directed at domestic consumption. Livestock and poultry as well as forestry and logging make up only a small share of GDP. Figure 4 shows that the growth rate of agricultural production fluctuated considerably between -7.5% and 32.1% in 1999 and 2010, respectively. Since 2011, the growth rate decreased gradually from 12.9% during 2010-2011 to 0.5% during 2014-2015, as expansion of agricultural land faces unfavourable situations and limitations (UNDP Cambodia, 2013).
In terms of value, the top 10 agricultural products are rice, sugar cane, cassava, pork, vegetables, maize, oranges and beef (figure 5). Rice, the stable food in Cambodia, is the major crop and source of income for most of Cambodian farmers. In 2005, Cambodia started to produce sufficient rice to meet domestic consumption in the whole country and formal exports began. Seventy-five per cent of the total cultivated land (3.7 million hectares) is devoted to rice cultivation. Before the mid-2000s, rice was the only major agricultural product of Cambodia, while other products were meagre. After that, the production of sugar cane and cassava leapt suddenly. Production of rice, sugar cane and cassava was, by far, the largest in 2013, with a value of about $2.5 billion, $2.2 billion and $1.4 billion, respectively. The value of other agricultural products was below $0.6 billion (figure 5).
Rubber, which is the second strategic crop in Cambodia after rice, also plays an important role in the generation of employment. This product is mainly for export. Before late-2008, state-owned enterprises dominated this sector by owning 48% of the total cultivated area in 2007, while smallholders and private companies held 44%. By the end of 2008, almost all state-owned enterprises had been privatized. By early 2000, average production was about 34,000 tonnes per year. However, it dropped to 17,000 tonnes in 2007, increased to about 41,000 tonnes in 2010 and then dropped to 18,000 tonnes in 2014 (figure 6).

Figure 6. Rubber production, 1990-2014

Source: FAOSTAT.

2. Cambodia’s agricultural exports

(a) Overview of the export sector

Cambodia’s total merchandise exports amounted to about $8.5 billion in 2015, which was approximately 45.9% of GDP. The major component of merchandise exports was that of textiles (garments), which was around $6 billion and accounted for 70.8% of total merchandise exports (figures 7 and 8). Other key components of merchandise exports included: footwear and headgear (7.9%); machinery and electrical products (4.4%); vegetable products and crops (4%); animals and animal products (3.4%); raw hides, skins, leather and furs (3.2%); and natural rubber (1.9%) (figure 8). Compared to the exports of industrial products, exports of agricultural products were meagre, amounting to only about 6% of total merchandise exports (figure 9). There may be potential to expand agrarian exports, which will lead to a higher growth rate based on more diverse sources, better linkages with the local rural economy; this, in turn, could contribute significantly to enhancing the economic well-being of the local rural poor.
Figure 7. Total Cambodian merchandise and textile exports, 2011-2015

Source: Author’s calculation based on the United Nations Comtrade Database.

Figure 8. Components of merchandise export, 2015

Source: Author’s calculation based on United Nations Comtrade Database.

Figure 9. Agricultural and industrial shares in total commodity exports, 2011-2015

Source: Author’s calculation based on the United Nations Comtrade Database.
(b) Overview of agricultural exports

From 2011 to 2015, the value of total exports of agricultural products (HS 01-24 and HS 40) fluctuated in the range of $0.3 billion to $0.6 billion. The largest component was exports of vegetable products (HS 06-15) (figure 10), mainly rice, which ranged from $136 million to $341 million (36.5% to 58.1%) of total agricultural exports. During the same period, natural rubber (HS 40) exports accounted for the second-biggest share, with an average value during this period of $168 million and amounting to an average of 36.4% of total agricultural exports. The value of foodstuffs (HS16-24) exports totalled $67.6 million with an average share of 14% while livestock exports (HS01-05) were marginal.

During the same period, the top 10 exported agricultural products at the four-digit HS level included: rice (HS1006); natural rubber (HS 4001); cane or beet sugar and chemically pure sucrose (HS 1701); cassava and sweet potatoes (HS 0714); cigars, cheroots, cigarillos and cigarettes (HS 2402); [residues and waste from the food industries,] preparations of a kind used in animal feed (HS 2309); palm oil and its fractions (HS 1511); pepper of the genus piper, molasses (HS 0904), ethyl alcohol (HS 1703) (figure 11). By far, the exports of rice and natural rubber made up the largest share. During this period, the average values of rice and natural rubber were $191.6 million and $162.6 million, respectively. In 2015, the value of rice exports accounted for 45.8% of total agricultural exports, while rubber exports accounted for 28.1%. During 2011-2015, the average export value of cane or beet sugar and chemically pure sucrose was only $22.9 million, while for cassava and sweet potatoes was $13.9 million. Cigars, cheroots, cigarillos and cigarettes accounted for $14.3 million while preparations of a kind used in animal feed amounted to $10.3 million. The remainder were below $6 million each.

Figure 10. Agricultural and rubber exports by at the two-digit HS level, 2011-2015

Source: Author’s calculation based on the United Nations Comtrade Database.
The top 10 importers of Cambodia’s agricultural products were Viet Nam, Malaysia, China, France, Thailand, the United States, Poland, Singapore, the Netherlands and Italy. The European Union, as a single market, was the largest importer of Cambodia’s agrarian products. In 2015, the export value of Cambodia’s agricultural products to the European Union totalled $194.2 million, accounting for 33.1% of total agrarian exports (figure 12). In 2015, Viet Nam imported Cambodian agricultural products valued at about $126 million, accounting for 21.5% of total agrarian exports, followed by Malaysia at $87.4 million (14.9%), China at $68.6 million (11.7%), France at $52.3 (8.9%), Thailand at $27.9 million (4.8%), the United States at $24.7 million (4.2%); Poland at $23.6 million (4%). The remaining importers accounting for less than 4% of total agricultural exports.
D. Methodology and data

1. Analysis method

The analytical method used in this study includes the analytical tools taught during the WTO/ESCAP twelfth ARTNeT Capacity-Building Workshop, such as the regulatory distance graph, NTM coverage ratio and other descriptive statistics. More importantly, the gravity model was used to address research question No. 5, i.e., to identify the effects of NTMs on Cambodia’s agricultural exports.

(a) Regulatory distance

Cadot and others (2015) introduced regulatory distance to determine the differences between NTM regimes of different countries. For this analysis, the following steps were adopted to calculate regulatory distance. First, if two countries apply one type of NTM to six-digit HS commodity k, then the regulatory difference in NTM l on commodity k of both countries is \( RD_{lk} = 0 \); \( RD_{lk} = 1 \), otherwise. The following formula was then used to calculate the overall regulatory distance \( D_{ij} \) between the two countries. All the values of \( D_{ij} \) of countries of interest are converted to an asymmetric matrix and plotted in a graph produced in multi-dimensional scaling of proximity data using STATA.

\[
D_{ij} = \frac{\text{sum of } RD_{lk}}{\text{count of } RD_{lk}}
\]

(b) NTM coverage ratio

Coverage ratio is frequency ratios of NTM imposed on certain product categories. This study calculated NTM coverage ratios as the share of import value of agriculture products from Cambodia by its trade partners.

(c) Gravity model

The gravity model was used to identify the effect of NTMs on Cambodia’s exports of agricultural products in 2015. The aggregate export value of all commodities classified under HS code 01 to 24 and HS 40 were used as the dependent variable for the gravity model. The reason for including HS 40, natural rubber, in the model is that it is considered as one of the most important and most exported agro-product of Cambodia. So far, many gravity models have been developed by many previous studies. However, the gravity model used in this study was not adopted from any particular gravity model developed by previous studies. It just includes the essential explanatory variables of the gravity model
as control variables, including partners’ GDP, distances between Cambodia and partners, contingency of the countries pairs, and being an ASEAN member. The purpose of the gravity model used in this study was to determine the effect of NTMs on Cambodia’s agricultural exports. For this purpose, NTMs were categorised into SPS, TBTs and NTBs. Thus, the model is specified as follows:

\[
\ln X_{ijt} = \beta_1 \ln GDP_jt + \beta_2 \ln dist_{ij} + \beta_3 contig_{ij} + \beta_4 AMS + \beta_5 \ln(1 + SPScount_{ij}) \\
+ \beta_6 \ln(1 + TBTcount_{ij}) + \beta_7 \ln(1 + NTBcount_{ij}) + \epsilon_{ijt}
\]

where:
(a) \(X_{ij}\) is the aggregate agricultural export value of Cambodia to country \(j\) in 2015;
(b) \(GDP_j\) is country \(j\)’s GDP in 2015;
(c) \(dist_{ij}\) denotes the distances between Cambodia and country \(j\);
(d) \(contig_{ij}\) is a dummy denoting a common border between Cambodia and country \(j\);
(e) \(AMS\) is a dummy denoting ASEAN member;
(f) \(SPScount_{ij}\) designates the total number of SPS measures imposed by country \(j\) on imported agricultural products;
(g) \(TBTcount_{ij}\) designates the total number of TBT measures imposed by country \(j\) on imported agricultural products;
(h) \(NTBcount_{ij}\) designates the total number of NTB measures imposed by country \(j\) on imported agricultural products.

2. Data

Mainly, this research utilized cross-section data in 2015. The data were collected from the following sources:

(b) NTM data – collected from WITS at http://wits.worldbank.org/.
(c) GDP data – collected from World Development Indicators (WDI) at http://data.worldbank.org/data-catalog/world-development-indicators.
E. Non-tariff measures on Cambodia’s agricultural exports

1. Coverage ratio of NTMs

This section presents the coverage ratio of NTMs imposed by the top 10 importers of Cambodian agricultural products in 2015, i.e., Viet Nam, Malaysia, China, France, Thailand, the United States, Poland, Singapore, the Netherlands and Italy. As the European Union is the largest importer of Cambodian agricultural products and has a standardized NTM regime, all European Union member countries are treated as a single entity. Figure 13 shows that almost all Cambodia’s agricultural products are subject to NTMs. SPS and TBTs have higher coverage ratios than NTB. Remarkably, Malaysia has the lowest coverage ratios, while China also has relatively low coverage ratios compared with other major importers.

Figure 13. NTM coverage ratio of Cambodia’s agricultural exports, 2015

Source: Author’s calculation based on the world Bank World Integrated Trade Solution (WITS) database.

Note: AB = SPS and TBT; NTB: non-technical barriers.

2. Prevalent NTMs imposed on Cambodia’s agricultural products by major importing countries

Based on tables 1 to 7, SPS measures are the most prevalent NTMs imposed by major importing countries of Cambodia’s agriculture products. European Union member countries had the largest number of NTMs, following by Viet Nam and the United States. China imposed 280 NTMs, of which 141 were SPS measures, 87 were TBTs and 52 were NTBs. The European Union had 638 NTMs, comprising 486 SPS, 122 TBT and 30 NTBs. Malaysia had 264 NTMs, including 154 SPS, 82 TBT and 28 NTBs. Singapore applied 230 NTMs, containing 118 SPS, 76 TBT and 36 NTBs. Thailand had 392 NTMs, including
255 SPS, 65 NTBs, 72 NTBs. The United States had 473, including 244 SPS, 173 TBT, 56 NTBs. Viet Nam had 479 NTM, including 327 SPS, 95 TBT, 57 NTBs.

Table 1. China’s NTMs imposed on the most exported agricultural products of Cambodia

<table>
<thead>
<tr>
<th>HS 4</th>
<th>NTM category</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>0714</td>
<td>24</td>
<td>6</td>
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<tr>
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</tr>
<tr>
<td>4001</td>
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<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>141</td>
<td>87</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on World Bank World Integrated Trade Solution (WITS) database.

Table 2. European Union NTMs imposed on the most exported agricultural products of Cambodia

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<tr>
<td>Total</td>
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</tr>
</tbody>
</table>

Source: Author’s calculation based on World Bank World Integrated Trade Solution (WITS) database.
Table 3. Malaysia’s NTMs imposed on the most exported agricultural products of Cambodia

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<tr>
<td>Total</td>
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*Source:* Author’s calculation based on World Bank World Integrated Trade Solution (WITS) database.

Table 4. Singapore’s NTMs imposed on the most exported agricultural products of Cambodia

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*Source:* Author’s calculation based on World Bank World Integrated Trade Solution (WITS) database.
Table 5. Thailand’s NTMs imposed on the most exported agricultural products of Cambodia

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<td>Total</td>
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Source: Author’s calculation based on World Bank World Integrated Trade Solution (WITS) database.

Table 6. United States’ NTMs imposed on the most exported agricultural products of Cambodia

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</tr>
<tr>
<td>Total</td>
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</tr>
</tbody>
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Source: Author’s calculation based on World Bank World Integrated Trade Solution (WITS) database.
Table 7. Viet Nam’s NTMs imposed on the most exported agricultural products of Cambodia

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<td>B</td>
</tr>
<tr>
<td>0714</td>
<td>66</td>
<td>12</td>
</tr>
<tr>
<td>0904</td>
<td>44</td>
<td>8</td>
</tr>
<tr>
<td>1006</td>
<td>46</td>
<td>11</td>
</tr>
<tr>
<td>1511</td>
<td>18</td>
<td>6</td>
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<tr>
<td>1701</td>
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</tr>
<tr>
<td>1703</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>2208</td>
<td>56</td>
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<td>2309</td>
<td>20</td>
<td>8</td>
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<td>2402</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>4001</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>327</td>
<td>95</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on World Bank World Integrated Trade Solution (WITS) database.

3. Regulatory distances of NTM regimes

Figure 14 shows the regulatory distance of NTM regimes for agricultural trade between Cambodia and its major partners. The figure illustrates the fact that Cambodia’s NTM regime is an outlier, located far away from its major partners. Cambodia’s NTM regime has the smallest distance from that of Viet Nam compared to those of other partners, followed by Singapore. The NTM regimes of Singapore, Viet Nam and the United States are very similar, located in one cluster, while those of Malaysia and Thailand are in another cluster. The European Union’s NTM regimes are approximately between the two clusters. China’s NTM regime was also an outlier.
F. Effects of NTMs on Cambodia’s agricultural exports

The gravity model was used to determine the effects of NTMs on Cambodia’s agricultural products. The estimation method is the ordinary-least-square regression using ppml command of STATA. The reason for using this estimation method is that it estimates the parameters that are “consistent under very general conditions, whereas robust/clusted standard errors only affect the estimated standard errors” (“The ‘Log of Gravity’ Page”, 2017). The dependent variable is the aggregate value of Cambodia’s agricultural product exports to its partners in 2015. Although there were 107 partners, not all partners were included in the gravity model due to the lack of NTM data. Only 55 partners were included, so there were 55 observations in the database. In this model, NTMs were categorised as SPS, TBTs or NTB. The natural log of the count of each NTM category was used in the model. Although the use of fixed effect in gravity model is recommend to control for time, country and pair-fixed effects, they cannot be used in this model. Time-fixed effect cannot be used because the data used in the model are cross-sectional. The use of country or partner fixed effects will increase the number of explanatory variables more than the number of the observations.

The result of the gravity model is presented in table 8. The R-squared of this model is 0.5, which is a favourable level of R-squared for a sectorial trade model.
The results show that the exports of Cambodia’s agricultural products had a positive elasticity ($\beta=0.09$, $p=0.001$) with the partners’ GDP, so a 10% increase in the partners’ GDP expands Cambodia’s export value of agricultural products by 0.9%. Unexpectedly, the gravity model result shows that Cambodia’s agricultural exports were not correlated with the number of SPS and TBT measures ($\beta=0.44$, $p=0.282$ and $\beta=0.06$, $p=0.796$ respectively). This finding suggests that Cambodia’s agricultural products can meet the requirements of SPS and TBTs applied by the partners such as the European Union, China, Malaysia, Singapore, Thailand and Viet Nam. This may be one of the reasons why Cambodia’s agricultural exports expanded during the past five years, especially exports of rice, rubber, cassava and sugar cane. The exporters of these agricultural products may have enough financial and technical capacity to comply with NTMs. However, it does not mean that they have no difficulty in meeting the NTM requirements. As found by ITC (2014), 89% of Cambodia’s agricultural exporters faced burdensome difficulties, with testing and certification being the second-most reported difficulty.

Nonetheless, Cambodia’s agricultural exports had a negative elasticity ($\beta=-0.276$, $p=0.018$) with the number of NTBs. If Cambodia’s importing partners increase the number of their NTBs by 10%, Cambodia’s agricultural exports will decrease by 2.7%. This finding is partly supported by ITC (2014), which found that Cambodia exporters thought that getting a Certificate of Origin was the most difficult.

Table 8. Results of the gravity model

<table>
<thead>
<tr>
<th>Intexport</th>
<th>Coef.</th>
<th>Robust Std. Err.</th>
<th>z</th>
<th>P&gt;z</th>
<th>[95% Conf. interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>lngdp_partner</td>
<td>0.097</td>
<td>0.03</td>
<td>3.32</td>
<td>0.001</td>
<td>0.04 0.15</td>
</tr>
<tr>
<td>Indist</td>
<td>-0.118</td>
<td>0.12</td>
<td>-1.03</td>
<td>0.305</td>
<td>-0.34 0.11</td>
</tr>
<tr>
<td>contig</td>
<td>0.316</td>
<td>0.23</td>
<td>1.35</td>
<td>0.176</td>
<td>-0.14 0.77</td>
</tr>
<tr>
<td>IncountSPS</td>
<td>0.443</td>
<td>0.41</td>
<td>1.08</td>
<td>0.282</td>
<td>-0.36 1.25</td>
</tr>
<tr>
<td>IncountTBT</td>
<td>0.067</td>
<td>0.26</td>
<td>0.26</td>
<td>0.796</td>
<td>-0.44 0.57</td>
</tr>
<tr>
<td>IncountNTB</td>
<td>-0.276</td>
<td>0.12</td>
<td>-2.37</td>
<td>0.018</td>
<td>-0.50 -0.05</td>
</tr>
<tr>
<td>ams</td>
<td>-0.014</td>
<td>0.26</td>
<td>-0.05</td>
<td>0.958</td>
<td>-0.53 0.50</td>
</tr>
<tr>
<td>cons</td>
<td>-0.002</td>
<td>1.21</td>
<td>0.00</td>
<td>0.999</td>
<td>-2.37 2.37</td>
</tr>
</tbody>
</table>

Source: Author’s calculation.
Note: Number of observations (partners) were 55; R-squared: 0.50, Estimator: ppml command in STATA.
Limitations

Like all other studies, this study has a number of limitations. The first limitation is single period data. This gravity model utilized a single period of trade data, which could limit generalization of its results. The results may be biased by the time-fixed effects; in other words, the results may be affected by other phenomena that occurred only during in the period covered by the study.

The second limitation is the constraint of NTM data. This data was collected from the World Bank’s WITS database. The periods of NTMs data of each trade partner are different. For this study, the most comprehensive NTM datasets were collected for each of Cambodia’s trade partners. Moreover, NTM data for many of Cambodia’s trade partners are not available or cannot be used. As a result, many trade partners were dropped from the model.

G. Conclusion

Based on the overview of the agriculture sector and the results of the analysis, the following conclusions can be drawn. Major agricultural products of Cambodia are rice, sugar cane, cassava, pork, vegetables, maize, oranges and beef. Rice, the staple food in Cambodia, is the major crop and main source of income for most Cambodian farmers. Natural rubber, the second strategic crop after rice, also makes an important contribution in employment generation and is mainly exported. The most exported agricultural products of Cambodia are rice, natural rubber, sugar cane and cassava. Rice and natural rubber account for the largest share of exports. Viet Nam, Malaysia, China and France are the major importers of Cambodia agricultural products.

Almost all of Cambodia’s agricultural products are subject to NTMs. SPS measures and TBTs have higher coverage ratios than NTBs. SPS measures are the most prevalent NTMs imposed by major importing countries of Cambodia’s agricultural products. Cambodia has an NTM regime that is different from all her major export partners. However, it is somewhat similar to that of Viet Nam and Singapore compared to other partners. SPS measures and TBTs are unlikely to be the barriers to Cambodia’s agricultural exports. Cambodia’s main agricultural products can meet the requirements of SPS and TBT measures as applied by partners such as the European Union, the United States, China, Malaysia, Thailand, Singapore and Viet Nam. Nonetheless, NTBs are likely to hold back Cambodia’s agricultural exports. A 10% increase in NTBs may reduce Cambodia’s agricultural exports by 2.7%.
H. Recommendations

The following recommendations are based on the findings of this study. Although the results show that SPS and TBT measures are not associated with Cambodia’s agricultural exports, it does not indicate that Cambodia’s exporters of agricultural products can easily comply with SPS and TBT measures, because the gravity model could not deal with that issue. Based on the ICT (2014) study, the majority of Cambodia agricultural product exporters confronted burdensome difficulties in complying with NTMs, especially the testing and certification process. This may imply that the quality of Cambodia’s agricultural products can meet the requirements of NTMs, but the exporters have difficulties related to the process of testing or certification in Cambodia. It is therefore recommended that Cambodia’s regulatory conformity agency make efforts to reduce the procedural obstacles of testing and certification. Cambodia should have testing laboratories that meet international standards.

Agrarian extension programmes should include raising the awareness of famers about the use of chemicals that are prohibited by importing countries. This will improve the quality of agricultural products and make it easier to meet the requirements of SPS and TBT measures.

Cambodia should speed up regulatory convergence and harmonization, especially in the agricultural sector, which were initiated by ASEAN to address NTMs. ASEAN has made efforts to harmonize its regulations and standards in order to be in line with international requirements. So far, regulations in several sectors has been harmonized, including electrical appliances, electrical safety, electromagnetic components and rubber-based commodities among others (Das and others, 2013). However, regulation harmonization in the agricultural sector has yet to be completed.

Non-tariff barriers should be reduced; the identification and elimination of NTBs was adopted by the twentieth AFTA Council for integrating the priority sectors. The timelines set for countries to eliminate NTBs vary. For the CMLV countries, NTBs should be limited by 2018. Nonetheless, identifying NTBs among the huge number of NTMs is not a straightforward task. However, the findings of this study may contribute to achieving this task. Based on the results of this study, unlike NTBs, SPS and TBT measures are unlikely to be barriers to Cambodia’s agricultural exports. The results of the gravity model show that if NTBs imposed by importing partners of Cambodia’s agricultural products are reduced by 10%, Cambodia’s agricultural exports are likely to expand by 2.7%.
References


Part III
Chapter 3

Non-tariff measures faced by exporters in the Lao People’s Democratic Republic: An assessment¹

Prabir De, Thiphaphone Phetmany, Buakhai Phimmavong, Aliya Phommathan and Athith Pathoumvanh

Introduction²

The Lao People’s Democratic Republic (Lao PDR) is one of the fastest-growing economies in South-East Asia. Sharing borders with Cambodia, China, Myanmar, Thailand and Viet Nam, the Lao PDR acts as a land bridge between South-East Asia and East Asia. Given its unique geographical positioning, the country has been transforming gradually from a closed economy into a more open and private-led market economy. The liberalized trade policy in the Lao PDR includes improvement of transparency, the reduction of non-tariff barriers (NTBs) and the introduction of trade legislation in line with the principles of the World Trade Organization (WTO) and the Association of Southeast Asian Nations (ASEAN) agreements. A renewed thrust has been given through trade policy reforms, resulting in the Lao PDR gradually becoming integrated into the world economy through trade agreements, regional or otherwise (ADB, 2011). For example, the Lao PDR is the member of ASEAN and the country signed the ASEAN Trade

¹ This survey was commissioned by the Department of Import and Export (DIMEX), Ministry of Industry and Commerce as part of its Second Trade Development Facility (TDF-2), focusing on “mainstreaming aid for trade”. TDF 2 is a multi-donor programme financed by Australia, the European Union, Germany, Ireland and the World Bank focusing on improving trade and private sector development in the Lao PDR. TDF-2 has three main components: (a) trade facilitation, trade policy and regulations; (b) diversification and competitiveness; and (c) mainstreaming aid for trade.

² The authors would like to express their sincere thanks to the management of Department of Import and Export (DIMEX) in the Ministry of Industry and Commerce of Lao PDR and the World Bank team for their guidance and support along the study. They also thank Mr. Vangchai Vang, Mr. Vilavong Southanilaxay and Mr. Morxeng Mouanhiabee for their excellent contribution of ideas, information and continued support to the EDC Team, without which the study would not have been completed.
in Goods Agreement in 2010. It is also a member of the ongoing Regional Comprehensive Economic Partnership (RCEP) Agreement negotiation. It was the chair of ASEAN in 2016. It became a member of the WTO in 2013. The Lao PDR also ratified the WTO Trade Facilitation Agreement (TFA). All these agreements require profound modifications of tariffs, non-tariff measures, customs reforms, and trade facilitation.

Trade has been identified as a national priority in increasing a country’s growth and the welfare of the population. In particular, trade has been identified as a key engine of economic growth, particularly in smaller economies such as that of the Lao PDR; consequently, trade does and should continue to take an increasingly central role in the Lao PDR’s development strategy. This should be further enhanced, as studies show that countries that include trade as a key part of their development strategy have grown at a faster rate than those that have not done so (Ministry of Industry and Commerce, 2012; Higgins and Prowse, 2010)

The Lao PDR witnessed sharp rise in exports from 2008 onwards. The biggest challenge is to sustain the benefits from trade by making Lao exports globally competitive. Increased trade links with neighboring countries and other trade partners have translated into increased access to better or cheaper imports. However, further challenges to market access remain (World Bank, 2016).

While economic growth has been fueled largely by its rich natural resources, the Lao PDR can also focus on diversifying its export through integrating more closely with its neighbors (World Bank, 2016). Here, competitiveness of Lao products matters. Removal of barriers to trade, not only at home but also in partner countries, may facilitate Lao exports globally, thereby further adding value to the country’s growing service sector and growth.

The concept of non-tariff measures (NTMs) is neutral and does not imply a direction of impact. According to the United Nations Conference on Trade and Development (UNCTAD), “NTMs are policy measures, other than customs tariffs, that can potentially have an economic effect on international trade in goods, changing quantities traded, or prices or both” (UNCTAD, 2015). NTBs are a subset of NTMs (NTM ≠ NTB), implying a negative impact on trade. NTMs do not offer any judgment over legitimacy or lawfulness, and are different from the concept of “Procedural Obstacles”. NTMs are very diverse, as is their impact on trade. NTMs are associated with the production stage of a product to its marketing and distribution stage. NTMs can add costs to trade (for example, standards require information and compliance) and preclude trade through
prohibitions, stringent requirements etc. They can also divert trade, due to quotas and standards, and create trade, for example, through sanitary and phytosanitary measures (SPS) and technical barriers to trade (TBT), which guarantee quality, helping to identify those which are safe etc.

The costs associated with NTMs, such as preparing documentation and other import and export procedures for international trade, can account a substantial part of the value of traded goods. Trade facilitation has, therefore, gained a new high profile in the South-East Asia. Cutting additional costs by removing NTMs and attaining improved trade facilitation have helped countries to raise trade flows and/or diversify exports to newer markets – regionally or otherwise. Simplification of trade processes and procedures, the harmonization of trade transaction data and documents as well as easier compliance with standards are thus envisaged as keys to improving the competitiveness of exports across most of the Asian countries, including the Lao PDR (ESCAP 2014).

In view of the above, the focus of this study was (a) the assessment of the extent of barriers faced by Lao PDR exporters in accessing their markets and (b) the identification of obstacles faced by them in meeting technical requirements and complying with conformity assessment procedures. This was done through a survey of exports of selected products by firms in the Lao PDR. This study is different from earlier studies on NTMs in the following ways:

(a) It focuses on two major import-related NTMs, i.e., SPS and TBTs, which have been of concern in the Lao PDR;

(b) It considers all categories of technical requirements and conformity assessment procedures laid down by the importing country for SPS measures and TBT;³

(c) It examines the NTMs based on a survey focused on collecting qualitative and quantitative information;

(d) It considers only selected products. The purpose of selecting certain products was aimed at gaining an in-depth understanding of the NTMs and the manner in which they are applied. This approach is also useful in examining the NTMs in the context of the larger regulatory framework of the country.

³ SPS refers to measures such as restriction of substances and ensuring food safety, and those for preventing dissemination of disease or pests. It includes all conformity-assessment measures related to food safety, such as certification, testing and inspection, and quarantine. On the other hand, TBT refers to measures such as labelling, standards on technical specifications and quality requirements, and other measures protecting the environment. As in the case of SPS, TBT also includes all conformity-assessment measures related to technical requirements, such as certification, testing and inspection.
The paper is organized as follows. Section A presents the literature survey. Data and methodology, including the selection of products and samples, are discussed in section B. Section C analyses the trade processes of Lao exports and the NTM restrictiveness faced by Lao exporters as well as the decomposition of such restrictiveness, including the procedural obstacles and associated problems. Section D presents the conclusion.

A. Literature review and stylized facts

Studies have classified NTMs into different categories, either based on import and export or at the place of implementation. Import measures are categorized into technical measures (TBT and SPS, and pre-shipment inspection) and non-technical measures, while export measures include export-related measures such as export subsidies. Measures are organized in various chapters, according to their type. The chapters are labelled with letters from A to P. NTMs are of several types, such as price control measures, quantity restrictions, subsidies on exported goods and product quality standards.

Staiger (2012) classified NTMs according to the place of implementation – at the border and behind-the-border. Measures applied at the border are further distinguished between imports (e.g., import quotas and import bans) and exports (e.g., export taxes, quotas or bans). Behind-the-border measures are classified as domestic taxes, subsidies and product quality standards. TBT/SPS measures are the most frequent NTMs, according to data collected from official sources.

In the context of the Lao PDR, studies that highlight the impediments related to meeting standards while trading are very few. Based on the primary data, the World Bank (EDC, 2005) identified barriers faced by Lao exporters of five products: (a) garments, (b) wood and wood products, (c) coffee, (d) textile handicrafts and (e) non-timber forest products (NTFPs) and other agricultural products. The identified constraints were mostly external NTBs such as: (a) transport costs due to the monopoly of transport in Thailand; (b) third-country transit costs and paperwork in Thailand; (c) documentation, customs procedures and border formalities in the Lao PDR and Thailand; and (d) the absence of (i) related infrastructure, (ii) decentralized decision-making for processing of documents – local authorities have no power to issue Certificates of Origin (COO) and (iii) testing and standards agencies at the sub-national level.

In a recent study, the World Bank (2016) reviewed NTMs affecting imports in the Lao PDR. The study provided a comparative overview with regard to other countries in the region and with the situation before WTO accession by the Lao PDR. Additionally, the study also identified current lingering regulatory hurdles that hamper the ability of the country to reap the gains of deeper integration with the global economy. What matters for the Lao PDR, as the present study
indicates, is to remove the cumbersome and costly import license scheme that increases the time and costs involved in bringing products onto the market. Some prominent NTMs have been identified such as the use of only recognized/certified laboratories for testing, varied templates of COO across countries, and marking requirements (EDC, 2005).

While these studies provide important information on non-tariff barriers/measures faced by Lao PDR in integrating to the world, they are based either on qualitative evidence or an examination of NTMs and the regulatory framework within which the NTM is applied. To identify the NTMs faced by Lao exporters, it is necessary to investigate all regulations that are currently applied which affect trade. Some of the measures are official and mandatory, and are detailed and specific.

A procedural obstacle is associated with an NTM measure. However, none of the above studies have looked into the procedural obstacles faced by exporters in the Lao PDR and the corresponding NTMs. Therefore, this chapter provides a valuable addition in terms of identifying the barriers to trade in the form of NTMs and in providing policy options to deal with such barriers. In particular, it considers SPS and TBT measures that Lao PDR exporters have faced, together with the procedural obstacles while exporting selected agricultural and non-agricultural products to major trade partners.

In view of the above, based on the field-level survey, the present study has made a fresh attempt to (a) analyze the restrictiveness of NTMs that Lao exporters face due to SPS and TBT and (b) review the procedural obstacles and associated problems.

**B. Data and methodology**

To assess the size of NTMs and their implications, eight products exported by the Lao PDR were selected, i.e., bananas, coffee, dried cassava, maize, rice, rubber, white charcoal and wood products. Table 1 presents the list of products and corresponding importers. Although the NTM classification encompasses 16 chapters (A to P), only SPS and TBT were considered, based on UNCTAD classification (UNCTAD, 2015). All eight products have potential for growth within domestic and global markets, but all of them are hindered in doing so as a result of a number of policy and market-based barriers. Selection of the products was based on a combination of the following criteria:

(a) Major export products with TBT and SPS implications, including agricultural and non-agricultural specifications;
(b) Current export products with high potential for growth in selected markets which fall into line with the Government’s priority for promotion;
(c) A minimum of given to 10 export firms for each product group with consideration geographical locations (concentration) that allow viable logistical arrangements.

The objective was to assess the size of NTMs across a supply chain for a particular product between exporter (origin) and importer (destination). A survey was conducted only of the products in the exporting country (Lao PDR). Due to structural limitations, it was not possible to carry out a back-to-back survey of the same product in the importing country; however, such a survey may be conducted in future. In addition to covering NTMs, the field survey also captured important information on logistics and trade procedures, such as time and cost involved at the border and behind-the-border at selected border crossings.

Table 1. Selection of products

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>HS Code</th>
<th>Product</th>
<th>Importer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>071410</td>
<td>Dried cassava</td>
<td>China, Viet Nam</td>
</tr>
<tr>
<td>2</td>
<td>0803</td>
<td>Bananas</td>
<td>China</td>
</tr>
<tr>
<td>3</td>
<td>090111</td>
<td>Coffee</td>
<td>Thailand, European Union (Belgium, France, Germany, Italy and Sweden)</td>
</tr>
<tr>
<td>4</td>
<td>100590</td>
<td>Maize</td>
<td>China, Viet Nam</td>
</tr>
<tr>
<td>5</td>
<td>100630</td>
<td>Rice</td>
<td>European Union (France, Germany, Sweden), Viet Nam</td>
</tr>
<tr>
<td>6</td>
<td>400121</td>
<td>Rubber</td>
<td>China, Malaysia</td>
</tr>
<tr>
<td>7</td>
<td>440290</td>
<td>White charcoal</td>
<td>Japan, Republic of Korea</td>
</tr>
<tr>
<td>8</td>
<td>441820</td>
<td>Wood</td>
<td>Thailand, Viet Nam</td>
</tr>
</tbody>
</table>

As an agricultural economy, the Lao PDR has been a prominent exporter of rice, coffee, timber and fruit. The European Union is a significant market for coffee and rice while China is an important market for fruit and rubber. Exports from the Lao PDR to Viet Nam have witnessed a sharp rise in the past few years, particularly with regard to coffee and wood. Most of these products account for a large proportion of the Lao PDR’s exports to the world. Given the large size of the European Union market, this study considered it to be a major importer of the products listed in table 1.
Moreover, the European Union has been offering the Generalized Scheme of Preferences (GSP) to the Lao PDR from time to time. China is an important destination for Lao fruit, but the main market for that product is elsewhere. Coffee is also a major export by the Lao PDR. Lao coffee is similar to India’s Darjeeling tea in that it can be found in markets all over the world. The European Union is the major market for Lao coffee. The Lao PDR is also a rice-growing economy. Lao PDR exports of organic rice to the European Union have increased substantially. China is a major buyer of Lao rubber. Both Thailand and Viet Nam are major destinations for Lao wood and wood products. Japan and the Republic of Korea are major buyers of the Lao PDR’s white charcoal. China and Viet Nam are the two main markets for Lao maize, and Viet Nam is the main importer of dried cassava from the Lao PDR.

1. Selection of samples

The selection of the aforesaid products was made in close coordination with the Department of Import and Export (DIMEX) in the Lao PDR’s Ministry of Commerce (MoC), and the exporters’ technical staff and management. The selection of products and corresponding sample sizes were made through consultations with exporters in the Lao PDR with the help of DIMEX. The NTM survey was conducted in face-to-face interviews with the export companies (and their agents) based on a structured questionnaire. The questionnaire was tested and modified after the pilot survey. Prior to this, under the guidance of DIMEX, the kick-off meeting was held. It gathered key players of the major export commodities’ value chain, including the owners, managers, manufacturers, transporters etc. Two of the main objectives of the kick-off meeting were to raise awareness and share knowledge about NTMs among relevant stakeholders as well as gain insights necessary to reflect on the general nature of the export activities and the sample selections.

Sampling of the selected export products was done purposively, rather than randomly, given the fact that only eight products had been selected for the study. The list of exporters provided by the provincial-level industry associations was the main source of sample selection. This was in addition to the lists of companies provided by a number of agencies such as the Provincial Department of Industry and Commerce, Lao Coffee Association, Lao Furniture Association, Lao National Chamber of Commerce and Industry, and Enterprise and Development Consultants (EDC). Sample sizes are listed in tables 2(a) and 2(b). Maize had the highest share at 20.3% (12 firms) in the total sample, followed by coffee and dried cassava. Figure 1 shows the field-level data collection template.
### Table 2(a). Sample size (general)

<table>
<thead>
<tr>
<th>Product</th>
<th>Firms (No.)</th>
<th>Share (%)</th>
<th>Geographical location</th>
<th>Export destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bananas</td>
<td>6</td>
<td>10.2</td>
<td>Borkeo, Oudomxay, Luang Namtha</td>
<td>China</td>
</tr>
<tr>
<td>Coffee</td>
<td>9</td>
<td>13.6</td>
<td>Champasak</td>
<td>France, Germany, Singapore, Thailand</td>
</tr>
<tr>
<td>Dried cassava</td>
<td>8</td>
<td>13.6</td>
<td>Borlikhamxay, Luang Namtha</td>
<td>China, Viet Nam</td>
</tr>
<tr>
<td>Maize</td>
<td>12</td>
<td>20.3</td>
<td>Huaphanh, Oudomxay, Luang Namtha</td>
<td>China, Viet Nam</td>
</tr>
<tr>
<td>Rice</td>
<td>5</td>
<td>8.5</td>
<td>Vientiane (capital), Khammouane, Savannakhet, Champasak</td>
<td>Germany, Sweden, Viet Nam</td>
</tr>
<tr>
<td>Rubber</td>
<td>6</td>
<td>10.2</td>
<td>Luang Namtha, Oudomxay, Khammouane, Borlikhamxay</td>
<td>China, Malaysia</td>
</tr>
<tr>
<td>White charcoal</td>
<td>7</td>
<td>11.9</td>
<td>Vientiane (capital), Borlikhamxay, Khammouane, Savannakhet</td>
<td>Japan, Republic of Korea</td>
</tr>
<tr>
<td>Wood product</td>
<td>7</td>
<td>11.9</td>
<td>Oudomxay, Borkeo, Vientiane province, Vientiane (capital), Khammouane, Borlikhamxay</td>
<td>Thailand, Viet Nam</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td><strong>100</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 2(b). Sample size (logistics firms/customs agents)

<table>
<thead>
<tr>
<th>Product</th>
<th>Number of firms</th>
<th>Province</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>1</td>
<td>Vientiane (capital)</td>
</tr>
<tr>
<td>White charcoal</td>
<td>1</td>
<td>Borlikhamxay</td>
</tr>
<tr>
<td>Coffee</td>
<td>2</td>
<td>Vientiane (capital)</td>
</tr>
<tr>
<td>Wood and wood products</td>
<td>1</td>
<td>Vientiane (capital)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5</strong></td>
<td></td>
</tr>
</tbody>
</table>
The initial sample size consisted of 631 firms. However, after the first screening, we have found that more than half of them (398 firms) could not be contacted due to non-availability and wrong addresses. Out of the 233 contactable firms, 6 were out of business while 28 did not meet the criteria of selection. The field survey followed face-to-face interviews with the objective of understanding the problems related to products, partners, and NTMs that exporters experience.\(^4\) Finally, 60 firms were surveyed. Information was captured through the structured questionnaire on product, destination, burdensome NTM etc. The distribution and types of the firms surveyed are shown in figures 2 and 3. According to the survey, the major exporting countries are Thailand, Viet Nam, Malaysia and Singapore (ASEAN members), China, Japan, the Republic of Korea (ASEAN+3 countries) and several European Union members such as Germany, France and Sweden.

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\(^4\) Difficulties were experienced in scheduling appointments with companies for interviews. Some firms did not trust the interviewers who, they felt, were working for the Government or competing firms. In addition, some firms voiced concern that they were too small for their views to be taken seriously. There were complaints that the questionnaire was too long and that they should be mailed or completed faster, which was not possible.
Of the 60 surveyed firms, 73% were domestic in nature, 20% were foreign-owned and 7% were JV-type (figure 2). Most of the interviewed firms were exporters (73%), while 14% were manufacturers (figure 3). The surveyed firms had, on average, been in business for seven years and had an average annual turnover of $1.47 million. In terms of manpower, the size of the surveyed firms varied. While the number of employees per firm averaged 56, the large exporting firms had employees numbering more than 300 (bananas), 400 (coffee) and 972 (rubber).

This survey was conducted across the country. In particular, the interviews were carried out in nine provinces in three regions of the Lao PDR. Surveyed firms in the Northern provinces were mainly exporters of rubber, bananas and maize, whereas those in the central region were primarily exporters of wood and wood products, white charcoal, dried cassava and rice. In the Southern provinces, the export enterprises were predominantly coffee and rice exporters. In addition to interviews with the firms, the relevant agencies were also consulted in order to obtain information on NTMs.5

2. Survey methodology

The field survey (including time used in contacting/appointments with the firms and actual interviews) took place from mid-October 2015 to the end of December 2015. The questionnaire comprised four main sections, with several subheadings and questions. The four main sections covered (a) general information, (b) NTMs, (c) logistics, and (d) perception of the future. The questionnaire used the UNCTAD classifications for SPS and TBT measures as well as for the procedural obstacles. Approximately 2-3 hours was spent on each interview in

5 Such as Provincial Chambers of Commerce and Industry (Champasak, Bolikhamsay and Huaphan provinces), and the Provincial Import and Export Section (PIMEX) of the visited provinces, the Lao Coffee Association in Champasak, and the Lao Furniture Association in the capital city, Vientiane.
addition to the follow-ups to obtain relevant information (export sales records, etc.) that was unavailable at the time of the interview. The interviews of logistics firms were complementary to the interviews of export firms, which did not have information related to logistics (as they used the services of shipping firms). It should be noted that, together with the telephone calls to make the appointments for interviews, quite often the firms – especially those are located in the main province, Vientiane – requested that the questionnaire be sent to them beforehand in order to help them provide the right respondents, prepare the relevant information and arrange time for the interview. In the case of the Northern provinces, making appointments for interviews did not work well; therefore a “walk in” approach was used instead.

C. Identification of procedural barriers

The capacity of private individuals to deal with NTMs, exchange information with each other, and provide effective transport, logistics, payment and other services is crucial to the efficiency of the international trade process (UNCTAD, 2013). To assess the size of procedural barriers faced by Lao exporters, this study analyzed the export process of the selected export products. As the Lao PDR is a landlocked country, it depends very much on use of ports in neighboring transit countries (e.g., Thailand and Viet Nam).

The scope of the trade process analysis in this study includes all processes involving the exporter (seller) or its representatives directly, from the signing of the contract between the buyer and seller to the loading of the goods onto a sea-going vessel (or, if by land, up to the border checkpoint of the importing country), and receipt of payment. The scope of the export process analysis generally includes all procedures involving the importer (buyer)—i.e., procedures related to the signature of the contract between the buyer and the seller, all procedures from the arrival of goods at the border (or seaport) of the importing country and delivery at the warehouse in the importing country.

Based on the United Nations Network of Experts for Paperless Trade and Transport in Asia and the Pacific (UNNExT) Business Process Analysis methodology, information on export processes was collected essentially through repeated interviews of a small number of key informants, e.g., buyers, sellers and intermediaries directly involved in the process. Interviews and consultations with relevant government agencies were also conducted whenever possible.

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6 The Business Process Analysis is based on the BUY-SHIP-PAY process. This is in contrast with the World Bank’s *Doing Business Report*, which mostly excludes the BUY and PAY process (except for preparation of documents for L/C) when calculating export and import time. See ESCAP, 2012.
1. Exports of rubber to China and Malaysia

Exports of rubber to China involve nine major processes and eight actors, while rubber exports to Malaysia involve eight processes and seven actors. Chinese importers demand a copy of the export quota certificate issued by the Lao Provincial Department of Industry and Commerce, whereas exports to Malaysia do not have to comply with such a requirement. The other processes under the category of SHIP between the Lao PDR and these two importing countries have remained the same. In fact, most Chinese importers are so-called “head offices”, whereas the Lao exporters are producers. Therefore, the contract between a Lao exporter and a Chinese importer involves the usual process, and on-site inspections are not required. However, Malaysian importers who are introduced by a Thai broker insist on an on-site inspection of the product before signing the contract. The payment process is the same in China and Malaysia. The export processes for rubber have been simplified and do not involve any variations between the two importing countries. Documentation has also been liberalized by both Malaysia and China. The entire export process, particularly under the category of SHIP, in the Lao PDR is handled manually, indicating that Lao exports face high transaction times and costs.

2. Exports of maize to China and Viet Nam

Lao exporters of maize to China need to use a service of one particular Lao shipping company in order for the export documents to be prepared on behalf of the exporters. Hence, maize exports to China involve few processes compared to the same for Viet Nam. Consequently, a downside of this is an increase of transaction costs for Lao exporters. Exporting maize to China involves eight processes and seven actors. In the case of maize exports to Viet Nam, exporters have to deal with seven major export processes and six actors under the category of SHIP. The remaining processes are the same for China and Viet Nam. Importers in both the countries carry out on-site inspections before signing export contracts. Transportation time and costs as well as documentation time appear to be the major barriers to Lao maize exports. Importers in Viet Nam need copies of the export quota certificate (not required by Chinese importers), phytosanitary certificate, COO and tax clearance. Chinese importers, on the other hand, need copies of the phytosanitary certificate, COO, tax clearance and export license. However, documentation in both cases has to be handled manually. There is enough scope for the reduction of transportation time and costs, which would improve the competitiveness of Lao exports.
3. Exports of dried cassava to China and Viet Nam

The processes for cassava exports to Viet Nam are much simpler than for cassava exports to China. However, the other processes are the same for China and Viet Nam. Importers in China just need a phytosanitary certificate and COO. Nevertheless, importers in both the countries carry out on-site inspections before signing contracts with exporters. Documents have been submitted and processed manually. As a result, transportation time and costs as well as documentation time, particularly with China, are the major barriers to Lao exports of cassava.

4. Exports of bananas to China

Banana exports to China involve five major processes and five actors. The importers carry out on-site inspections before signing contracts with Lao exporters. Chinese importers need copies of export licensing only. Documents have to be submitted manually. Transportation time and costs are the major barriers to Lao exports of bananas.

5. Exports of rice to Viet Nam and the European Union

The processes for rice exports to Viet Nam, which are simple and do not involve much documentation, involve six major processes and six actors. Only three documents, i.e., a COO, phytosanitary certificate, invoice and packing list, are needed to export rice to Viet Nam. The Lao PDR exports both ordinary (normal) and organic rice to the European Union. Both types of rice have to comply with 12 major processes and deal with 13 actors. Nine and seven documents are needed to export ordinary and organic rice, respectively, to the European Union. Exports of ordinary rice need two additional documents – a quality control and test report, and herbicide certificate. In contrast, food and drug certificates and an organic certificate are required for exporting organic rice to the European Union. European Union importers do on-site testing before signing contracts. Transportation time and costs as well as documentation time, especially with the European Union, are the major barriers to Lao rice exports. The overall export process, particularly under the category of SHIP, in the Lao PDR has to be handled manually, resulting in Lao rice exports facing high transaction time and costs.

6. Exports of coffee to Thailand and the European Union

Coffee exports to Thailand are relatively simple as they involve only seven major processes and seven major actors. Only five documents, i.e., COO, phytosanitary certificate, quality control test report, tax certificate, and invoice and packing list, are needed to export coffee to Thailand. To export of coffee to the European Union, Lao exporters have to comply with 10 major processes and deal with 12 major actors. Eight documents, in particular COO, phytosanitary certificate,
quality control and test report, organic certificate, are required to export coffee to the European Union. Only three main documents are needed when exporting washed coffee to the European Union, i.e., COO, phytosanitary certificate, and quality control and test report. Additionally, in the case of exporting natural coffee, fumigation certificate is required. For an organic and fair-trade label, Lao exporters need to provide a single document, an organic certificate; it is not necessary to provide a certificate of fair trade. European Union importers do on-site testing before signing a contract. The entire export process, particularly under the category of SHIP, in the Lao PDR has to be handled manually, resulting in Lao exports facing high transaction time and costs, both at the Lao-Thailand border as well as at the transit port.

7. Exports of white charcoal to Japan and the Republic of Korea

Exports of white charcoal to the Republic of Korea and Japan need certain documents that are purely internal in nature, such as a tax certificate, permission to export non-timber products, product identity certificates. To export white charcoal to the Republic of Korea, Lao exporters have to comply with 11 major processes and deal with 11 major actors. Exports of white charcoal to Japan, on the other hand, involve 10 major processes and 10 major actors. Importers in the Republic of Korea require six documents, while five documents are required to export to Japan. The entire export process, particularly under the category of SHIP, in the Lao PDR has to be handled manually, resulting in Lao exports facing high transaction time and costs, both at Lao-Thailand border as well as the transit port in Thailand.

8. Exports of wood and wood products to Viet Nam and Thailand

Exports of wood products are relatively liberalized, involving only eight major processes in the case of Thailand and five processes in the case of Viet Nam. Vietnamese and Thai importers insist on carrying out on-site inspections before signing contracts. Exports to Viet Nam require four documents while for Thailand seven documents are needed. The entire export process, particularly under the category of SHIP, in the Lao PDR has to be handled manually, resulting in Lao exports facing high transaction time and costs, both at the Lao-Thailand border as well as the Lao PDR-Viet Nam border.

The main challenge in the Lao PDR is how to transfer to the local economy the benefits and opportunities that result from increased global and regional trade and investment. Exports of bananas to China, maize to China and Viet Nam, and rice to Viet Nam involve low levels of documentation, processes and actors, compared with other products (table 3). Regulations related to these products are fairly liberal and do not pose high barriers in the Lao PDR. However, the entire trading process has to be dealt with manually; online/electronic submission of trade documents has yet to be implemented in the Lao PDR. Manual handling
of trade documentation is a great disadvantage as it makes Lao exports uncompetitive globally. Among the importing countries, both Viet Nam and China appear to be more trade-friendly as they have lowest numbers of processes and actors. In both countries, business process steps and corresponding actors in exports are relatively less dispersed.

Table 3. Level of procedural barriers faced by Lao exporters

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Export product</th>
<th>Partner (importer)</th>
<th>Level of procedural barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Document</td>
</tr>
<tr>
<td>1</td>
<td>Bananas</td>
<td>China</td>
<td>Low</td>
</tr>
<tr>
<td>2</td>
<td>Coffee</td>
<td>European Union</td>
<td>High</td>
</tr>
<tr>
<td>3</td>
<td>Coffee</td>
<td>Thailand</td>
<td>Medium</td>
</tr>
<tr>
<td>4</td>
<td>Dried cassava</td>
<td>China, Viet Nam</td>
<td>Medium</td>
</tr>
<tr>
<td>5</td>
<td>Maize</td>
<td>China, Viet Nam</td>
<td>Low</td>
</tr>
<tr>
<td>6</td>
<td>Rice</td>
<td>European Union</td>
<td>Medium</td>
</tr>
<tr>
<td>7</td>
<td>Rice</td>
<td>Viet Nam</td>
<td>Low</td>
</tr>
<tr>
<td>8</td>
<td>Rubber</td>
<td>China, Malaysia</td>
<td>Low</td>
</tr>
<tr>
<td>9</td>
<td>White charcoal</td>
<td>Japan</td>
<td>Low</td>
</tr>
<tr>
<td>10</td>
<td>White charcoal</td>
<td>Republic of Korea</td>
<td>High</td>
</tr>
<tr>
<td>11</td>
<td>Wood</td>
<td>Viet Nam</td>
<td>Low</td>
</tr>
<tr>
<td>12</td>
<td>Wood</td>
<td>Thailand</td>
<td>Medium</td>
</tr>
</tbody>
</table>

While procedural barriers created by the level of required documentation have been in the low to medium range across most of products and partner countries, the barriers arising from the required processes and actors are in the medium to high range, suggesting that the benefits provided by low documentation requirements have been neutralized by procedural barriers facing Lao exporters. Therefore, electronic submission of documentation, together with simplification and harmonization of trade processes, is essential in order to transform the trading environment as well as improve the competitiveness of Lao exports.

D. NTMs, restrictiveness and barriers to trade

As barriers to trade, NTMs can prevent market access even though some of them are WTO-compliant. Exporters in the Lao PDR have to comply with a wide range of requirements, including technical regulations, product standards and customs procedures, which may sometimes act as protectionist measures; as a result, they have the potential to negatively affect trade flows. Procedural obstacles arising from standards and regulations are challenges that make compliance with the measures difficult. Some of these measures create delays in testing or getting certification, lack of transparency and availability of information on given regulations. The regulations are imposed by the importing country and the exporting country is compelled to comply with these requirements.
The field survey data indicates that Lao exporters of bananas to China have to comply with measures such as labelling (A31), marking (A32), packaging (A33), microbiological criteria of the final product (A41), hygienic practices during production (A42), and cold/heat treatment (A51) for the elimination of plant and animal pests and disease-causing organisms in the final product.

When exporting rice (both ordinary and organic) to the European Union, most of the NTMs that Lao exporters have to comply with are related to conformity assessment (A8), such as product registration (A81), testing (A82), certification (A83) and quarantine (A86).

Exports of rubber by the Lao PDR to China and Malaysia have to comply with (a) the registration requirement for importers for TBT reasons (B15), under the category of prohibitions/restrictions of imports for objectives that are set out in the TBT agreement (B1), (b) product registration (B81), labelling (B31) and packaging (B33), all of which come under the category of labelling, marking and packaging requirements (B3).

In the case of exports of white charcoal to the Republic of Korea and Japan, Lao exporters told the field survey interviewers that they had to comply with registration requirement for importers for TBT reasons (B15), labelling (B31), marking (B32), and several measures under conformity assessment such as product registration (B81), testing (B82), certification (B83), inspection (B84) and traceability information (origin, processing and distribution) (B85).

Exports of wood to Thailand and Viet Nam also require compliance with all conformity assessments related to TBT measures (B8) such as product registration (B81), testing (B82), certification (B83), inspection (B84), and traceability information (origin, processing and distribution) (B85).

Enhancing the regulatory environment in the goods sector is essential to eliminating unnecessary regulatory divergences that can only restrict trade flows. Identification of TBT and SPS would, therefore, help in identifying the trade barriers that need to be eliminated. The field-level data indicate that about 80% of Lao exporters have been facing difficulties with NTMs, of which 87% are agricultural (SPS) firms and 76% are manufacturing (TBT) firms.

The exporters identified (a) labelling requirements (B31) and (b) the inspection requirement (B84) as common TBT measures applied by the trade partners of the Lao PDR. Labelling requirements (B31) cover the measures regulating the type, color and size of printing on packages and labels, and the defining of the information that should be provided to the consumers. Labelling covers any written, electronic or graphic communication on the packaging or on a separate but associated label, or on the product itself. It may include requirements concerning the official language to be used as well as technical information on
the product, such as voltage, components, instructions on use, and safety and security advice. For example, rubber needs to carry a label indicating size, weight and other technical details. On the other hand, the inspection requirement (B84) – as part of conformity assessment is the requirement for product inspection in the importing country – may be performed by public or private entities. It is similar to testing, but does not include laboratory testing. For example, imports of white charcoal must be inspected for size and materials used before entry is allowed, a requirement that is enforced by Japan and the Republic of Korea.

1. Opinions of exporters on the restrictiveness of NTMs

The opinions of exporters on restrictiveness of NTMs are detailed below:

(a) Rice exporters in the Lao PDR have found that the quarantine requirement (A86) in the European Union is very restrictive. Otherwise, they do not face much SPS measure restrictiveness. Quarantine requires the detainment or isolation of animals, plants or their products on arrival at a port or other place for a given period to prevent the spread of, or contamination by infectious or contagious diseases. For example, a certain category of rice needs to be quarantined to terminate or restrict the spread of harmful organisms.

(b) Lao exporters of wood products to Viet Nam and Thailand have found the certification requirement (B83) to be very restrictive. Certification of conformity with a given regulation is required by the importing country, but may be issued in either the exporting or the importing country. For example, a certificate of conformity for wood products is required. Exporters in the Lao PDR face relatively low restrictiveness in exporting other products.

(c) With regard to the eight products covered by the survey, exporters were of the opinion that, with the exception of one or two cases, they did not face much restrictiveness from SPS and TBT measures.

(d) Labelling requirements (B31) and inspection requirement (B84) – the two common TBT measures faced by Lao exporters – were not identified as restrictive (table 4(a)).

(e) Exporters in the Lao PDR have to comply with a higher number of NTMs, even though none of the measures were identified as restrictive by the Lao respondents. Among these measures, the quarantine requirement (A86) and certification requirement (B83) are common (table 4(b)). It is also quite apparent that small and medium-sized enterprises (SMEs) are more vulnerable to NTMs than large companies. Therefore, it is logical for a diagnostic assessment to be carried out in order to identify the procedural obstacles and develop actions in more than one dimension that rationalize the NTMs. Given the importance of streamlining the
NTMs, it is crucial to investigate further the details of NTMs; this would provide an adequate and up-to-date picture of the impact of NTMs on the activities of Lao exporters for decision makers, negotiators and the business community. Ultimately, the findings would be helpful in rationalizing the SPS and TBT measures.

Table 4(a). Most common NTMs faced by Lao exporters

<table>
<thead>
<tr>
<th>NTM</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labelling requirements (B31)</td>
<td>This covers the measures regulating the type, color and size of printing on packages and labels, and definition of the information that should be provided to the consumers. Labelling includes any written, electronic or graphic communication on the packaging or on a separate but associated label, or on the product itself. It may include requirements regarding the official language to be used as well as technical information on the product, such as voltage, components, instruction on use, and safety and security advice.</td>
</tr>
<tr>
<td>Inspection requirement (B84)</td>
<td>This is part of the conformity assessment. Product inspections in the importing country may be performed by public or private entities. It is similar to testing, but does not include laboratory testing.</td>
</tr>
</tbody>
</table>

Table 4(b). Most restrictive NTMs faced by Lao exporters

<table>
<thead>
<tr>
<th>NTM</th>
<th>Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarantine requirement (A86)</td>
<td>Detain or isolate animals, plants or their products on arrival at a port or other place for a given period in order to prevent the spread of, or contamination by infectious or contagious diseases, or contamination. Product: Rice. Importer: European Union.</td>
</tr>
<tr>
<td>Certification requirement (B83)</td>
<td>Certification of conformity with a given regulation that is required by the importing country, but may be issued in either the exporting or importing country. Product: Wood. Importers: China and Viet Nam.</td>
</tr>
</tbody>
</table>

2. Institutional progress by the Lao PDR

The Lao PDR has liberalized its trade through extensive unilateral reductions of more than half of its tariffs to under 5%. Its tariff regime is even more liberal under ASEAN, which accounts for most of the country’s trade. Under ASEAN, more than 70% of its tariff lines are zero per cent and 25% of the tariff lines are less than 5%. This opening up has served the Lao PDR well, with recorded trade increasing to 75% of GDP in recent years (World Bank, 2012). As in many
other countries, non-tariff measures (NTMs) now form a more significant barrier to trade than tariffs.

The Lao PDR is already engaged in a modest streamlining of its NTMs as part of its ASEAN commitments. At the AEC Council Retreat in October 2011 in Malaysia, ministers agreed to address trade barriers that impede intra-ASEAN trade by developing a mechanism for capturing all NTMs through the establishment of an ASEAN Trade Repository as well as identifying NTBs, and the involvement of the business community in addressing specific bottlenecks. Implementation of the ASEAN Trade in Goods Agreement will be enhanced by the ASEAN Trade Repository and the harmonization of National Trade Repositories. Development of regional capacity to classify and notify NTMs is being implemented across the region. The objective is to support the implementation of the ASEAN Trade in Goods Agreement, with particular focus on enhanced transparency and NTMs. The identification, classification and notification of NTMs will assist businesses, traders and Governments in dealing with such measures, preventing or resolving trade barriers, and fostering regional integration.8

The Lao PDR has made significant progress unilaterally. It has moved ahead of many other ASEAN members by collecting all regulations and procedures that are involved in the trade of goods at the ASEAN HS-8 level. It recently launched a comprehensive Trade Information Portal9 where this information is posted via a user-friendly and searchable website. It has also established a Trade Facilitation Secretariat, an inter-ministerial committee representing line agencies involved in dealing with trade facilitation issues and chaired by the Vice-Minister of Industry and Commerce. DIMEX acts as the focal point and representation is from the Lao National Chamber of Commerce and Industry.10 DIMEX is now moving to implement the component of TDF-2 that is related to reviewing and rationalizing NTMs. This component is designed to complement and extend ongoing government efforts to streamline and harmonize NTMs. It focuses on three interrelated activities or subcomponents and is designed to:

- Enhance transparency and predictability by making additional information on trade requirements and procedures (including NTMs) available via the

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7 Note that one of the effects of the reductions in import duties has also been reductions in informal trade.
8 With regard to setting up an ASEAN Trade Repository, a new website based on i-TIP software developed by WTO (see http://asean.i-tip.org/) was recently launched to provide comprehensive information on NTMs for the 10 ASEAN members. The NTMs were identified from each country’s official source of trade regulations, and classified according to the NTM classification system.
9 Available at www.laotradeportal.gov.la.
10 As indicated in Decision No. 023/NSC, the Trade Facilitation Secretariat is the body dealing with trade facilitation issue. There is no exact word regarding NTMs. It states only import and export and trade in transit. However, DIMEX is revising the 023 decision by including NTMs.
Trade Information Portal and by ensuring the Lao PDR is able to meet its commitments associated with participation in the ASEAN Trade Repository program;

- Establish a sound and well-resourced capacity to identify, categorize and review NTMs with a view to achieving a major reduction in the trade restrictive impact of NTMs and, where possible, their streamlining. Furthermore, eliminate NTMs that no longer serve sound policy objectives;
- Identify and assess the impact of NTMs faced by Lao PDR exporters in ASEAN and other key markets ("external NTMs"), and strengthen the capacity of relevant officials to participate in negotiations on the elimination, streamlining and harmonization of NTMs.

E. Conclusion and policy implications

The field level data indicate that about 80% of Lao exporters have been facing difficulties with NTMs, of which 87% are agricultural (SPS) firms and 76% are manufacturing (TBT) firms. The exporters have identified (a) labelling requirements (B31) and (b) inspection requirements (B84) as common TBT measures applied by the trade partners of the Lao PDR.

Exports of bananas to China, maize to China and Viet Nam, and rice to Viet Nam involve a low level of documentation, processes and actors, compared to other products. Regulations of these products are fairly liberalized and do not pose high barriers in the Lao PDR. However, the entire trade processes have been dealt with manually, and online/electronic submission of trade documents has yet to happen in the Lao PDR.

Among the Lao PDR's trade partners, given the lowest numbers of processes and actors, both Viet Nam and China appear to be more trade-friendly. In both countries, the business process steps and corresponding actors in exporting are relatively less dispersed.

While the procedural barriers resulting from levels of documentation has been in the low to medium range across all the products and partner countries, those arising from the processes and actors are in the medium to high range, suggesting the benefits of low levels of documentation has been neutralized by procedural barriers faced by Lao exporters.

One rice exporter in the Lao PDR has found quarantine requirement (A86) in the European Union to be very restrictive. Otherwise, the exporters do not face much restrictiveness in SPS. However, Lao exporters of wood products to Thailand and Viet Nam have found the certification requirement (B83) to be very restrictive.
With regard to the eight products covered by this study, Lao exporters are of the opinion that they do not face much restrictiveness from SPS and TBT measures, with the exception of one or two cases. Although labelling (B31) and inspection (B84) requirements are the two most common TBT measures faced by Lao exporters, they were not identified as restrictive.

To facilitate exports, the Lao PDR must pursue a phased, focused and incremental approach. This will require further advisory and preparatory technical assistance as well as policy reform. The following recommendations are proposed as the best means for the Lao PDR to achieve the objectives stated in this study:

(a) Simplification and harmonization of trade processes will be essential in transforming the trading environment as well as improving the competitiveness of Lao exports. Harmonization of standards among the countries is also vital in the elimination of repetitive procedures and practices.

(b) Enhancing the regulatory environment in the goods sector is essential to the elimination of unnecessary regulatory divergences that can only restrict trade flows. The Lao PDR should introduce a regulatory environment that helps facilitate trade.

(c) Disseminate all SPS and TBT notifications of importing countries among Lao exporters in a transparent, timely and speedy manner. In parallel, strengthening the capacity of exporters for SPS and TBT requirements will help achieve higher trade. For example, rice exporters in the Lao PDR have found the quarantine requirement (A86) of the European Union to be very restrictive.

(d) The Lao PDR needs to develop infrastructure such as testing laboratories, accreditation of testing laboratories, the mechanism for certification of conformity etc. For example, Lao exporters of wood products to Thailand and Viet Nam have found the certification requirement (B83) to be very restrictive.

(e) It is also apparent that SMEs are more vulnerable to NTMs than large companies. Therefore, it is logical to carry out a diagnostic assessment, identify the procedural obstacles and derive actions to rationalize the NTMs.

(f) The border infrastructure on the Lao PDR side needs to be improved. Approach roads need to be widened and properly maintained.

(g) Lengthy documentation procedures and the absence of an effective transparent environment make Lao exports uncompetitive. Simplification of documentation is needed. Submission of customs documents needs to be made through a digital portal (EDI system). It is recommended that the Lao PDR consider setting its own customs EDI system and integrate it with the ASEAN Single Window.

(h) Facilitating standard-related documents is essential. Exporters in the Lao PDR should adapt their products to the regulations in force in
the destination countries. However, it might be difficult for them financially/technically to adapt their products to such regulations. In the opinion of the interviewed firms, easing the standards or removing the NTMs would lead to an increase in Lao exports. For example, some of the Lao PDR’s trading partners require the weight certificate, issued by the Government or a recognized institution. It takes considerable time to receive the quality control certificate and test report from the Provincial Science and Technology Section. Using a digital interface, it is possible that the regulator may notify the duration for receiving these certificates. All documents should be made available online. Online applications would save time as well as make the system transparent and faster. Therefore, facilitating standards-related documents is essential. The Lao PDR should sign Mutual Recognition Agreements (MRAs) with standards bodies of partner countries, either bilaterally or through the ASEAN regional process. Finally, the Lao PDR should consider using international standards for technical regulations.

The majority of exporters noted that they are aware of the international standards for the products covered by this study; those standards are applied by the Lao PDR’s partner countries such as China, Japan, Malaysia, the Republic of Korea, Thailand and Viet Nam as well as the European Union. However, several firms in the Lao PDR were found to be unaware of the international standards, especially in case of cassava, rubber and coffee.

Transparency, awareness and availability needs to be ensured for regulatory information, as that will certainly ease the barriers to exports. In addition, the field survey revealed crucial and important information on the perception exporters in mitigating trade barriers. Selected recommendations by the Lao PDR’s immediate neighbouring countries are listed in table 5.

The survey respondents identified faster handling equipment and vehicle tracking system on the Lao PDR side of the border as major barriers to trade. Apart from the problem of corruption and bribery as well as a lack of amenities such as hotels, the Lao PDR respondents were found to be satisfied with all the attributes selected in this survey. In addition, 100% of the respondents identified corruption on the trading partners’ side as the average type of barrier to trading in the case of Lao PDR exports.
### Table 5. Selected recommendations by the Lao PDR’s immediate neighbouring countries

<table>
<thead>
<tr>
<th><strong>Thailand</strong></th>
<th><strong>China</strong></th>
<th><strong>Viet Nam</strong></th>
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<tr>
<td>• Provide suitable export quotas for companies.</td>
<td>• Provide loans with low interest rates.</td>
<td>• The Government of the Lao PDR should facilitate the value chains.</td>
</tr>
<tr>
<td>• Reduce documentation and costs, making trading more export-friendly.</td>
<td>• The customs point at the border should contain a clear list of services fee/taxes for goods clearly. Create a paperless trade environment.</td>
<td>• Remove foreign middlemen who come to buy dried cassava.</td>
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<tr>
<td>• Establish a Single Window for all approvals.</td>
<td>• Reduce extra payments without receipts at the police check point in Ban Poung of Luang Namtha province.</td>
<td>• Promote the roles and responsibility for the Provincial Chambers of Commerce and Industry.</td>
</tr>
<tr>
<td>• Provide more information about markets and regulations.</td>
<td>• The Government of the Lao PDR should improve taxation system and also reduce tax on exports.</td>
<td>• Improve the infrastructure, especially road expansion, and make weight limits comply with international standards.</td>
</tr>
<tr>
<td>• Identify a responsible person/office with clear tasks.</td>
<td>• The Government should provide trade regulatory information center about trade between the Lao PDR and China in both languages.</td>
<td>• Provide long-term loans with low interest rates at the right time (during the harvesting season).</td>
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<tr>
<td>• Reduce paper work process, adopt quicker approval mechanism. Remove the need to get approval/signatures at the district level, which is a time-consuming procedure.</td>
<td>• The Government should reconsider the weight limits in the Lao PDR. In the Lao PDR, trucks cannot carry more than 20 tons, whereas Chinese trucks carry 38 tons. As a result, extra payments have to be made for overweight shipments.</td>
<td>• The Government should revise the tax rate.</td>
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<tr>
<td>• Provide vocational training to help Lao laborers to get jobs.</td>
<td>• The Government should provide trade regulatory information center about trade between the Lao PDR and China in both languages.</td>
<td>• Reduce the on-site inspection process of the Provincial Agriculture and Forestry Section.</td>
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<tr>
<td>• Use an IT system to facilitate trade at the border, as that will reduce time and costs.</td>
<td>• The Government should reconsider the weight limits in the Lao PDR. In the Lao PDR, trucks cannot carry more than 20 tons, whereas Chinese trucks carry 38 tons. As a result, extra payments have to be made for overweight shipments.</td>
<td>• Notifications from the Government should reach exporters quickly.</td>
</tr>
<tr>
<td>• The Government of the Lao PDR should provide loans with low interest rates for SMEs.</td>
<td>• The Government should designate the concerned office for the on-site inspection for the Phytosanitary Certificate.</td>
<td>• Establish a laboratory center for agricultural products.</td>
</tr>
<tr>
<td>• Disseminate information to all concerned industry associations and provincial officials. For example, withdraw the regulation on weight limit check points nationwide.</td>
<td>• The Government should increase the export quota.</td>
<td>• Although exports are tax exempted, the Government still collects a so-called “transportation tax”.</td>
</tr>
<tr>
<td>• Revise the standard service charge (export related documents).</td>
<td></td>
<td>• Remove unnecessary security requirements.</td>
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Short-term technical assistance and funding by international development organizations should be sought for the following activities: (a) a review of the laws and regulations that govern the oversight and application of SPS and TBT measures; (b) preparation of an inventory of laboratory assets in the country; (c) an assessment of the training needs of each ministry of the Lao PDR, and specification of the priority of the programs needed to meet those needs; and (d) identification of the needs, opportunities and practices that would engage SPS and TBT agencies in collaborative border management.

The Lao PDR should modernize its oversight and application of SPS and TBT measures by: (a) eliminating or at least reducing unnecessary inspections and testing-related delays; (b) formulating a transition strategy for replacing requirements with international standards, and (c) mainstreaming SPS and TBT concerns into the agenda of national and regional transport and trade facilitation bodies.

National Single Windows and single-stop border inspection facilities should be further developed to: (a) augment regional action for harmonizing SPS and TBT implementation; (b) enable mutual recognition of laboratory findings; (c) refine border risk identification and risk management procedures; and (d) make pertinent information accessible to all trade regulation agencies.

Finally, coordination among ministries, capacity-building of officials dealing standards etc., is needed to boost exports by the Lao PDR. The Government of the Lao PDR alone cannot build the infrastructure required for facilitating its exports. Therefore, technical assistance, international aid and private sector investments are essential in bringing about the improvement of the country’s capacity and infrastructure for dealing with standards.
References


Part IV

Future research agenda on non-tariff measures and the needs for capacity-building

ARTNeT secretariat

The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and ARTNeT secretariats organized the ARTNeT dialogue on “Analysing non-tariff measures: Collating evidence and setting research agenda”, on 26-27 April 2017, in Bangkok.¹ The objectives of this ARTNeT event were to:

(a) Present research findings of the studies undertaken by ARTNeT researchers related to non-tariff measures (NTMs) principally in the CLMV² countries – the outcome of which is the publication of this book, and

(b) Provide a platform for a conversation on formulating a research agenda on NTMs that will better inform policymakers on the presence and impacts of NTMs. The event was organized as part of the project on “Supporting Equitable Economic Development in ASEAN: Impact of Regional Integration (AEC) on Cambodia, the Lao People’s Democratic Republic, Myanmar and Viet Nam (CLMV countries)” under phase four of ARTNeT and supported by Agence Française de Développement (AFD). However, the discussion on the future research on NTMs, their use and impact, was not limited to ASEAN and the recommendations below are broadly applicable.

² Cambodia, the Lao People’s Democratic Republic, Myanmar and Viet Nam.
A. Pre-event survey

Before the event, the ARTNeT secretariat conducted a survey among its members on “Setting the future research agenda on NTMs”. The survey was circulated among the ARTNeT members and network and it received 102 responses. Only 42.9% of the respondents felt that the current research on NTMs adequately reflected relevance to policy (33.7% were of the opinion that it did not, and 23.5% had no opinion). With regard to specific concerns over the future research agenda, the following suggestions were received as answers to an open-ended question:

a. More sectoral / product level studies are needed at the micro / firm level, e.g. technical barriers to trade (TBT) in the food sector;
b. Determinate how businesses see NTMs;
c. Good governance and NTMs;
d. NTMs and preferential trade agreements (PTAs);
e. Find ways to speed up regulatory convergence and harmonization, including at the regional level;
f. Find ways to identify NTMs that are non-tariff barriers (NTBs);
g. Single window technical frameworks and NTMs;
h. Find ways to reduce the procedural obstacles of testing and certification;
i. Assess the costing of quality infrastructure (laboratories etc.) required to facilitate NTMs;
j. Find ways for developing economies to improve local testing procedures;
k. Conduct “bottom up” research on NTMs;
l. Lobbying and NTMs;
m. Assess the impact of NTMs on poverty and inequality, services trade, technology transfer, value chains and welfare (producer and consumer);
n. Assess the real health impacts of sanitary and phytosanitary (SPS) measures applied to agricultural products;
o. Analyse NTMs with environmental protection objectives and their impact;
p. Analyse the role of private standards;
q. Review the use of national languages as NTBs.
B. Outcome of the panel discussion

The ARTNeT Dialogue provided an excellent platform for the exchange of views and proposals on how to frame ARTNeT’s research agenda on NTMs with the objective of better informing policymakers (in ASEAN as well as across the Asia-Pacific region) about the presence and impacts of NTMs and the policy options on how to manage NTMs with harmful impacts on trade and development.

Discussions, including consideration of the research findings presented for the ARTNeT project, led to a broad agreement that current trade and related policies, especially in lower income countries, are becoming much more difficult to navigate to establish the impact of individual trade measures. Often, no data other than for average applied tariffs are available for many low-income countries, which does not allow for an analysis to be relevant to current policy issues. Thus, the consensus was that the most serious obstacle to more meaningful research on NTMs was the lack of availability and comprehensiveness of data. What is needed is to match product- and partner-specific trade flow data with similarly detailed data on trade measures (NTMs and other behind-the-border measures).

The comments and suggestions have been divided into the following two categories.

1. Ideas on expanding data, and creating inventories and tools for analysis

   a. Firm-level datasets, which already have been developed and used in research, should all be combined into one data set repository – ideally on the ARTNeT platform – to provide easy and free access to researchers on the network;

   b. In most cases it is not possible to have a set of markers for determination on a priori basis which of the NTMs will have a commercial effect of an NTB. While some NTMs might enable trade by some producers in some countries, it is also possible that they could act as an obstacle to trade by producers from other exporting countries. At the same time introduction of new NTMs may also have some impact on domestic producers as they also need to comply with them too. Often NTMs have a different effect when considered in a pre-establishment and post-establishment context of foreign direct investment (FDI). Therefore, categorization of NTMs vs. NTBs should be undertaken on a case by case basis. However, this will require more resources at the monitoring and policymaking levels as well as solid disaggregated data on both trade, FDI and production;

   c. To gain a better sense of the prevalence of NTMs, data should be “cleaned” by comparing measures initiated and measures terminated.
This may also provide information on how NTMs differ with regard to survival rates and whether their demise is related to having had a fully expected effect or instead weather they were not effective at all (and thus were cancelled). In addition, it would be interesting to know how many were terminated because of non-WTO-compliancy;

d. Insights from the so-called “reverse notification” approach can be used to categorize NTMs into NTBs by gauging the protectionist intent. This would require looking at the specific concerns and then checking weather there was an original notification of the measure; if not, it is likely that the intent was not 100% compliant with the rules;

e. Consider constructing “early warning signal” indicators at the product or sectoral level either to indicate a rise in NTMs’ presence or to be able to identify if such presence results in changes of production or trade/investment patterns (such as crop/product or market substitute) as this often occurs due to “regulatory leakage”;

f. Review available indicators in the area of environmental protection and identify their possible adverse commercial impact (i.e., NTBs);

g. Research on mutual recognition arrangements (MRAs) on conformity assessment and the effectiveness;

h. Research on whether the NTB is posed by the standard itself, or by the procedure involved in complying with it;

i. Research on to what extent are governments drawing on relevant international standards in their technical regulations;

j. Develop an analytical framework for collecting and presenting harmonized data across countries on the use of standards in regulations in any sector as a basis for effective monitoring of the actual extent of use of international standards in regulations and for empirical analysis of the trade effects. The template could then be applied to collect and report detailed and factual information on technical regulations, their objectives and standards use in pilot sectors within ASEAN countries. The output will be used to illustrate the difficulty of identifying, for a given sector, which standards are used, and with which links – direct or indirect – are standards used internationally. The missing data collected in the harmonized format of the template will show how transparency of data on standards use could be improved;

k. Research on potential trade effects and policy implications of environmental and organic standard in food and agriculture; and

l. Engage directly or indirectly with the Multi-Agency Support Team and the United nations Conference on Trade and development (UNCTAD) in further work on defining and/or fine-tuning definitions of NTMs in categories D-P of the current classification (UNCTAD-MAST 2012);
2. Ideas on capacity-building and training

a. Achieve a better understanding of private (voluntary) standards. Private standards and voluntary standards are having an increasing influence on trade flows, including from developing countries. Small and medium-sized enterprises (SMEs), especially in the least developed and low-income countries, are the most adversely affected at present (according to available perception surveys). However, given the right policy support, such companies could be placed in a good position to adapt measures and increase their compliance with various conditions given their small scale and higher adaptability than large(r) firms. Capacity-building programmes for SMEs can be organized especially in the least developed countries.

b. Develop skills for more effective use of available datasets (iTIP etc) in awareness building and research;

c. Capacity-building for the notification of measures to the WTO and when appropriate at the regional levels;

d. Capacity-building to enable formulation of effective Aid for Trade or grant /loan proposals for seeking technical assistance in improving the capacity of traders/producers to comply with NTMs, or for establishing regional testing facilities;

e. Capacity building on how to design, negotiate and implement above mentioned mutual recognition agreements; and

f. Training on roles of public authorities in the area of environmental and organic standards: options for interaction and means for the use of standards for achieving public policy goals.
The Asia-Pacific Research and Training Network on Trade - ARTNeT - is an open network of research and academic institutions and think-tanks in the Asia-Pacific region.

Since its inception, ARTNeT has focused on increasing the amount and quality of relevant trade and investment research in the region. This has been done by harnessing the research capacity already available and developing additional skills through regional team research projects, enhanced research dissemination mechanisms, and increased interactions between policymakers and researchers. The greatest impact in building research capacity thus far has been achieved by establishing technical capacity building activities catering to researchers and research institutions especially from the least developed countries. ARTNeT looks forward to placing even stronger emphasis on such programs in the future.

ARTNeT keeps evolving to respond to the changing environment faced by policymakers, analysts, researchers and other stakeholders. However, what will not change is ARTNeT's commitment to valuing consultation, collaboration and cooperation. ARTNeT Secretariat will continue to work with partners to strengthen this established collaborative platform to enable its members to embark onto new and ever-more challenging areas of research covering contemporary concerns in trade, investment, inequalities, competitiveness, inclusive growth, as well as ecological sustainability — all essential issues in the era of the Sustainable Development Goals.

More details at http://artnet.unescap.org

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