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# **Background Research Paper**

**Environmental Impacts of Trade Liberalization in the  
Organic Agriculture Sector of the Lao PDR**

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To inform the *Rapid Trade and Environment Assessment* for Lao PDR, seven background papers covering nine key economic sectors were commissioned by the RTEA Expert Advisory Panel, a body consisting of key government and private sector stakeholders established to provide overall guidance to the assessment process. These papers provided vital background information and illuminated key sector-specific policy recommendations for the main assessment and are seen as a valuable contribution to the growing body of in-country research focusing on the complex dynamics between trade and the environment in Lao PDR.

This research exercise was coordinated by the Science, Technology and Environment Agency and IUCN – The World Conservation Union in Lao PDR.

Papers edited by Sabrina Shaw (IISD) and Tom Callander (IUCN)

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# Environmental Impacts of Trade Liberalization in the Organic Agricultural Products Sector, Lao PDR

by Phengkhouane Manivong\*

## Introduction

Since the implementation of the “New Economic Mechanism” (NEM) in 1986, the Government of Lao PDR (GoL) has been making changes towards transforming the centrally-planned economy to a market economy. Consequently, the economic relations with foreign countries have been growing little by little with the opening up of the country to trade. Lao PDR became a country member of the Association of Southeast Asian Nations (ASEAN) in July 1997 and is a signatory to AFTA (ASEAN Free Trade Area). The country applied to join the World Trade Organization (WTO) on July 16, 1997 and is currently working towards membership. Moreover, Lao PDR has been granted generalized system of preference (GSP) privileges from the European Union (EU) and has established Normal Trade Relations status (NTR) with the United States. The more important trading partners for Lao PDR are its Asian neighbours, including Vietnam, Thailand and China. Thailand is the largest trade partner, accounting for about 19 percent of all exports and over 60 percent of all imports in 2004 (CPI & UNDP 2006).

Trade liberalization is an opportunity for Lao products to be exported, especially green and niche products such as organic produce. The GoL has therefore defined the *National Export Strategy 2006-2008* (MoIC & ITC 2006) with a focus on six priority sectors, including organic products.

Trade liberalization in some cases may be good for environment, and in other cases bad, or both at once (Cosbey 2004). The relationships between trade and environment are complex. The goal of this research paper is to present the main environmental impacts, positive and negative, of trade liberalization on the export sectors prioritized in Lao PDR, with particular focus on the organic agricultural sector. The objective of this research paper is to provide an analysis of national experiences in improving environmental management in the organic agricultural sector as an input to a Rapid Trade and Environment Assessment (RTEA) project led by the Committee for Planning and Investment (CPI), the International Institute for Sustainable Development (IISD) and The World Conservation Union (IUCN).

The first part of this report will make an introduction of environmental concerns for the agricultural sector, and will then present the main environmental impacts in Lao PDR, and the country's experiences in improving environmental sustainability in this sector. Finally, it will identify areas where better support is needed, and propose recommendations for strategic policies to strengthen environmental sustainability.

## Section I:

### Overview of the organic agricultural products sector

#### 1.1 Environmental concerns in the sector

In 2005, agriculture accounted for 47 percent of the GDP and employed 77 percent of the labour force (STEA & UNEP 2006). Agricultural land covers 3.6 percent of the total land area (STEA & UNEP 2006). Almost all production, even of livestock and coffee, is undertaken by small family farms. Rice is the most important agricultural commodity, followed by maize and peanuts. Rain-fed rice is the main

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production system in the lowlands, while shifting cultivation is the major production system used in the upland environment. An estimated 280,000 families practiced slash-and-burn cultivation in 1989, an average of 300,000 ha, however this activity is slowly decreasing (STEA & UNEP 2006). In 2004, the area under slash-and-burn cultivation had decreased to 61,097 ha (STEA & UNEP 2006).

Agriculture remains the main source of income and livelihood for the Lao people, but this is slowly moving from subsistence to commercial production (STEA & UNEP 2006). We can find two agricultural systems: upland agriculture, which is characterized by low input, low outputs and limited market-orientation – which this paper defines as “organic by default”. Lowland agriculture with irrigation is larger and tends to use more inputs (such as chemical fertilizers and pesticides).

On the one hand, agriculture plays a positive role in ecosystem management by maintaining landscapes and biological diversity. On the other hand, environmental resources are under pressure from problems such as shifting agriculture. One cause of land degradation in Lao PDR is shifting cultivation, particularly in areas where the fallowing period is too short. Moreover, if shifting agricultural practices use uncontrolled fires, this is a treat to biodiversity in a given area and can destroy habitats for plant and animal species.

Other environmental damage is caused by irrigation systems on lowland cultivation; irrigation is the largest user of freshwater. In 2002, agriculture with irrigation systems accounted for 82 percent of total freshwater withdrawals, against 10 percent for industry and 8 per cent for domestic use (STEA & UNEP 2006). Besides this, agricultural runoff and seepage of fertilizations and pesticides are significant sources of groundwater pollution. The intensive livestock operations have grown so large that they pose problems of waste management and disposal, and are sources of air and water pollution.

In the face of forest degradation, mainly through shifting agriculture, the GoL has formulated the Land Resource Management Policy in 1995. The policy was translated into a Land Use Planning and Land Allocation Policy in the *National Environmental Performance Assessment* (EPA) (STEA & UNEP 2006). Stabilizing shifting agriculture is included in the GoL's (2004) *National Growth and Poverty Eradication Strategy* (NGPES) presented below.

### **1.2 Policy and regulatory framework for the organic agricultural products sector**

The GoL is determined to eradicate extreme poverty and move beyond the category of Least Developed Country by the year 2020. To achieve this, the GoL has adopted the NGPES as a comprehensive framework for all its development and poverty eradication programs.

The national development goal of the GoL for 2020 (GoL 2004) is focused on a strategy of sustainable economic growth and people-centred equitable development. The target aims to eradicate poverty for which the GoL has identified two broad strategies (MoIC & ITC 2006); high economic growth with equity with access to social services, and markets for everybody, particularly those in rural areas.

Concerning the agricultural sector, the rural development program and human resource development program conducted the Common Country Assessment (CCA) in December 2000 (CPI & UNDP 2006). The objectives for the agricultural sector include:

- Achieving food self-sufficiency;
- Increasing agriculture exports through diversification, commercialization and processing (cash crops, livestock, forest products); and
- Stabilizing slash-and-burn agriculture by land allocation for upland framers, terracing, and supporting alternative agricultural activities including agro-forestry and livestock.

Moreover, the GoL is promoting and supporting the production of organic agricultural products, especially organic rice. Organic practices make Lao rice more competitive with neighbouring countries, such as Thailand and Vietnam. However, the legal environment for organic products is not yet developed. Currently, there are no certification bodies or certification systems for organic agricultural products in Lao PDR. Mostly, Lao agricultural products are considered “organic by default”.

Currently, the Department of Agriculture is in charge of issuing “Phytosanitary Certification”, which certifies that the plants or plant products to be exported have been inspected and found to be free from quarantine pests and substantially free from other injurious pests. The certification also requires the exporter to declare the “Disinfection and/or Disinfection treatment”.

Organic certification for export from Lao PDR is currently carried out by international certification bodies to meet the requirements of importing countries. For example, the Lao Arrowny Corporation rice is certified by a Japanese agency, and the Lao Farmer’s Products Co. products are tested by European Union (EU) laboratories to ensure quality control. The certification cost is very high; obtaining the organic certification for one farm or group can mean paying a fee of about US\$3,000 per year (Sakdavong 2005).

In the area of quality, the product’s registration method is not based on international guidelines. The current method is based on the International Organization for Standardization (ISO) guide 654 and expanded to a third party product certification. This is the limit of its use, because it rarely meets international standards. There is no legislation covering the setting up of an accreditation board and issues related to ISO 9000 management standards and ISO 14000 environmental management standards. Lao PDR has no locally-based certification bodies to make the export operation with quality control and application of appropriate standards. The Lao Agro Industry Co. Ltd., exporting processed foods (bamboo shoots, sugar palm, tamarind, etc.) to the EU, is the first company in Lao PDR to obtain Good Manufacturing Practices (GMP) certification. Increasing exports to EU countries and Japan can be promoted by establishing certification systems and adopting hygienic and good practices.

It seems that the current legal systems (policies and regulations) are insufficient to meet the requirements of international standards. The international standards and regulations required by Lao PDR’s main trading partners, such as the ASEAN countries, China, Japan, the EU and the US have to be studied to better align Lao PDR policies and regulations to meet international standards. Lack of regulations, certification bodies, and certification systems to comply with standards imposed by exporters and trading partners can make market access difficult and be barriers to achieving the export of Lao agricultural products

Today, many non-government organisations (NGO) are promoting and supporting the creation of organic regulations and legislation. The most visible is the project for the Promotion of Organic Farming and Marketing in Lao PDR by Helvetas (Switzerland) and the Lao Agriculture Department in the “ProRice project” (Roder et al. 2006). This project is filling the gap by developing standards and legislation for organic agriculture and a certification system for Lao PDR. The French Government and the National Agriculture and Forestry Research Institute (NAFRI) are collaborating in this project of National Agro-Ecology (PRONAE), which is working on a pilot project in Sayabury and Xieng Khouang provinces.

## Section 2:

### Trade-related environmental impacts and national experiences in improving environmental sustainability in the sector

#### 2.1 Flagging the potential impacts of increased trade on the natural environment

The Generalized System of Preferences (GSP) from the EU, Normal Trade Relations (NTR) established with the United States (US), free trade and economic integration in ASEAN and future accession to the World Trade Organization (WTO) represent opportunities for Lao PDR to increase exports of agricultural products, including organic agricultural products. Moreover, several tariffs will be reduced significantly. Organic agriculture is well-suited to Lao PDR, both for in-country consumption and for export. It is the assumption of this paper that as a result of this more favourable trade environment, the organic produce sector will grow substantially if barriers to meeting international certification standards can be met.

What will be the impacts of this growth on the natural environment in Lao PDR? This section uses the Rapid Trade and Environment Assessment (RTEA) matrix, a tool developed by IISD (see Annex 1) (IISD & IUCN 2007). In developing and assessing trade liberalization scenarios, the RTEA can highlight the potential environmental consequences of trade liberalization in the organic agricultural sector. The RTEA matrix separates the key trade/environmental effects into the five different categories outlined below (IISD & UNEP 2005):

- Scale effect: Trade will lead to increased scale of economic activity;
- Structural effect: Trade will lead to changes in the structure of the economy allowing the country to make more of the goods it makes well or has in abundance;
- Technology effect: New or old technologies have a positive or negative impact;
- Direct effect: Direct environmental effects are caused by the very fact that trade is occurring;
- Regulatory effect: Trade will affect the national regulatory environment (e.g., regulations from other countries imposed on imports).

### 2.1.1 Scale

The main impact of Lao PDR's current trade liberalization on the organic agricultural products sector is an increase in access to foreign markets in the EU, the US and with neighbouring ASEAN countries (Thailand, Vietnam and China) (MoIC & ITC 2006). This is particularly the case for Lao organic rice due to a decrease in export barriers (non-tariff barriers) and bilateral agreements between Lao PDR and its trading partners which allow Lao PDR produce to enter foreign markets more easily. Consequently, it will enhance the potential to increase the scale of organic production. Increased scale of production of organic agricultural products for export can lead to an increase in the amount of land required for production, with possible negative environmental impacts such as deforestation (including shifting cultivation and protected area encroachment).

### 2.1.2 Structural

Lao PDR already produces much of its agricultural produce organically by default. In this case, it could be argued that a structural effect of trade is not one of changing the agricultural sector to produce in other ways but enhancing and standardizing the agriculture that is already currently practiced. Ensuring and certifying organic agriculture production therefore has the ability to reduce or prevent the up take of agricultural practices from abroad that often cause with environmental pollution. This benefit is found in all crops under organic production.

### 2.1.3 Technology

Trade liberalization is also leading to greater openness to Foreign Direct Investment (FDI). As Lao PDR's competitive advantage for the production of organics becomes more widely known and the business environment becomes more conducive (e.g. certification is made easier, government support is strengthened) the potential for increasing FDI in this sector will rise. FDI has the ability to bring better technology and expert knowledge to the sector, increasing production and helping to link produce with key markets, ultimately promoting a less environmentally-impacting agricultural industry.

### 2.1.4 Structural and technology impacts combined

Structural changes to the Lao economy, coupled with increased investment in better organic technology, production and processes, has the ability to take the place of investment that may bring heavy-input agriculture practices (using chemical fertilizers and pesticides or intensive farming practices). In this sense, organic investment prevents impacts that can be caused from standard agriculture including:

- Pollution caused by chemicals used in production;
- Introduction of genetically modified organisms (GMO) into Lao's natural environment; and
- Intensive farming creating large-scale land use changes, including deforestation.

### 2.1.5 Regulatory effect

The organic agricultural standards imposed in the markets of some of Lao PDR's trading partners can

be viewed as an informal trade barrier. Increased market demand for safety and quality from foreign buyers will also put pressure on the GoL and exporters to upgrade existing regulations and quality to meet export standards. Actually, Lao agricultural products are considered "organic by default", but with no formal in-country certification available at present, this is not recognized on the international market. Domestic regulation is not yet appropriate for the export of organic agricultural products.

Seeking and obtaining international certifications of organic production can increase difficulties for export, but also offers access to new markets, which often pay premium prices for these products. Capacity building is needed to maintain and improve market access and improve competitiveness.

### 2.1.6 Organic agriculture and the environment in Lao PDR

Organic products are a new concept for Lao people. Currently, it is hard to identify impacts of organic agricultural products on the environment. Nevertheless, one knows that organic agricultural practices are following a natural process, using natural raw materials without the use of chemical fertilizer or pesticides in order to promote and enhance soil fertility, and manage ecological interactions within an agro-ecosystem. Consequently, one can imagine environmental benefits from organic agricultural practices as below:

- Preventing soil erosion: conserve top soil, preserve soil moisture and reduce runoff; and
- Improving water quality: use organic fertilizers that rapidly dissipate in soil and water.

In neighbouring countries, some environmental benefits have already been demonstrated. For example, farmers in Yen Bai province in Vietnam say that the use of organic fertilizers made from rice straw in addition to a mixed micro-organism called VIXURA helps to improve rice quality and increase soil fertility. Moreover, with organic fertilizer, they can produce an equivalent capacity of 280-290 kilogram per hectare (Vananh 2004).

## 2. 2 Case study: organic agricultural products

Developing Lao organic agricultural products for export will have a positive impact on the national economy, as currently farming represents 80 percent of the Lao workforce (PTP 2006). At present, organic agricultural businesses are mainly managed only by local people, who sell their products to a restricted number of customers. There is no assistance from a domestic agency to provide training on quality control to meet the requirements of the importers. The certification for export in Lao PDR is carried out by the certification bodies of the importing countries. There are several private companies operating in Lao PDR that have started generating organic products specifically for the export market. Products include rice, mulberry leaves, processed fruit and coffee. Some examples are briefly described below:

**Rice:** Lao rice is often considered "organic by default", meaning no chemical inputs. The private company Lao Farmer's Products Co exported 300 tons of non-certified organic rice in 2005 to Europe under the Fair Trade Label Max Havelaar (PTP 2006). The company is working towards certification so as to access the organic market abroad. Moreover, Lao Arrowny, a Japanese-Thai company, is collaborating with farmers in Vientiane province to produce non-certified organic Japanese rice to export to Japan. In 2004, this company exported 200 tons (PTP 2006). Aside from the private sector, many NGOs are already promoting sustainable or organic agriculture (PTP 2006).

**Coffee:** Coffee is an important export product, accounting for 19,206 tons in 2002 (Sakdavong 2005). According to the Coffee Exporters' Association, in 2004 Lao PDR earned about US\$23 million from coffee exports (Sakdavong 2005). The organic Arabica coffee is considered an organic niche product for consumers and retailers in Australia, the EU, Japan and the US. There are currently 28 companies registered under the "Coffee Group" of LNCCI (Sipaseuth 2005) and Sinouk Coffee and Dao Coffee have already had some success exporting to these niche markets. Some coffee is already traded as "Lao Organic Coffee", but this is done without formal certification. Currently, only Sinouk Coffee exports organic coffee, and is planning to use an international accredited organization (Ecocert) (Sipeuseuth 2005).

**Tea:** Paksong Green Tea is grown in Boleven Plateau. Lao Farmer's Products Co. exported 50 tons of non-certified organic tea in 2005 to Europe under the Fair Trade Label Max Havelaar (PTP 2006).

**Vegetables:** The Japan-based Lieu Tou Industry Co. imports around 400 to 500 kgs of organic vegetables per week to Japan from Lao PDR and plans to increase imports to twice a week (Pongkhao 2006). The company grows organic products on 12 hectares of farmland in Xaythany district, Vientiane (Pongkhao 2006).

## Section 3:

# Conclusions and strategic policy recommendations for the organic agricultural products sector

### 3.1 Conclusions

*"Is trade good or bad for the environment? The answer is no, trade is not good for environment, nor is it bad for the environment. The actual relationship is too complex to be described by such general truisms. Trade and trade liberalization can in some cases be good for the environment, and in other cases bad, or both at once. The final impacts in any given country will depend on the sector's economic characteristics."* (Cosbey 2004)

Trade liberalization makes evident the potential benefits of increasing value in certain sectors and expanding green niche markets. For the agriculture sector, trade liberalization gives incentive to grow organic to supply export demand. This is a good opportunity for Lao producers, many of which already grow organic produce by default, to access new markets. Even so, Lao PDR has only recently penetrated the organic agricultural products market. The export performance is still under-developed and it might have an undesirable effect. Not enough goods are produced to meet the demand. This problem might generate a move to intensive agriculture with increased use of fertilizers and chemicals that may have a negative impact on the environment. As a result, trade liberalization has to take into account some barriers for export performance for organic agricultural products, such as:

- Irregular supply: Lao PDR still has no capacity to export organic agricultural products with regular supply. Only a few small traders and exporters are active in the organic sector. The products are sold with irregular prices. This is due to a lack of market information on quantity, quality, price and other factors which would allow traders to export competitively.
- Lack of quality control: The country has no system for certification (organic or otherwise); there is neither a certification for geographic origin, nor a laboratory equipped for certification activities. Due to the practice of farmers of not using chemicals (or very little), organic farming is a possible niche market for Lao PDR. Lao PDR does not yet have a certification body for quality assurance systems, such as ISO 9000, ISO 14000 or Hazard Analysis Critical Control Points (HACCP). Moreover, there are no programs to promote ISO, HACCP, Good Manufacturing Practices (GMP) or Good Agricultural Processes (GAP) among producers/processors. Enterprises that want certification are dependent on foreign providers.
- Lack of organic cultivation: The concept of "organic agriculture products" as formally defined by foreign markets was only recently introduced in Lao PDR. The implementation and the technology are still narrow and only few private enterprises have developed organic cultivation and products formally.
- Administrative and transport costs: Being a landlocked country, Lao exporters face additional administrative and transport costs, making it more difficult to compete in the international market. The main competitors in the region presently are Vietnam and Thailand. Small producers, poor infrastructure (roads, processing) and a lack of prior experience in the export market will present a tremendous challenge in the efforts to have products with consistent quality.



### 3.2 Strategic policy recommendations

The GoL is committed to supporting the development of the organic agriculture sector, and for the future, it is recommended that the GoL and other concerned stakeholders in the agricultural sector consider working together to develop strategy, policies and regulations appropriate to organic agricultural products, including:

- Promoting and organizing “farmers’ groups” - To meet the export demand, Lao producers may consider forming groups to lobby for support of the sector. Establishing farmers’ groups may make it easier for exporters and trade partners to have a contact with producers and also meet the requirements for organic certification.
- Seeking and obtaining “formal organic certification” - The GoL, through relevant agencies like the Ministry of Agriculture and Forestry (MAF), should consider ways of supporting Lao producers to compete in international markets by having a formal organic certification process. The ProRice project is a good initiative and it is recommended that these types of programmes be expanded to new areas and producers, so that the idea of a national certification body for organic products in Lao PDR continues to be explored (Roder et al. 2006).
- Promoting quality assurance systems - Lao PDR has no locally-based certification bodies to carry out export operations with quality control and the application of appropriate standards. There is a need to consider options for addressing this issue, including legislation covering the setting up of an accreditation board and issues related to ISO 9000 and ISO 14000.
- Strengthening supply - While the GoL is trying to resolve the problem of irregular supply by organising farmers’ groups or farmers associations, it is still proving difficult to have the quantity and quality of product to meet the current demand in international markets. It is recommended that the GoL consider developing policy and programmes to support the supply chain for increasing the quantity of organic products sold in domestic and international markets, with premium prices for organic and fair trade products sought in these markets.
- Building a supportive regulative and policy environment - Current policies and regulations related to this sector are inadequate and require urgent strengthening. A key next step for the GoL and the development of the organic agricultural sector is to draft laws and regulations to implement policies for organic agriculture, food safety and food quality assurance. This is a major task which requires the study of international standards and regulations of Lao PDR’s main trading partners, such as ASEAN countries, China, Japan, the EU and the US. Without such regulations, the country may be ill-prepared for participation in international trade following its international obligations.
- Ensuring organic production is environmentally friendly - The above recommendations all support the development of the organic sector with the assumption that organic production is environmentally friendly. However, some negative impacts such as deforestation, protected area encroachment and other land use changes may result. It is therefore important that these impacts are recognized and minimized. Some recommendations include:
  - ▶ incorporating environmental and social considerations into the developing regulatory and policy environment in the sector; and
  - ▶ Ensure organic standards and certification criteria include key criteria for environmental protection.

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## Annex 1: RTEA Matrix for Organic Agricultural Products

Source: IISD & IUCN, 2007 (adapted from IISD & UNEP, 2005).

Category	Driving Force	Pressure	Impacts	Mediating Factor(s)
<b>Scale effect:</b> Trade will lead to increased scale of economic activity.	Increased foreign market access in EU for Lao organic produce.	Increased scale of organic agriculture.	Incentive to grow organic produce to supply the export demand results in increase of land under production with possible increase in deforestation.	GoL policy is developed to promote and support organic agriculture and ensure that it is well planned and sustainably driven. GoL and the private sector ensure that organic production also includes key criteria for environmental protection.
<b>Structural effect:</b> Trade will lead to changes in the structure of the economy, causing the country to make more of the goods it makes well or has in abundance.	Increased market access in EU for Lao organic produce.  Lao organic by default and has ability to meet demands.	Increased demand for green/organic products.  Potential to increase market share of Lao products.	Incentive to grow more organic produce to supply the export demand results in increase of land under production.  Reduced use of chemical fertilizers in organic agricultural production reduces chemicals in the environment.	GoL policy is developed to promote and support organic agriculture and ensure that it is well planned and sustainably driven. The GoL prioritizes organic agriculture over intensive, high-input agriculture.
<b>Technology effect:</b> Traded products themselves have an impact on the environment.	Greater openness to FDI  Greater attractiveness for FDI due to foreign market access.	New investment brings in better technology and production processes.	Better technology can improve production processes and help meet organic standards, minimizing the impact on the natural environment.	If the new technology imported is used in a sustainable way, it can reduce environmental impacts.
<b>Structural effect</b> – a substitution effect  &  <b>Technology effect</b>	Increased market access in EU for Lao organic produce  Greater attractiveness for FDI due to foreign market access.	New investment brings in better technology and production processes and takes the place of investment that brings heavy input agriculture practices (using chemical fertilizers and pesticides or intensive farming practices).	Investment in organics prevents impacts that can be caused by standard agricultural practices including: <ul style="list-style-type: none"> <li>• Pollution from chemicals used in production</li> <li>• Introduction of Genetically Modified Organisms into the natural environment</li> <li>• Intensive farming creating large-scale land use change &amp; deforestation.</li> </ul>	
<b>Direct effect:</b> Direct environmental effects are caused by the very fact that trade is occurring.	Increased trade flows, economic activity	Increased exports of organic agricultural products result in increased road infrastructure and air and road transport to get produce to markets.	Habitat loss from infrastructure construction. Contribution to land-use issues related to climate change.	
<b>Regulatory effect:</b> Trade will affect the national regulatory environment.	Standard international investment agreements.	Seeking and obtaining international certifications of organic production.	Increased non-tariff barriers in export markets on Lao products. Decreased competitive advantages for Lao products.	Domestic regulation is not yet appropriate for organic agriculture means increased export barriers. Need capacity to increase number of certified farmers.