

# Trade in Environmentally Sound Technologies Implications for Developing Countries

## Policy Brief

Trade in environmentally sound technologies offers triple win opportunities for the environment, economy and people in developing countries

Expanding the use of environmentally sound technologies (ESTs) can serve as a driver for development, resilience and the achievement of global goals. The uptake of ESTs contributes to several Sustainable Development Goals (SDGs), such as goal 7 on energy, goal 8 on economic growth, goal 12 on sustainable consumption and production, and goal 13 on climate action.

Trade liberalization can further facilitate market creation and expansion for ESTs and generate opportunities for companies, particularly in developing countries<sup>1</sup>, to participate in regional and global value chains. Increasing trade in ESTs offers triple win opportunities by promoting economic development, job creation and innovation while simultaneously fostering economic and climate resilience and enabling countries to more efficiently access the goods and services needed to improve their environmental performance.

Global trade in ESTs has increased by over 60% from USD 0.9 trillion in 2006 to USD 1.4 trillion in 2016. While emerging economies such as China have dramatically increased their share in global trade of ESTs, many developing countries, especially least developed countries (LDCs), are yet to fully harness the benefits from EST trade.

### What are environmentally sound technologies (ESTs)?

ESTs are technologies that have the potential to significantly improve environmental performance relative to other technologies. They are not just individual technologies but can also refer to total systems that include know-how, procedures, goods and services, equipment, as well as organizational and managerial procedures for promoting environmental sustainability. Examples include technologies related to renewable energy, waste management and pollution management.

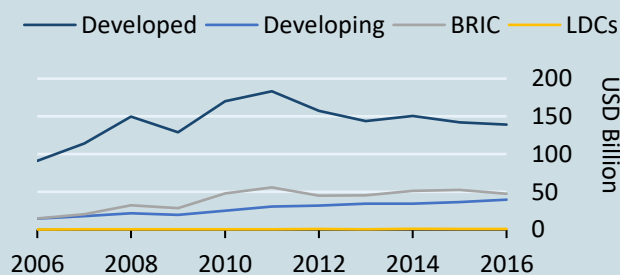


## Key findings

### Trade in ESTs<sup>2</sup> is increasing, with growing participation of developing countries

- World trade in EST related goods has been on an upward trend since 2006, with developing countries such as China, Mexico, Malaysia and South Africa becoming active players.
- From 2006 to 2016, developing countries' share in world trade of EST goods has been growing. The value of developing countries' exports of EST goods has doubled since 2006, driven mostly by BRIC countries.
- In the last decade, BRIC countries<sup>3</sup> went from being net importers to net exporters of goods related to ESTs<sup>4</sup>, recording a USD 39.4 billion trade-surplus in 2016, which is almost equivalent to that of developed countries.

### Total trade in selected ESTs with clearer environmental end-use



Note: Total value of trade is calculated as the sum of exports and imports.  
Source: author calculations based on Comtrade data.

<sup>1</sup> The report groups countries according to the UN M49 classification.







<sup>2</sup> The trade flow analysis of goods related to ESTs is conducted for two sets of ESTs. The first set is a group of 144 products, selected based on existing lists of environmental goods, including the 'Friends of Environmental Goods' 153 List, and considerations of end-use and relevance to developing countries. The second set is a subset of the first group of products and contains 21 goods with a clearer environmental end-use and spare parts that are, while having multiple end-uses, highly relevant from a value chain perspective.

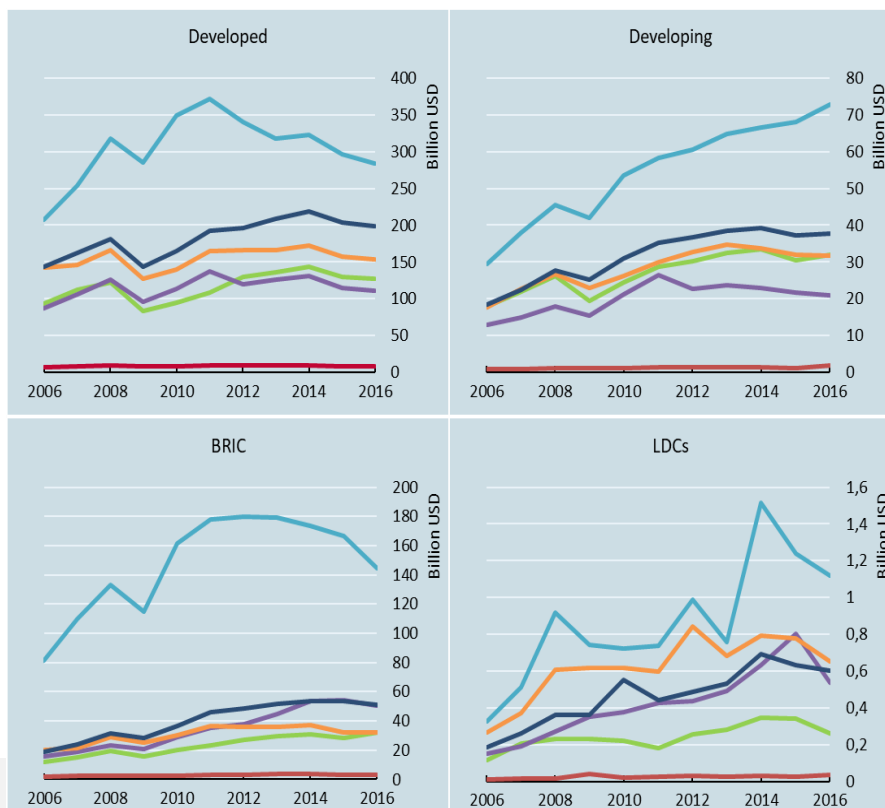
<sup>3</sup> Including Brazil, Russia, India and China.

<sup>4</sup> Referring to the group of 144 products.

## Key findings continued

- The most traded ESTs<sup>5</sup> include renewable energy technologies, wastewater management and water treatment, solid and hazardous waste management, and products related to air pollution control.
- The value of trade in EST related services<sup>6</sup> has more than quintupled over the last decade with revenues largely concentrated in North America and Europe.
- The global EST market is characterized by the expansion of global value chains with services, technologies and intangibles embedded in traded goods.

Air pollution control	
Clean up or remediation of soil and water	
Environmentally preferable products	
Renewable energy	
Solid and hazardous waste management	
Wastewater management and water treatment	



## Negotiations aiming at liberalizing trade in ESTs have made progress at international and regional levels

- In 2012, APEC members agreed to reduce applied tariffs on 54 product categories of environmental goods to no more than 5%.
- Progress has been made on negotiating two plurilateral agreements: the Environmental Goods Agreement (with the aim of eliminating tariffs of agreed list of environmental goods) and the Trade in Services Agreement (with elements covering environmental services). Both negotiations are currently on hold, however, if concluded, they would offer improved market access for environmental goods and services.
- The number of regional trade agreements (RTAs) with provisions related to the environment and ESTs has also grown markedly in recent years (see chart overleaf). These provisions range from 'best-endeavour' provisions promoting overall environmental cooperation, investment and innovation, to specific lists of environmental goods subject to tariff liberalization. While multilateral agreements remain desirable and optimal for EST trade, RTAs can serve as effective building blocks for eventual liberalization outcomes at the multilateral level.
- The participation of developing countries as well as the environmental community in these negotiations has been limited due to a lack of capacity and effective engagement, as well as concerns over the competitiveness of domestic industries, among other issues.

### RTAs with environmental provisions

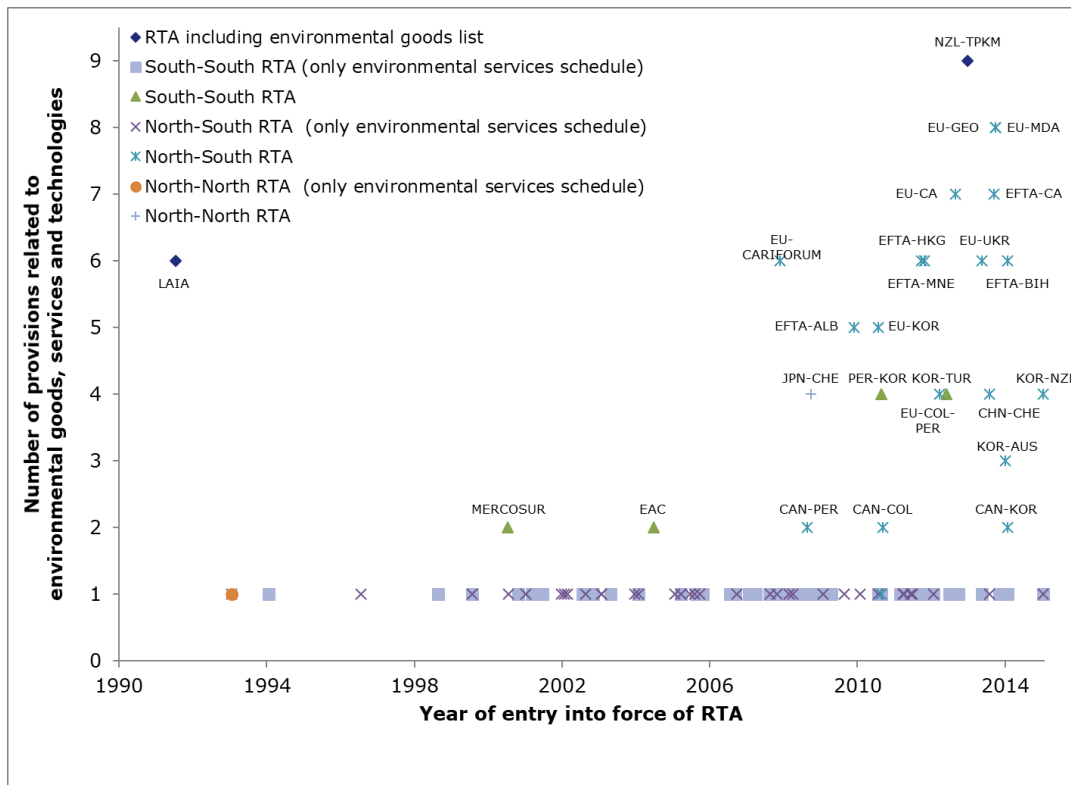
Out of 270 regional trade agreements notified to the General Agreement on Tariffs and Trade (GATT) or the WTO between 1956 and May 2016:

- 129 agreements contain provisions referring to environmental goods, services and technologies;
- 26 refer to promotion of trade in environmental goods and services;
- 101 contain schedules of commitments on environmental services;
- 2 include an agreed list of duty-free environmental goods. (based on Monteiro, 2016)

<sup>5</sup> Due to the lack of specification of most ESTs at the HS six-digit level, subheadings may include goods with multiple end-uses.

<sup>6</sup> The lack of an agreement on classification and limited availability of data makes cross-country comparisons on trade in environmental services especially difficult. This report therefore analyses trade in select environmental services for a smaller sample of countries, for which data are available from the WTO and the UN COMTRADE databases, complemented by firm-level data collected from the private sector.

## Key findings continued



### Developing countries have the potential to benefit significantly from EST trade and increased participation in global value chains

- The sustainability assessment of the 5 ESTs selected in this study reveals potential benefits for developing countries in areas including energy access, health, pollution control, resource efficiency and employment creation.
- Due to their localized nature, environmental services provide opportunities for enterprises in developing countries to integrate into global value chains.
- Trade in ESTs and the uptake of such technologies can create sustainable jobs, especially in services related to the installation and maintenance of renewable energy and environmental products.

#### Sustainable jobs

Case studies have shown that the renewable energy sector has the capacity to create more jobs than the fossil fuel sector. In the case of Ghana for example, 100 megawatt solar PV installation are estimated to create 3,000 direct and indirect jobs. (UN Environment, 2015: Ghana Solar Export Potential Study)

In the solar industry, over 85% of jobs are in services related to installation and maintenance. (Sampathkumar, 2018)

### Challenges remain. Non-tariff measures in particular pose a significant challenge to trade in ESTs.

- Reducing or eliminating tariff and non-tariff barriers could help facilitate trade in ESTs and enable countries to harness triple win opportunities for the economy, environment and development. Lowering trade barriers could also increase opportunities for participation in value chains, thus bolstering economic and environmental resilience and driving sustainable development.
- While tariffs on ESTs are low in many countries, a case can be made to eliminate even these very low tariffs (so-called 'nuisance' tariffs), reducing administrative costs for customs authorities and thereby facilitating smoother entry of ESTs into these markets.

## Key findings continued

- Non-tariff measures affecting EST trade include technical requirements, quality conditions and proofs, customs formalities and valuation practices—which are exacerbated by the absence of harmonized classification systems for goods and services relates to ESTs—and restrictions on labor mobility.
- At the enterprise level, there is a lack of capacity of companies in developing countries to effectively explore opportunities in global markets. Access to finance and shortages of skilled labor to provide services related to the design, installation and maintenance of ESTs are also key challenges.
- Political economy factors can also pose challenges to trade liberalization in ESTs. For example, leaders may be reluctant to liberalize trade where it is perceived that increased global competition would threaten local industries.

### Notifications to WTO

In 2016, the World Trade Organization's (WTO) Environmental Database reported 1176 notifications on environmental measures made by WTO Members, of which the majority relate to technical regulations or specifications (29.2%), followed by grants and direct payments (13.7%) and non-monetary support (11.3%).

## A holistic approach could help developing countries further harness trade opportunities in ESTs.

- Many developing countries, especially LDCs, have not been able to develop effective domestic markets or sound productive capacity for ESTs. To address this, a holistic approach is needed including research and data capture, awareness raising, capacity building, and policy coherence at national, regional and global levels.
- A better data system would need to ensure environmental credibility of defined ESTs, address the issue of dual-use, improve classification of environmental services, capture the complementarity between environmental goods and services, and promote standardization and harmonization of data collection.
- At the country level, policy measures could be taken to promote and encourage trade and investment in EST sectors, build productive capacity, improve the skills of the labor force, ensure coherence between environment and trade policies, and effectively assess impacts of EST trade based on comprehensive sustainability assessments.

## Trade rules and negotiations can significantly contribute to fostering EST trade.

- At regional and global level, an integrated approach to EST related trade negotiations is essential. This includes the joint consideration of goods and services, more flexibility to accommodate concerns over sensitive products and industry competitiveness, and a practical approach to defining ESTs and harmonizing data.
- A number of existing WTO rules provide scope to promote EST trade, such as intellectual property rights, environmental labelling, standards, trade facilitation, government procurement, and trade finance.



## About this project

Led by the Environment and Trade Hub of UN Environment, and in collaboration with Oxford University and Norwegian University of Science and Technology, this project aims to support and enable developing countries to objectively assess and understand the opportunities, benefits and challenges of liberalized trade in environmentally sound technologies and thus contribute to the implementation of climate goals and the Sustainable Development Goals related to trade, energy, technology and climate change.

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