



GREEN ^{economy} AND TRADE OPPORTUNITIES



COUNTRY PROJECTS SYNTHESIS REPORT



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GREEN economy AND TRADE OPPORTUNITIES

COUNTRY PROJECTS SYNTHESIS REPORT





Foreword

Trade: The engine powering the 2030 Agenda

Since the creation of the World Trade Organization in 1995, the complex relationship between trade and the environment has attracted growing international attention. Two decades later, the 2030 Agenda for Sustainable Development and the Paris Climate Agreement re-emphasized the key role of trade and investment in accelerating the transition to an inclusive green economy. It's now clear to us all that trade must drive, not threaten, sustainability.

This synthesis report summarizes lessons from the UNEP Green Economy and Trade Opportunities Project, which identified, assessed and harnessed trade opportunities arising from the transition to a green economy. The authors combine international research with case studies from around the world - describing sustainability standards for farming in Chile, organic agriculture in South Africa, biotrade in Peru, solar energy in Ghana and fisheries in Viet Nam. The case studies reveal how trade can drive sustainable development, promote social inclusion and reduce poverty. They also highlight a range of opportunities, from sustainable agriculture and value chains for native biodiversity, to enhanced solar energy production for export and improved international certification in aquaculture.

This synthesis is based on the *Green Economy and Trade – Trends, Challenges and Opportunities Report*, and the subsequent national dialogues, research and advisory work. It is meant to support the work of UNEP's Environment and Trade Hub, a demand-driven initiative that provides countries around the world with capacity building and policy advice on sustainable trade and investment.

I would like to thank the European Commission for its generous support and the many experts, partners and stakeholders who made both this report and the overall project possible. It is our hope that the lessons presented here will inspire public and private decision-makers around the world to promote new trade opportunities that drive the transition towards an inclusive green economy. In this time of change, we must all remember that international trade can be a powerful force for good – for both people and the planet.



Achim Steiner
UN Under-Secretary-General
UNEP Executive Director

Acknowledgements

The Green Economy and Trade Opportunities Project was developed and implemented by the United Nations Environment Programme (UNEP) together with many partners and experts around the world. The project was kindly supported by the European Commission (EC).

UNEP's Trade, Policy and Planning Unit led the implementation of the project working closely with many other parts of UNEP. Benjamin Simmons, former Head of the Trade, Policy and Planning Unit conceived the project. Anja von Moltke, current Head of the Trade, Policy and Planning Unit, was responsible for overall project management and implementation and guided the project teams.

Nicolas Cisneros, Lennart Kuntze and John Maughan provided crucial support for the completion of the overall project, provided technical guidance and led project management for individual country studies. Important technical contributions were made by the following UNEP staff members and consultants: Liesbeth Casier, Anna Autio, Kristin Dypedokk, Mamadou Diakhité, Giles Chappell, Fabrizio Meliado, Joachim Monkelbaan, Katharina Schmidt and Benjamin Smith.

The project took place under the general supervision of Steven Stone, Chief of the Economy and Trade Branch. Désirée Leon, Fatma Pandey and Rahila Somra provided administrative support and Simon Lobach contributed as editor and provided layout support.

To implement the Green Economy and Trade Opportunities Project, UNEP engaged with a wide range of governmental and non-governmental organizations, businesses, research platforms and UN partners. All contributors were acknowledged in the UNEP report *Green Economy and Trade – Trends, Challenges and Opportunities* launched in May 2013.

The national projects were carried out in close collaboration with national governments and other relevant national, regional and international stakeholders. The research and analysis for the country projects was led by national partners, including Fundación Chile (FCh), the Peruvian Trust Fund for National Parks and Protected Areas (PROFONANPE) and the Research Centre of the Universidad del Pacífico in Peru, The Energy Centre of the Kwame Nkrumah University of Science and Technology (TEC-KNUST) in Ghana, the Trade Law Centre NPC (tralac) in South Africa, and the Ministry of Industry and Trade (MoIT) in Vietnam. UNEP would like to thank all partners for leading the research and stakeholder dialogue, their contributions and cooperative spirit. Individual acknowledgments are contained in the respective country studies.

Special Thanks:

UNEP and the authors would like to thank the European Commission for the financial support of the Green Economy and Trade Opportunities Project.

List of acronyms

BAU	Business as Usual
BEPS	Biotrade Export Potential Study
BSI	Bank Strategy Institute
CAEPS	Certified Aquaculture Export Potential Study
CIEM	Central Institute for Economic Management
COP	Conference of the Parties
CTE	Committee on Trade and Environment
ECOWAS	Economic Community of West African States
EGA	Environmental Goods Agreement
EST	Environmentally Sound Technologies
ETB	Economy and Trade Branch
EU	European Union
FCh	Fundación Chile
GDP	Gross Domestic Product
GEI	Green Economy Initiative
GESS	Green Economy Scoping Study
GE-TOP	Green Economy and Trade Opportunities Project
GHG	Greenhouse Gas
GRIDCo	Ghana Grid Company
GVCs	Global Value Chains
HDI	Human Development Index
ICTSD	International Centre for Trade and Sustainable Development
IISD	International Institute for Sustainable Development
IPSARD	Institute of Policy and Strategy for Agriculture and Rural Development
ISPONRE	Institute of Strategy and Policy on Natural Resources and the Environment
JWPTE	Joint Working Party on Trade and Environment
KNUST	Kwame Nkrumah University of Science and Technology
MARD	Ministry of Agriculture and Rural Development
MoIT	Ministry of Industry and Trade
MoNRE	Ministry of Natural Resources and the Environment
MPI	Ministry of Planning and Industry
NGO	Non-Governmental Organization
NITS	National Interconnected Transmission System
PAGE	Partnership for Action on Green Economy
PEF	Product Environmental Footprint
PROFONANPE	Peruvian Trust Fund for National Parks and Protected Areas
PV	Photovoltaic
SCP	Sustainable Consumption and Production
SDG	Sustainable Development Goal
SEPS	Ghana Solar Export Potential Study
SUPA	Sustainable Pangasius Value Chain
TEC	The Energy Centre
tralac	Trade Law Centre
UN	United Nations
UNEP	United Nations Environment Programme
UNGA	United Nations General Assembly
USA	United States of America
VRA	Volta River Authority
WAPP	West African Power Pool
WTO	World Trade Organization
WWF	World Wide Fund for Nature

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Executive Summary

Trade is a vital element of the global economy, and it has fundamental links to the wellbeing of people and the planet. The prevalence of global value chains has created momentum also for developing countries to participate in and benefit from global trade. However, when not managed properly, trade can have negative impacts on the environment and society, and can exacerbate natural resource depletion and degradation. Therefore, there is a need for appropriate policy measures and regulations, in order to accelerate rather than undermine the potential of trade to be a driver of sustainability, and to mitigate adverse effects of trade for the environment and society. Such policy measures and regulations have the potential to turn trade into an engine for economic growth and sustainable development, as envisioned in the outcome document of the Rio+20 Conference.

The Green Economy and Trade Opportunities Project (GE-TOP) has been carried out by UNEP's Economy and Trade Branch between 2012 and 2016. The overall objective of the project was to provide national-level policy analysis and advisory services to identify trade-related opportunities associated with a transition to an inclusive green economy, with a view to supporting the design and implementation of sustainable policies and tools. The project identified, assessed and harnessed trade opportunities arising from the transition to a green economy, conducted research at the international level, and assisted sector development at the national level through a number of country projects.

GE-TOP was divided in two phases. The project's first phase, which was concluded in May 2013, focused on a global assessment of interlinkages between international trade and green economy. GE-TOP developed a global framework that demonstrated the mutually beneficial relationship between trade and green economy. The first phase of the project culminated in the high-level launch of the report *Green Economy and Trade – Trends, Challenges and Opportunities*.

On the basis of the conceptual framework of this report and in cooperation with national partner institutes, the second phase of the GE-TOP project consisted of five national-level projects that identified and assessed

concrete trade opportunities associated with the transition to a green economy at the national and sectoral levels. Through these country projects, GE-TOP assisted sustainable development in various sector and country contexts, including an assessment of export opportunities resulting from a national standard for the Chilean agriculture sector; a scoping study and a strategy proposal on solar energy export potential in Ghana; a project study and a support document for the implementation of the National Biotrade Strategy in Peru; an assessment of export opportunities resulting from a shift to organic farming in the agricultural and agro-processing sector of South Africa; and a study and action plan on export opportunities for sustainably certified aquaculture in Vietnam.

Even though these case studies cannot easily be cross-compared, as a result of the diversity of countries, sectors and approaches chosen, a number of overarching key findings and lessons learned can be derived:

- Appropriate regulation is a critical element for trade to become a driver of an inclusive green economy. With appropriate regulation in place, trade can facilitate the transition to a green economy by fostering the exchange of environmentally preferable goods and services, and by increasing resource efficiency and generating economic opportunities and employment.
- The transition to an inclusive green economy creates enhanced trade opportunities, by opening new export markets for environmental goods and services. Market requirements for resource- and energy-efficient processing and production methods increase; they provide incentives for sustainability-certified production in several sectors, in order to maintain / gain market access.
- Demand for sustainability-certified products in international markets is on the rise, and new markets for green goods and services are opening, with many markets for sustainability-certified products growing faster than conventional markets.
- There are economic gains to be made from making trade more socially and economically sustainable. Growing trade in environmental goods and services, as well as the diffusion of sustainability standards and the greening of global value chains, can significantly influence world trade patterns.



- Green production sectors, regardless of their contribution to national GDP, are often the ones that bestow the highest social and environmental benefits. Trade in these products, if managed in a sustainable way, has the potential to lift vulnerable groups from poverty and protect the country's natural resources.
- For trade and green economy to mutually benefit each other, coordination between the public and the private sector is required. The public sector needs to create the enabling regulatory and fiscal environment, while private actors need to recognize and seize opportunities, invest in green production methods and open new markets.
- An important element for synergistic interplay of green economy and trade is the integration of national and international initiatives. Sustainability standards are an example of international requirements that domestic producers need to comply with. An enabling environment can be created through the development and the adoption of a national sustainability standard, but this standard needs to connect to the requirements of destination markets.
- Furthermore, support is needed for the development of appropriate funding mechanisms to finance a shift to green trade. Financial institutions have an important role to play in bridging the finance gap to transform production methods and enhance sustainable trade, which often requires large initial investments.
- Another element in this regard is the need for capacity-building including the development of knowledge hubs to facilitate a transition to sustainable practices and trade.

With the work on Green Economy and Trade Opportunities, UNEP has stimulated a discussion on the potential of sustainable trade at the global, regional and national levels, and provided best-practice examples for developing countries and emerging market economies to better capitalize on their comparative advantages. This analytical work can be complemented with related capacity-building activities under the UNEP Environment and Trade Hub.



Context

In the last two decades, trade has continued to expand, creating economic growth and making progress towards the eradication of poverty in developing countries. At the same time, however, the increasing volume of trade has put additional pressure on natural resources, and has resulted in detrimental environmental and social impacts, such as biodiversity loss, environmental degradation, increased greenhouse gas (GHG) emissions and inequitable income distribution.

World trade patterns show that the economic profile of many developing countries, particularly least developed countries, is still dominated by natural resource-based products and raw materials. These countries are faced with an urgent need to diversify their economies in order to achieve long-term and sustainable economic development. There are significant and real opportunities for developing nations to “green” their economies (see Section 3) and position themselves to benefit from the growing global demand for green goods and services and to move towards more value-adding and sustainable practices.

Such opportunities lie in the growth of existing sustainable trade markets and in the opening of new markets for green goods and services. While still representing only a small percentage of the global market, trade in certified products and in environmental goods and services is on the rise in absolute terms. For example, the market in environmental goods already amounts to US\$ 1 trillion, and is expected to rapidly grow in coming years, spurred by supportive initiatives like the Environmental Goods Agreement (EGA). Developing countries, with their abundant natural capital and competitive production costs, tend to have a comparative advantage for capturing these opportunities. Sustainable trade opportunities are characterized by their potential to advance equitable social and economic development, and to improve natural resource management and environmental protection.



Green Economy and Trade

Trade is a vital element of the global economy, and it has fundamental links to the wellbeing of people and planet. In 2014, the value of global merchandise exports amounted to more than US\$ 19 trillion, representing over 25 per cent of global Gross Domestic Product (GDP). Since 2002, the financial volume of international trade has more than tripled, a growth rate which was mainly driven by a specialization of production along global supply chains, with value being added across multiple countries. This prevalence of global value chains has created momentum also for developing countries to participate in and benefit from global trade.

However, when not managed properly, trade can accelerate environmental and social degradation, and exacerbate natural resource depletion and degradation, as well as unsustainable production methods. While creating economic growth, increasing volumes of trade have also put additional stress on natural resources and increased GHG emissions. As a result of uncontrolled trade expansion, pollution from international transportation is set to increase. Furthermore, while creating export opportunities, trade can also lead to lower profits and displace workers in import-competing industries. Therefore, there is a need for appropriate policy measures and regulations, in order to accelerate rather than undermine the potential of trade to be a driver of sustainability, and to mitigate adverse effects of trade for the environment and society. Such policy measures and regulations have the potential to turn trade into an engine for economic growth and sustainable development, as envisioned in the outcome document of the Rio+20 Conference (UNGA, 2012).

The work of UNEP on Green Economy and Trade focuses on identifying, assessing and informing sustainable trade opportunities that are associated with and that arise from the shift to a green economy. Trade plays an important role in the exchange of environmentally friendly goods and services, encouraging investment and growth in green industries. Environmental innovation, triggered by the shift to a green economy, is fostering dynamic new international markets. Trade also often forms the bridge between producer and consumer markets for certified agriculture, fisheries, forest products etc., and thereby enables sustainable consumption and production (SCP). In order to ensure that trade and green economy interact in a mutually beneficial way, these opportunities need to be identified and assessed, as well as their enabling conditions and the appropriate policy measures and regulations that could accelerate the sustainability potential of trade.

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The Green Economy Initiative (GEI) of ETB is designed to assist governments in “greening” their economies by reshaping and refocusing policies, investments and spending, for example towards the deployment of renewable energy, clean technologies, water services, sustainable transportation, waste management, green buildings and cities, and sustainable agriculture, forests and tourism.

Although there is no universally accepted definition of a green economy, UNEP coined the widely agreed working definition of an economy “that results in improved well-being and social equity, while significantly reducing environmental risks and ecological scarcities” (UNEP, 2012). The term shows that sustainability relies on the alignment of market dynamics and incentives with social and environmental objectives. Hence, an inclusive green economy can be seen as an enabling tool for reaching the overarching goal of sustainable development, with its three pillars (economy, environment, society).

The trade component of the GEI broadly focuses on improving countries’ understanding of the intersection between trade and an inclusive green economy. It includes macroeconomic and sector-specific research and advisory services at global, regional and national level regarding the ways in which trade policy and practice can be designed as an engine for sustainable development and poverty eradication. GE-TOP has been implemented as UNEP’s flagship trade project, and has illustrated how trade can be an engine for economic growth and sustainable development.



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Project Description

The Green Economy and Trade Opportunities Project (GE-TOP) was carried out by UNEP's Economy and Trade Branch between 2012 and 2016. The overall objective of the project was to provide national-level policy analysis and advisory services to identify trade-related opportunities associated with a transition to an inclusive green economy, with a view to supporting the design and implementation of sustainable policies and tools. The project identified, assessed and harnessed trade opportunities arising from the transition to a green economy, conducted research at the international level, and assisted sector development at the national level through a number of country projects.

With GE-TOP, UNEP aims to inform the international, regional and national debates through cutting-edge research, and by providing concrete policy advice and roadmaps to countries which have asked UNEP for support (on a demand-driven basis) with the design of measures and policies to use trade as an engine for an inclusive green economy transition.

GE-TOP was divided in two phases. The **first phase**, which was concluded in May 2013 and included 3 regional workshops in the run up to Rio+20, focused on a global assessment of interlinkages between international trade and green economy. GE-TOP developed a global framework that demonstrated the mutually beneficial relationship between trade and green economy. The first phase of the project culminated in the high-level launch of the report *Green Economy and Trade – Trends, Challenges and Opportunities*. Section 4 of this report gives a summary of its findings.

On the basis of the conceptual framework of this report and in cooperation with national partner institutes, the **second phase** of the GE-TOP project consisted of five national-level projects that identified and assessed concrete trade opportunities associated with the transition to a green economy at national and sectoral level. This phase developed in two stages. The first stage consisted of three countries (Ghana, Peru and Vietnam) for which both country studies and strategy proposals were developed. The second stage consisted of two additional countries (Chile and South Africa) for which only country studies were developed. Each project included national GE-TOP workshops (see Annex 1), which spearheaded an inclusive and participatory stakeholder process. The national-level projects examined and discussed policy reforms and enabling

conditions for harnessing sustainable trade opportunities at the sectoral level, while minimizing the negative impacts of trade, and gave comprehensive recommendations on how to drive the green trade agenda forward in the respective sectors of analysis.

For each country project, GETOP engagement evolved through a three-step selection process, which was pursued with UNEP's regional offices, national and international partners and in close cooperation with the European Commission (EC) as the donor of the project. The process involved the selection of (i) the partner country, (ii) the sector of analysis, and (iii) the national partner institute, in sequential order. The selection focused on countries that expressed an explicit wish to use international trade as an engine for sustainable growth and sought to achieve regional diversity, ultimately settling on Africa, Asia and Latin America.

Next, together with stakeholders in each selected partner country, the teams identified one sector that demonstrated particular opportunities for export of green products or services. Important criteria for sector selection included:

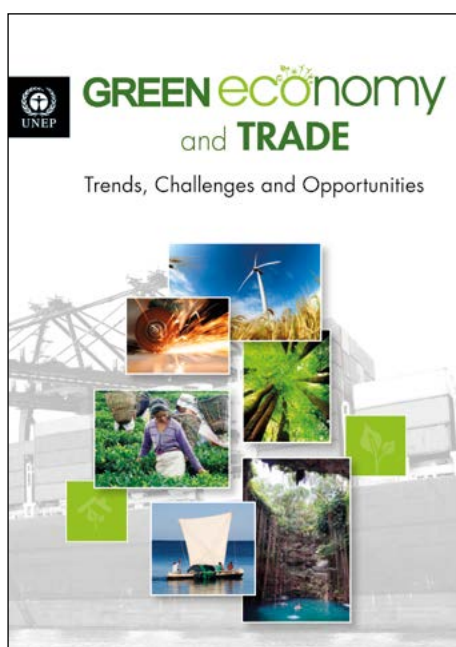
- the economic importance of the sector for the country, in terms of actual or potential trade flows, revenue, employment, food security, livelihoods, etc;
- the extent to which the sector produces goods or services that, with a limited amount of assistance, could be made more resource efficient, including through certification and labelling;
- the degree to which natural resources used in the sector, for example, water, fisheries, timber and energy, are being utilised sustainably or, alternatively, depleted at a high rate;
- the potential of the sector to activate governmental and non-governmental stakeholders, leading to new and expanding partnerships, initiatives and/or policy reform processes;
- sectors where changes in policy or regulations can help realize untapped trade potential or where environmental goods and services have potential for a sustainable increase in production and trade;
- sectors wherein national interest, political will and momentum are likely to lead to new investment in and pursuit of identified trade opportunities.

On the basis of the selected sector in each pilot country, UNEP identified a national country partner for the joint implementation of the project at the national level. Section 5 will cover in more detail the individual country studies produced under Phase II.



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Phase I: Green Economy and Trade – Trends, Challenges and Opportunities



The report *Green Economy and Trade – Trends, Challenges and Opportunities* (UNEP, 2013a), the main outcome of Phase I of GE-TOP, assessed sustainable trade opportunities in six key sectors: agriculture, fisheries, forests, manufacturing, renewable energy and tourism. The report aimed to 1) identify a range of international trade opportunities in various key economic sectors associated with the transition to a green economy; 2) identify policies and measures that may act as facilitators to seizing trade opportunities arising from the transition to a green economy, and overcome related barriers; and 3) assist governments, the private sector and other stakeholders to build capacity to take advantage of sustainable trade opportunities at the national, regional or international level.

The report showed that the expansion of trade in environmental goods and services, the implementation of sustainability standards, and the greening of global value chains can increase the share of sustainable trade, and have the potential to significantly influence world trade patterns. The report stressed that making trade more socially and environmentally sustainable will simultaneously lead to economic gains.

Even when there is a strong economic, environmental and social case for investing in greening trade, a number of important obstacles remain. These relate mostly to limitations in financial and human resources, weak regulatory frameworks, lack of enforcement mechanisms, and poor economic infrastructure.

The report identified several areas where public and private actions can support developing countries' efforts to access greener international markets. These include: 1) public investments in key economic infrastructure,

Green Economy and Trade Opportunities: Country Projects Synthesis Report

technical assistance, targeted education and training programmes, and access to sustainable resources, such as electricity from renewable energy sources; 2) market-based instruments, such as the elimination of subsidies that encourage unsustainable production, consumption and trade, and pricing policies that take account of the true environmental and social costs of production and consumption; 3) regulatory frameworks that support green industries and incorporate sustainable development considerations in national development plans and export promotion strategies; 4) resource and energy-efficient production methods, so as to ensure long-term competitiveness in international markets; and 5) regional and multilateral fora that can help to liberalize trade in environmental goods and services, remove environmentally harmful subsidies, and provide opportunities for collective action to address global environmental and social challenges.

The report was launched on 8 May 2013 at a high-level event that counted with the participation of Achim Steiner, UNEP Executive Director; Pascal Lamy, Director General of the World Trade Organization (WTO); and different national ministries.



Launch of the report Green Economy and Trade – Trends, Challenges and Opportunities



Achim Steiner, UNEP Executive Director and Pascal Lamy, WTO Director General at the launch of the report

■ Conceptual Application: identification and assessment of concrete trade opportunities

On the basis of the conceptual framework and findings of the report Green Economy and Trade – Trends, Challenges and Opportunities, the second phase of the GE-TOP project was aimed at identifying and assessing concrete trade opportunities at the country level. As will be explained in Section 6, many of the sectors and measures identified in the global report were covered in the country work under Phase II of GE-TOP, including sustainability standards in the agriculture sector in Chile, organic agriculture in South Africa, biotrade in Peru, solar energy in Ghana and sustainable aquaculture in Vietnam. Each country study illustrated how trade can be an engine for sustainable development, social inclusion and poverty reduction, highlighting and informing a range of potential opportunities from sustainable agriculture, organic farming and native biodiversity value chains, to enhancing solar energy production for export and improving international certification in aquaculture.

Phase II: Country Studies



The image features a low-angle shot of power lines and utility poles silhouetted against a vibrant sunset sky. The sky transitions from a deep blue at the top to a bright orange and yellow near the horizon. A solid green horizontal band is positioned across the middle of the image, containing the word "Ghana" in a bold, yellow, sans-serif font. The power lines and poles are intricate, with various insulators and wires visible. The bottom of the image shows the dark silhouettes of trees against the bright horizon.

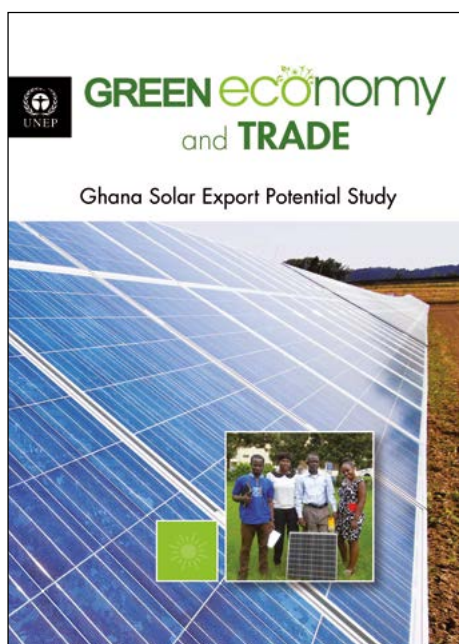
Ghana

The GE-TOP Ghana project focused on identifying opportunities for solar energy exports from Ghana to neighbouring countries, in order to promote regional clean energy integration. The first study assessed the technical and financial feasibility, as well as the socioeconomic and environmental impacts, of solar energy exports from Ghana. In the second study, UNEP and in-country project partners developed a strategy proposal to seize the country's solar energy generation and export potential, as exemplified by the concrete case study of solar energy trade between Ghana and Burkina Faso. Both reports were produced in partnership with The Energy Centre at the Kwame Nkrumah University of Science and Technology in Kumasi, Ghana, and benefitted from support and frequent inputs from four national ministries (environment, finance, power, and trade & industry) and other key national and regional stakeholders. These stakeholders gathered at three national stakeholder workshops, and one technical and financial work group meeting.

■ Ghana – Solar Export Potential Study

This Ghana Solar Export Potential Study (SEPS) (UNEP, 2015) identified and assessed opportunities for Ghana to generate and export solar energy to the Economic Community of West African States (ECOWAS) subregion. The study scoped out the national and regional energy landscape, identified the technical and financial potential for solar energy generation, and assessed the potential contribution of solar exports to Ghana's economic growth, employment creation, livelihood provision and climate action. The study offered tailored policy recommendations for harnessing Ghana's solar export potential.

Ghana has a long tradition of trading electricity with its neighbours, as well as a favourable policy and business environment with a sound basis for investing in sustainable energy. These factors, in addition to a stable, democratic political system, make Ghana a preferred destination for investment in sustainable energy, especially solar photovoltaic (PV). Ghana pursues an "Energy Economy", aiming to promote national electrification while becoming a major exporter of power to the ECOWAS subregion. In 2011, Ghana passed the national Renewable Energy Law (Act 832), and published attractive feed-in tariff rates for renewable power. By this point, the Ghana Energy Commission has issued 76 provisional licenses to potential renewable energy developers, of which 52 licenses are for solar PV plants.



UNEP's Green Economy Scoping Study (GESS) for Ghana (UNEP, 2013b) already identified the national electricity subsector as an important backbone of the national economy, with implications for poverty reduction and environmental protection. The GESS identified renewable energy investments, research, capacity development, and energy efficiency and conservation measures as key actions by which the electricity sector could become more sustainable, and enhance a green economy transition. The national GE-TOP Ghana work complemented findings from the GESS, by showing how renewable energy uptake can open up trade opportunities in regional energy markets and serve as a catalyst for regional energy integration.

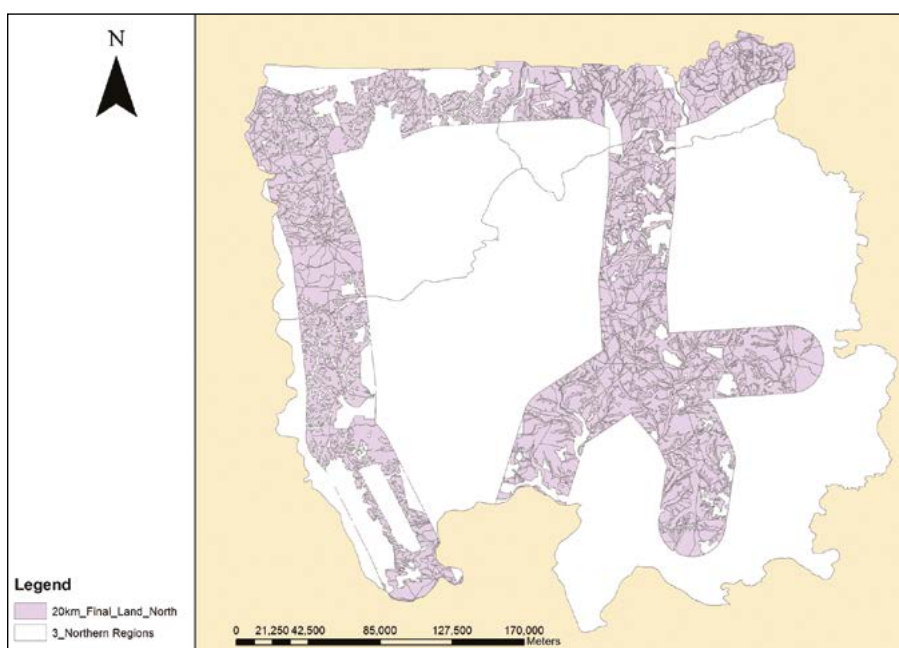
There exists a favourable and enabling institutional environment for regional energy integration in the West African region. The heads of ECOWAS member states (including Ghana) established the West African Power Pool (WAPP) in 1999, in order to develop regional interconnection and power exchanges, to encourage investment, and to harmonize legislation and standards, with the ultimate aim of fostering an integrated regional power market. The WAPP arrangement provides a point of departure for capitalizing on regional production efficiencies and synergies.

According to the SEPS, Ghana has significant solar PV electricity potential, totaling 106.2 GW, on available land within 20 km from the national grid in the three northern regions (total land area of 2,65.6 km²), and therefore opportunely located for power exports (see **Figure 1** and **Table 1**). For domestic land area in the northern regions that features no competing use and is within five km from the national grid, the potential is estimated at 6,877 MW. This provides significant opportunities for furthering national electrification, while pursuing trade in solar PV-based electricity within the ECOWAS region.

Table 1: Power and energy yield for the various scenarios

Scenario	Land Area (km ²)	Potential Power (GW)	Potential Energy (GWh/yr)
Scenario 1	7 689.7	275.4	411 060
Scenario 2	11 250.5	402.9	606 230
Scenario 3	12 764.1	457.1	689 360
Scenario 4	2 665.6	106.2	167 200

Figure 1: Map of available land within 20 km from the transmission network in the three northern regions



The assessment of sustainable trade opportunities in Ghana’s energy sector has shown that installation of a grid-connected 100 MW solar PV plant for export, located in the north of Ghana, could save 40,000 tCO₂ annual emissions compared to business-as-usual, create 3,000 direct jobs, provide livelihoods for 23,000 of the poorest people, and earn an annual US\$ 7.7 – 38 million in foreign exchange (see **Table 2**). Notably, the emissions avoided would more than double if power is being exported to a regional market destination, such as Burkina Faso.

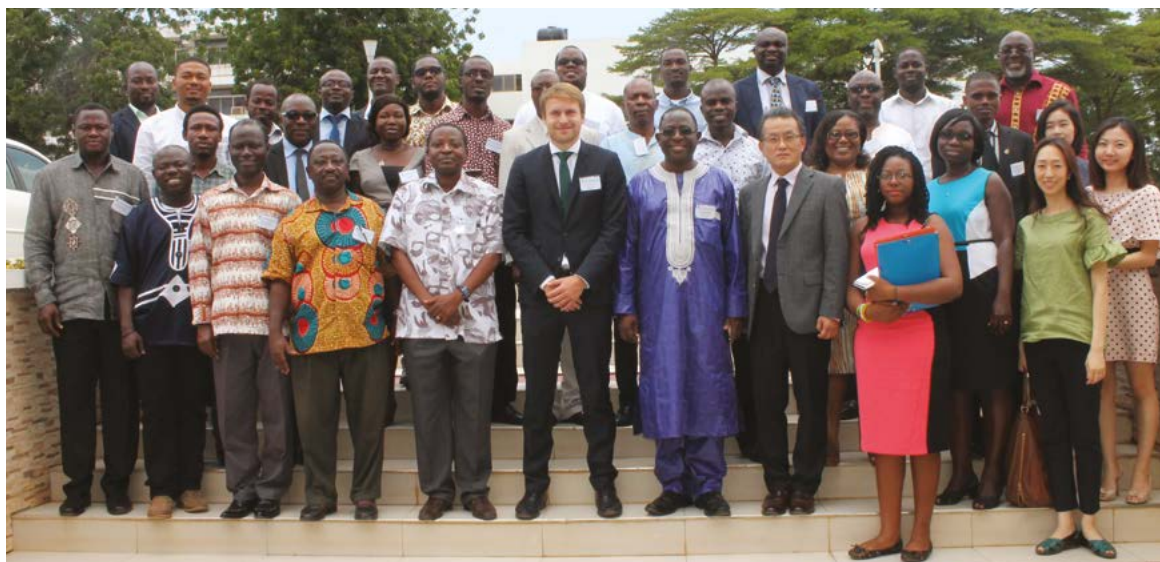
Table 2: Green Economy benefits: for a 100 MW model installation

ENVIRONMENT	SOCIETY	ECONOMY
Over 40,000 tCO ₂ fewer annual emissions (<i>baseline: average BAU</i>) – even 120,000 tCO ₂ when power used in Burkina Faso.	3,000 new green jobs (<i>directly or indirectly</i>). Livelihoods could be created for 23,000 of Ghana’s poorest people.	Foreign exchange earnings of up to US\$ 38 million annually from export (<i>export rate of US\$ 210/MWh</i>).

The study provided recommendations to ensure that sustainable regional trade opportunities in solar energy are achieved. Policy-makers could facilitate the expansion of the grid capacity and ensure financial support. Ghana’s power transmission infrastructure is comprised of 161 kV lines that are operating near full capacity, especially in the country’s south. In order to integrate larger levels of intermittent solar supplies, the national grid system would require continual upgrading. Moreover, the installed cost for solar power is US\$ 3,000/kW, while an installed cost of US\$ 2,000/kW is needed for solar energy to become wholly cost-competitive with current cross-border bulk electricity rates. In order to raise the return on investments in solar energy production,

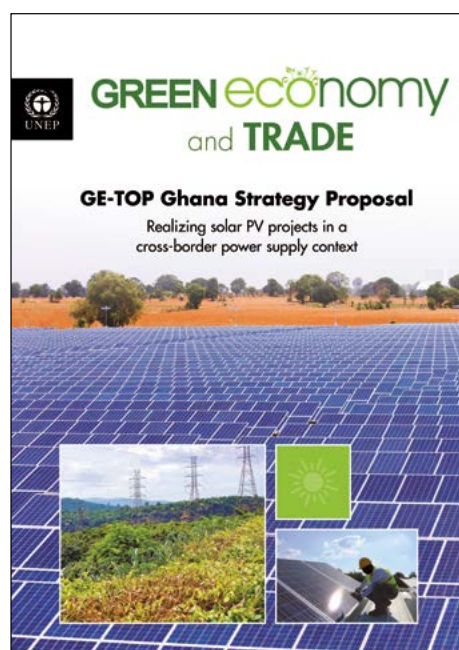
Ghana’s government may increase and / or extend the current feed-in tariff rate for grid-connected solar PV and provide other financial means for leveling the playing field.

Further, in order to encourage Ghana’s exports of solar energy, policy-makers should work together with the Volta River Authority (VRA), easing the process of land acquisition for long-term investments related to solar energy installations, and increase international outreach for financial support and investment. A reference catalogue listing financial and institutional support mechanisms for renewable energy investments could also stimulate further private sector involvement in promoting regional solar energy trade. The Ghana Solar Export Potential Study was formally launched on 3 September 2015 in Accra.



Participants of the launch for the Ghana Solar Export Potential Study

■ GE-TOP Ghana Strategy Proposal – Realizing solar PV projects in a cross-border power supply context

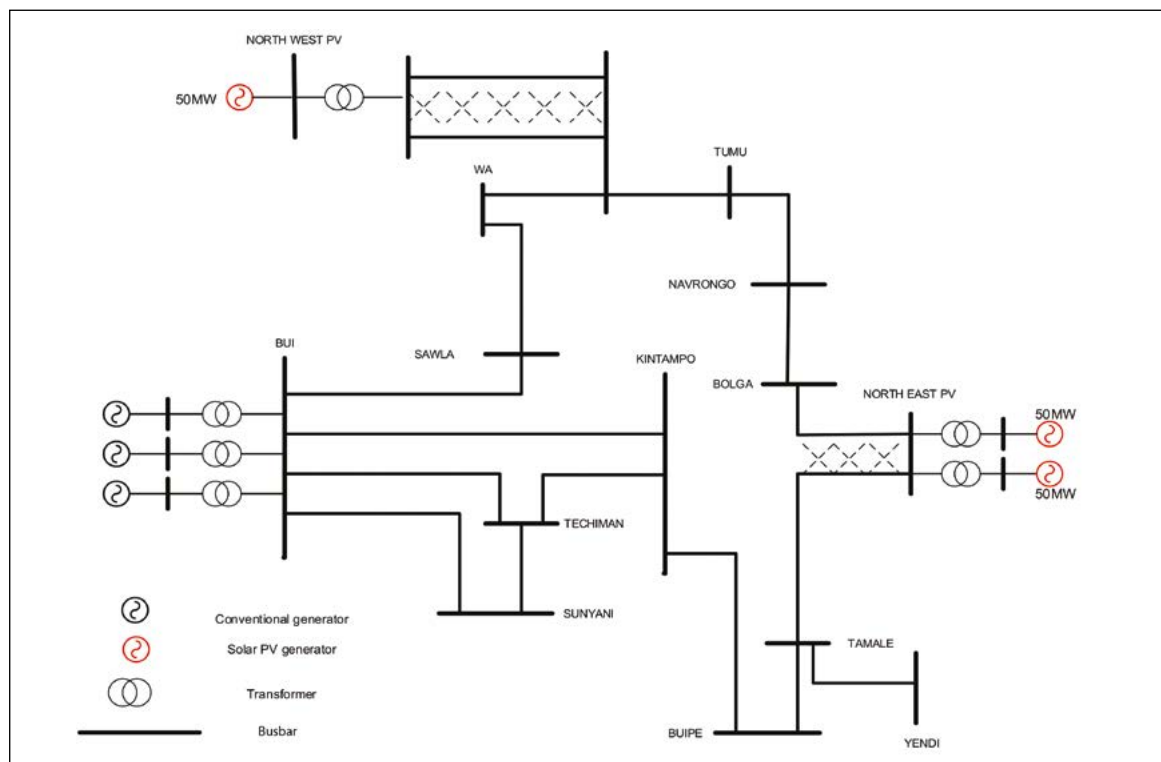


The GE-TOP Ghana Strategy Proposal (UNEP, 2016c) built further on, and complemented, the findings and recommendations from the Ghana SEPS (UNEP, 2015). The Strategy Proposal recommends a step-by-step plan for the process of designing and financing a solar-ready, cross-border grid line between Ghana and Burkina Faso, and related licensing and approval procedures. The strategy proposal serves as a practical guide for policy-makers, project developers and interested investors alike.

Based on load forecast information and robust load modelling, the report found that up to 220 MW of variable solar PV power could be accommodated by the National Interconnected Transmission System (NITS) in 2016. More specifically, the report modeled the integration of variable renewable energy in the northern parts of Ghana at 150 MW (see **Figure 2**), and found this to be a viable option that would improve the state of the transmission system and would not violate any of the steady-state criteria as per the national grid code. An additional 70 MW of solar PV could be integrated in 2016 with little or no system upgrade at an off-peak load of 1,877.8 MW and a generation of 1,986.9 MW, representing 11.07 per cent of

total generation in the generation mix. The capacity that can be integrated at a single point is dependent on other planned installations.

Figure 2: Single line diagram of the interconnection of 150 MWp solar PV in the north



Currently, power trade between Ghana and Burkina Faso is approximately 10 MW, via five existing cross-border transmission lines. The Ghana Grid Company (GRIDCo) is in the process of constructing an additional 225 kV line from Bolgatanga in Ghana to Ouagadougou in Burkina Faso, which is expected to serve as the main electricity transmission link between the two countries, slated to be operational at the end of 2017. The construction of another 225 kV line from the same Bolgatanga substation through Burkina Faso to Mali has also been planned. The two lines are capacitated to transfer a total of 400 MW of power in the medium- to long-term. Beyond the carrying capacity of the existing and planned transmission lines, a transmission upgrade or construction of a new transmission line with adequate capacity would be required.

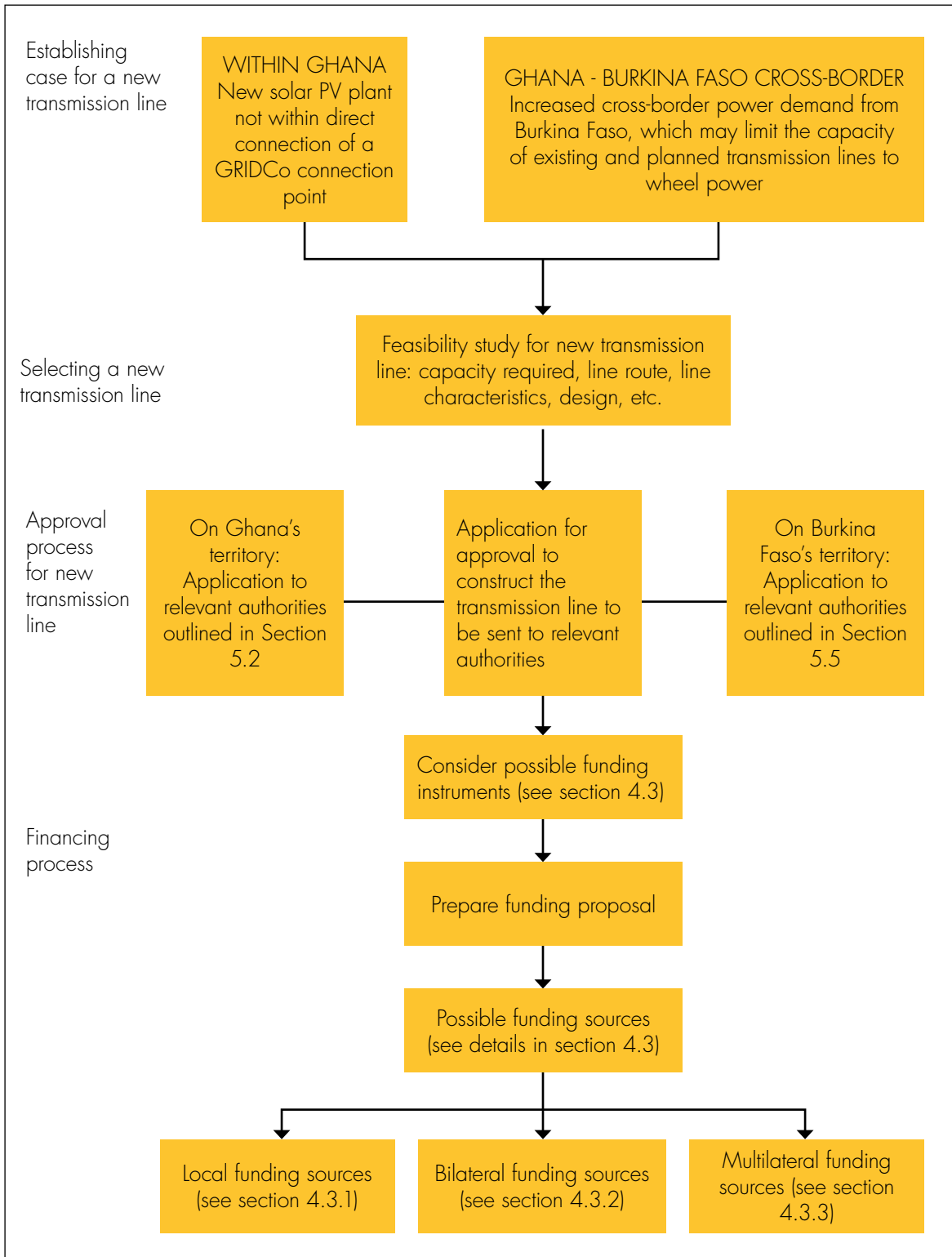
The grid integration of variable solar power poses key challenges in regards to power quality, voltage and frequency variations, power fluctuations and system stability / grid disturbances. The Strategy Proposal models a range of solutions and scenarios for grid integration of variable power, such as access to flexibility resources within power pools (including interconnected transmission networks), improvements in resource forecasting techniques, investments to improve ramping rates of conventional power plants, and the diversification of utilization options for power from variable renewable energy sources. It also assesses implications for grid capacity and stability, as linked to potential for exports to Burkina Faso.

Renewable energy investment support schemes exist mainly in the form of low-interest loans, grants and risk mitigation packages, available through multilateral, bilateral and local entities. In Ghana, the most common forms of support are loans and grants. The report contains a list of notable national, regional and multilateral entities that have provided support for energy sector infrastructure development in the past, and could serve as suitable funding sources. Key eligibility requirements for accessing financing from these sources included: geographic location or regional setting, sector / technology covered, type of financing sought, size of project, type of proposing entity (government, NGO, etc.), co-financing / cost-sharing requirements, and the implementation timeframe. The major risks identified for renewable energy investment were related to financing, off-takers / markets and sociocultural risks.

The report provided detailed information about relevant licensing procedures in both Burkina Faso and Ghana, and concluded by suggesting a step-by-step approach to help interested stakeholders navigate the regulatory, technical and financing issues regarding transmission infrastructure for solar PV projects in a cross-border power supply context. This comprehensive step-by-step guide for selecting, seeking approval for, and financing cross-border transmission lines is provided in **Figure 3**.

The GETOP Ghana Strategy Proposal was formally launched on 20 April 2016, at the conference Solar & Off-Grid Renewables West Africa 2016. The conference was attended by key national, regional and international policy-makers, investors and project developers from the renewable energy sector. The Strategy Proposal serves as a practical document to guide interested stakeholders in the process from the stage of project development to obtaining the necessary finance and licenses to supply solar PV power for trade between Ghana and Burkina Faso.

Figure 3: Steps to select, seek approval for, and finance cross-border transmission lines

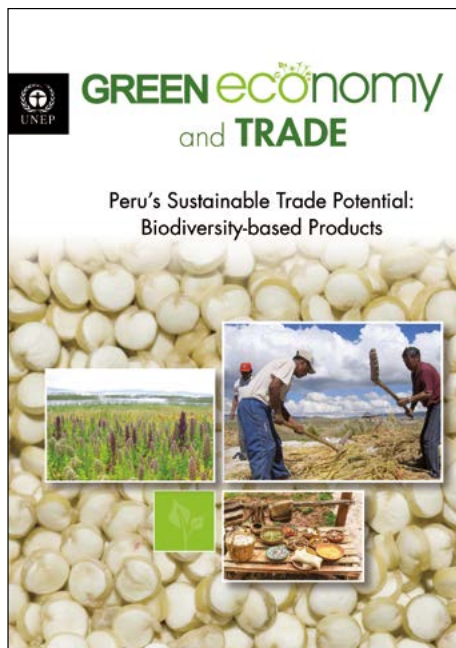




Peru

The GE-TOP Peru project analyzed challenges and opportunities to improve value chains in the biotrade sector, advance the sustainability of production, and enhance access to international markets. GE-TOP has produced two studies to assess the potential and to provide recommendations for the growth of trade in biodiversity-based products from Peru. The first study, produced in partnership with the Peruvian Trust Fund for National Parks and Protected Areas (PROFONANPE), aimed to assess the export potential of certified sustainable products derived from Peru’s native biodiversity. The second study, produced in partnership with the Research Center of the Universidad del Pacifico, aimed to support the implementation of the National Biotrade Strategy. Both studies benefitted from the support and inputs of key ministries and institutions, including PromPerú, the Ministry of Environment, the Ministry of Trade and Tourism, and the National Biotrade Commission.

■ Peru’s Sustainable Trade Potential – Biodiversity-based products



The first of the two studies, entitled “Peru’s Sustainable Trade Potential: Biodiversity-based Products” (UNEP, 2016d) assessed the export potential of certified sustainable products derived from Peru’s native biodiversity. It also listed available policy options for value addition in Peru, in order to increase the export value.

Peru is a “mega-biodiverse” country and its agricultural sector produces a great variety of native products. For this study, UNEP and PROFONANPE cooperated with the Peruvian government, which was, together with the private sector and the international donor community, looking for effective and long-term solutions to establish the economic stability of the biotrade sector, and to open pathways for businesses to reach final clients in the growing international market for sustainable products. The study found that the application of green economy measures and certification for production and processing of biotrade products could facilitate access to new export markets, which would allow for value addition and price premiums for sustainably produced goods.

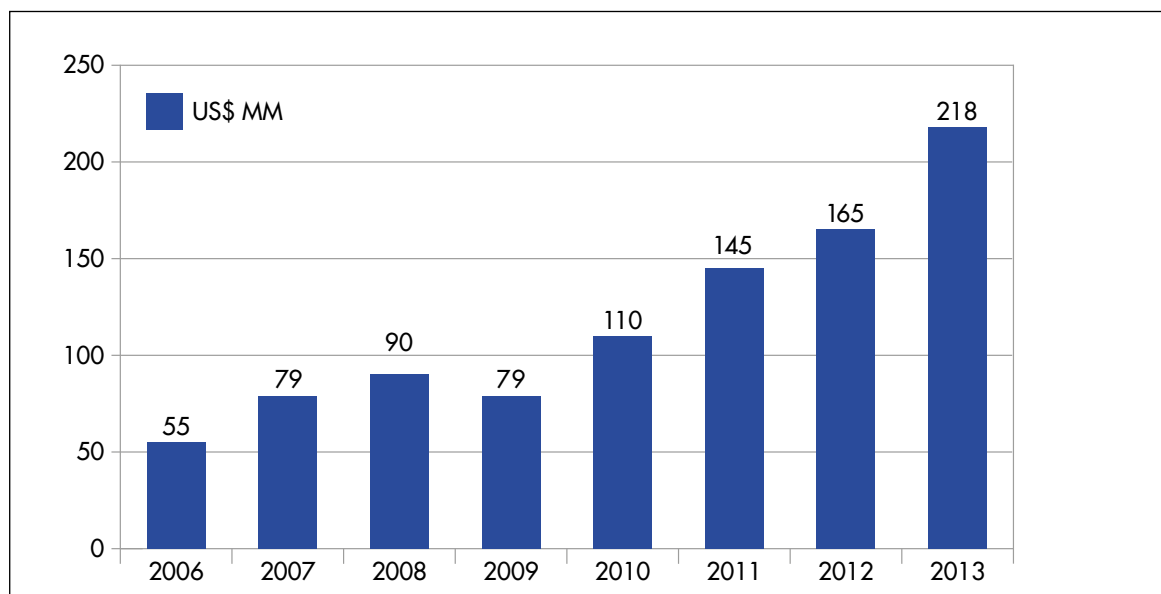
The biotrade model already plays an increasing role in the country’s economy (see **Figure 4**) but it still needs to attract foreign investors and major international companies. This study demonstrated that exports under the biotrade model can offer a broad range of economic, social and environmental benefits, but the sector has not reached its full potential.

The study argued that sustainability certification and value-added product development are useful tools to better harness the sustainable trade potential of the native products that are traded under the biotrade approach in Peru. These findings are supported by a case study focusing on the value chains for quinoa and maca. Costs and benefits of organic production were compared to a business-as-usual scenario. This analysis showed that organic production led, on the one hand, to higher costs in terms of fertilizer, seed, land preparation and certification costs, which were, on the other hand, offset and compensated for by price premiums for organic products, while simultaneously labour conditions were more secure, and environmental impacts less significant.

The general conclusion of the study was that sustainability certification results in better market access and sales for native biodiversity-based products. So far, the most commonly used certification among the Peruvian biotrade companies is organic certification, which is also the highest in demand among consumers of natural products and ingredients worldwide. The challenges identified included the need for substantial start-up capital to obtain certification, and additional time and skills requirements. Moreover, the decision to shift to more sustainable trade practices is often based on short-term price signals rather than more realistic expectations for long-term profitability. Certification is hampered by a lack of knowledge of sustainability standards, a lack of appropriate financial facilitating mechanisms for small-scale producers, and a lack of effective market linkages between small producers and international buyers.

Besides certification, the study assessed ways to enhance value addition of native products exported from Peru. Native products are harvested in the fields, lightly processed and exported in bulk form. Importing companies ultimately earn the largest profits in the entire value chain. Challenges in the value-added approach are mainly the deficient positioning of Peru as a world supplier for biodiversity-based products, a lack of consistent supply capacity and a lack of expertise to upgrade production methods and marketing processes. **Table 3** illustrates the price differentials at different steps of the value chain, showing the high potential of adding value in the country before the raw materials are exported.

Figure 4: Total exports of selected Peruvian native biodiversity-based products (million USD), FOB, 2006-2013, excluding cochineal



Source: SIICEX (2013). BioTrade exports statistics. Available at: www.siicex.gob.pe/siicex/portal5ES.asp?_page_=480.47900

Table 3: Average price of four biodiversity-based products at three of the main stages of the value chain

Product	Price of raw material in Peru (USD/kg)	FOB, in the port in Peru (USD/kg)	Retail price at Amazon.com (USD/kg)
Quinoa grains	3.5	4.69	12.01
Maca powder	4.1	7.17	35.25
Dried aguaymanto	6.5	13.98	45.41
Lúcuma powder	5.7	12.03	40.61

Source: Cost of Raw Materials: personal communication from P. Martinto; FOB price: Sunat.com; Retail price: Amazon.com. Prices considered for organic products.

The policy recommendations of the study emphasized that the capacities of both private sector and public sector need to be strengthened in order to facilitate the green economy in the biotrade sector. Peruvian farmers and sellers often lack the knowledge regarding sustainable trade practices.

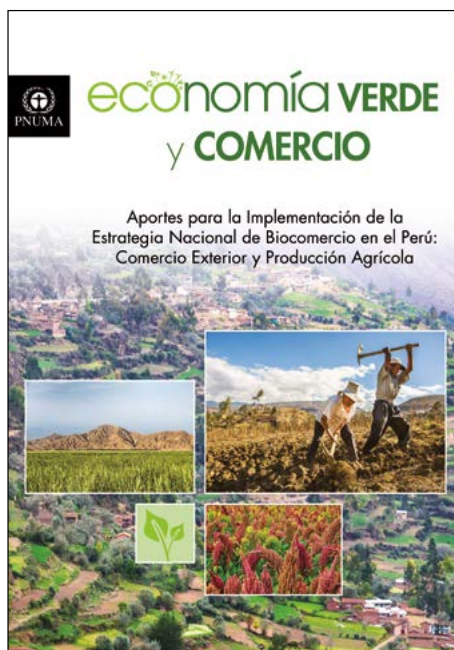
The study identified three ways of solving the challenge of lacking financial facilitating mechanisms. Firstly, information about existing national and international financial facilitating mechanisms could be more widely dispersed. Secondly, small-scale producers could negotiate for a fee reduction with private certification bodies. Thirdly, a certification fund for small-scale producers could be established.

To address the lack of effective market linkages, Peruvian biotrade producers and companies should be linked more closely to other small-scale international buyers and suppliers. Multinational companies at the regional and international level should cooperate with local producers on the basis of long-term

commitments. Furthermore, grouping small-scale suppliers into associations and establishing further public-private partnerships will create a more balanced relationship between stakeholders, and promote mutually beneficial actions and investments.

Peru is still not globally known as the leading producer of biotrade products, although it has gained increasing international attention in the past few years. Producers and suppliers of biotrade products need to have secured access to processing facilities, yet small producers are not likely to be able to meet the high requirements of the certification process without external help. Additionally, information about possible branding mechanisms and value-added products needs to be spread to farmers, processor, and sellers.

■ Contributions to the Implementation of Peru’s National Biotrade Strategy: Trade and Agricultural Production



The study “Aportes para la Implementación de la Estrategia Nacional de Biocomercio en el Perú: Comercio Exterior y Producción Agrícola” (UNEP, 2016a) was produced in Spanish in partnership with the Universidad del Pacífico. It builds onto the first study, “Peru’s Sustainable Trade Potential: Biodiversity-based Products” (UNEP, 2016d) and provided concrete recommendations for the implementation of the National BioTrade Strategy.

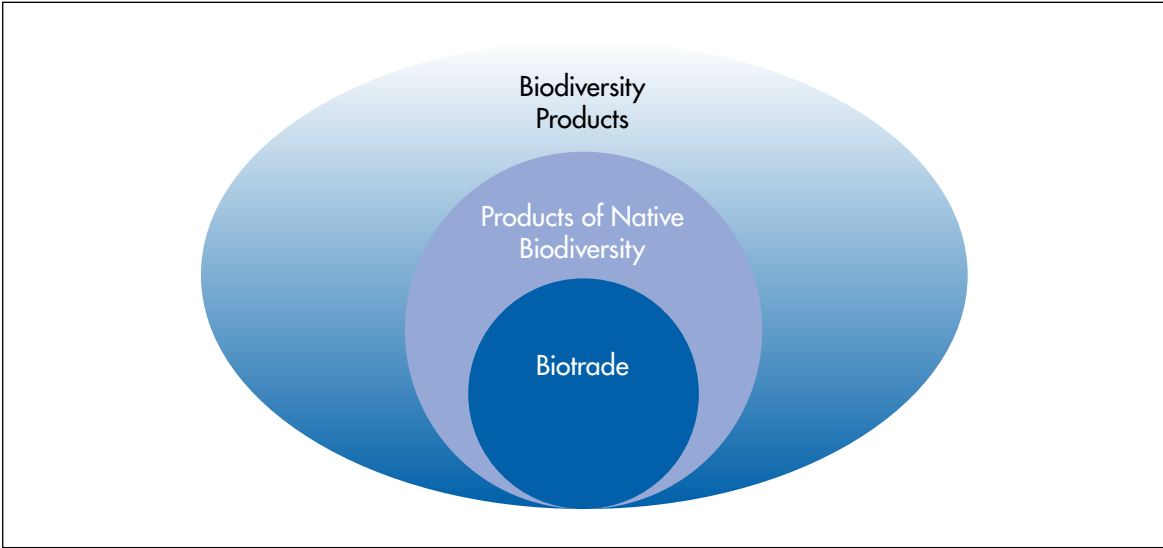
Peru is one of the most biodiverse countries in the world, and biotrade is one of the vehicles through which the country can use its rich biodiversity for its development. Peru’s biodiversity resources are concentrated in locations with high levels of poverty. Therefore, promoting biotrade can have an important impact in terms of poverty reduction and environmental protection.

The objective of the study was to contribute to the development, implementation and monitoring of the National Biotrade Strategy 2014–2021. The analysis focused on two segments of the biotrade value chain, primary production and/or recollection, and international trade, using the most recent quantitative data.

The document considered 13 native biodiversity-derived products, namely: achiote, native cacao, camu-camu, cochineal, lúcuma, maca, purple corn, Brazil nuts, quinoa, sacha inchi, tara, cat’s claw and yacón.

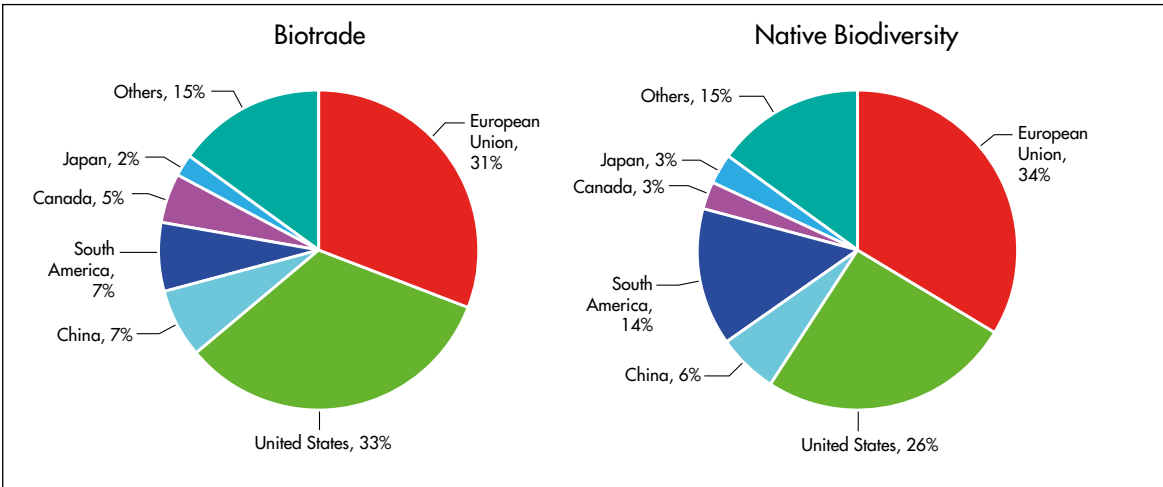
In export data, it is common to find that the value of total exports of biodiversity-based products is used to represent biotrade. However, there are several necessary conditions for an activity to be qualified as such, apart from being derived from native biodiversity. These conditions include: (i) preservation of biodiversity, (ii) the sustainable use of biodiversity, (iii) the fair and equitable distribution of the benefits derived from the use of biodiversity, (iv) socioeconomic sustainability, (v) compliance with national and international legislation, (vi) respect for the rights of workers and local communities, and (vii) clarity regarding the rights to the use and tenancy of land and natural resources. Therefore, biotrade is only a fraction of all exports of biodiversity-based products. The relation between biotrade, native biodiversity-based products and biodiversity products is shown in **Figure 5**.

Figure 5: Relationship between biodiversity products, native biodiversity products, and Biotrade



From the export and production data, obtained from customs and from the qualified companies listed by the project Perúbiodiverso, it could be concluded that, even though biotrade exports were seven times higher in 2014 than in 2009, their number in 2014 was still less than 10 per cent of the value of all exports of native biodiversity-derived products. **Figure 6** shows the main export markets for biotrade and native biodiversity products. 78,176 hectares, belonging to 106,000 farming units, are planted with the selected 13 crops of Peruvian native biodiversity. This represents 1.2 per cent of the total cultivated surface, and 4.8 per cent of all farming units. The cultivation of these crops is highly concentrated geographically. Of most of the 13 crops, 70 per cent of the cultivated area is located in only 2 of Peru’s 24 departments. On the other hand, almost all producers specialized in only 1 out of the 13 selected crops. Between 2009 and 2014, biotrade exports increased from US\$ 7.6 million to US\$ 58.8 million, while all exports of native biodiversity-derived products only increased from US\$ 198 million to US\$ 623 million. Total Peruvian exports are US\$ 42 billion per year.

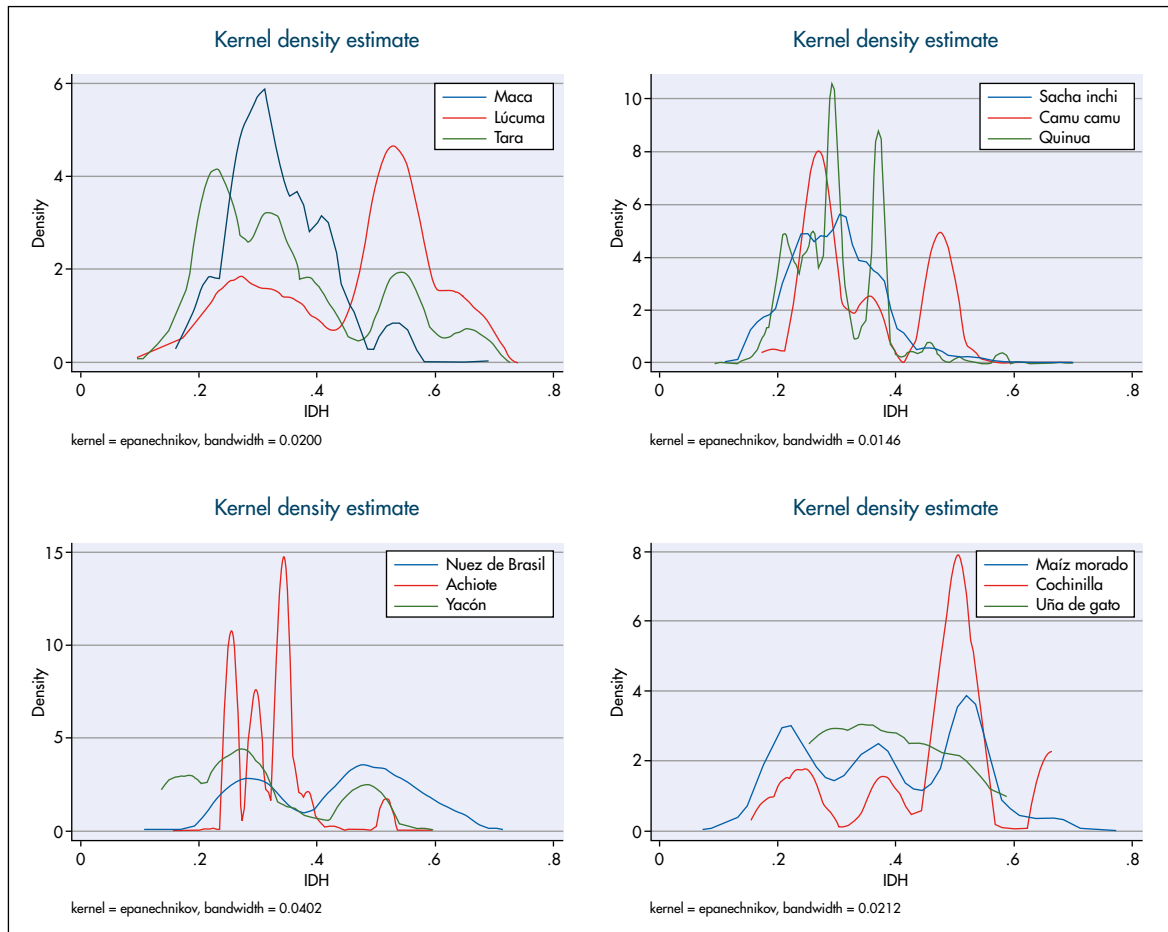
Figure 6: Destination of Biotrade and native biodiversity exports by country and region



Source: SUNAT Customs
Own elaboration

Even though biotrade exports might not seem very significant in comparison to total exports, the geographic location and the producers of these crops should also be taken into account. It was concluded that most of the crops were mainly produced in districts with a Human Development Index (HDI) of 0.4, while the average HDI for Peru is 0.73 (see **Figure 7**). This fact strengthens the hypothesis that biotrade offers a high potential of improving the economic and social indicators in the least developed regions in the country. Figure 10 shows the average HDI of the districts where particular crops are found, and shows that the HDI in these districts is well below the Peruvian average.

Figure 7: HDI Distribution by product



Source: IV National Agricultural Census - IV CENAGRO, PNUD
Own elaboration

Furthermore, it showed that the selected crops are often produced in areas with a high level of biodiversity, and that biotrade producers have a more environmentally friendly stance towards issues like fertilizers and pesticides, and recycling. Biotrade has the potential to make the use of native biodiversity more sustainable.

The study contributed to the National Biotrade Strategy with a series of suggestions for market expansion and further penetration of the biotrade production model. For the first objective, the study recommended to prioritize actions that could link local biotrade value chains to international companies. These business-to-business activities represent a significant effort and cost, in which the state has a responsibility to support local actors in the value chain. Trade and health authorities also have a role to play in removing non-tariff barriers for native biodiversity-derived products.



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Other recommendations included:

- Although biotrade is not a certification, it is linked to the values promoted by existing certifications such as organic and Fair Trade. Participation in such programmes could create an important support to the efforts to promote business-to-business sales.
- The expansion of foreign markets should be accompanied by the development of a domestic biotrade market. Local fairs in Peruvian cities could help to shorten the distance between producer and consumer.
- Investments in technical capacity-building should be accompanied by investments in the development of certified seeds.
- The formalization of property titles is important to enhance access to credit and to guarantee that the benefits of investments benefit the local actors in the production value chain.
- The conditions of internal transport and processing need to be improved, in order to enhance the economic, social and environmental sustainability of biotrade products.

The report relied on an extensive analysis of the local value chains and presented quantitative information regarding foreign trade and regarding the production of goods derived from native biodiversity. Data from this report can also be used as baselines for the monitoring of the Action Plan, which is currently in the final stage of its elaboration.

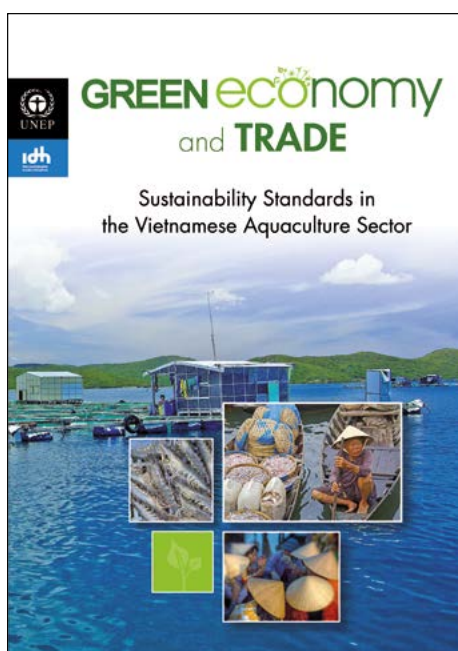


Vietnam



The GE-TOP Vietnam project analyses the export potential for sustainably certified aquaculture products, and related challenges. Based on the potential for using trade in sustainably-certified products as impetus for a national green economy transition, the first stage of the project produced a study in partnership with the Ministry of Industry and Trade which aims to identify opportunities and challenges for sustainability certification and enhanced market access for aquaculture products from Viet Nam. In the second stage of the project, UNEP partnered with the IDH Sustainable Trade Initiative to develop a national Action Plan in order to use sustainably-certified aquaculture and its trade as an engine for the national green growth and sustainable consumption and production agenda. Both studies counted on the support and inputs, during workshops and consultative events, of the Ministry of Industry and Trade, the Ministry of Agriculture and Rural Development, the Ministry of Natural Resources and Environment, and other key national stakeholders.

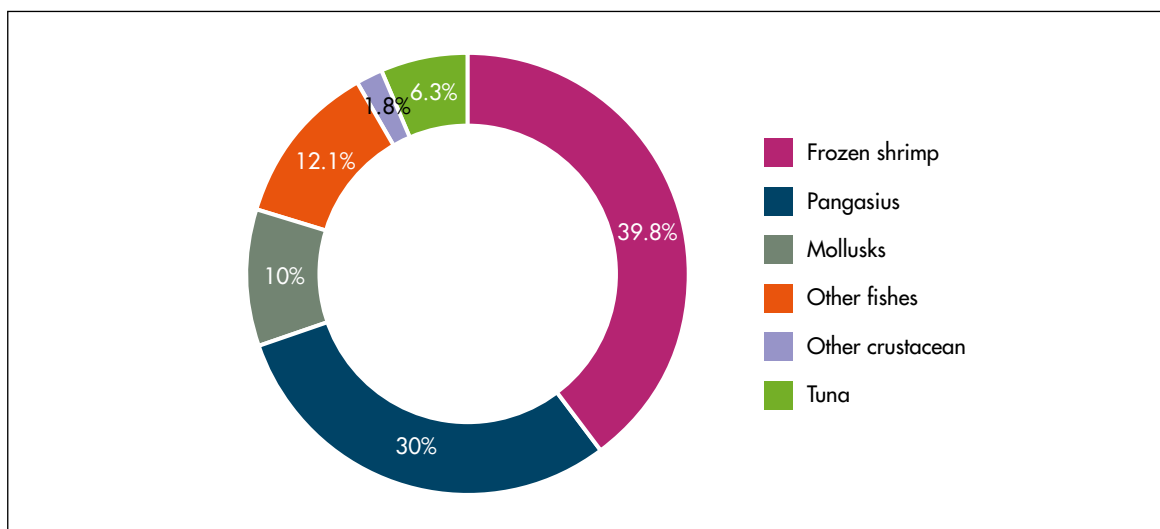
Sustainability Standards in the Vietnamese Aquaculture Sector



The study *Sustainability Standards in the Vietnamese Aquaculture Sector* (UNEP, 2016e) was produced under GE-TOP in cooperation with the Ministry of Industry and Trade of Vietnam, and with the involvement of the Ministry of Agriculture, the Ministry of Environment, and the IDH Sustainable Trade Initiative. The Government had expressed a strong interest in promoting the diffusion of internationally recognized sustainability standards in Vietnam’s aquaculture sector through facilitative policies and mechanisms that accelerate green growth.

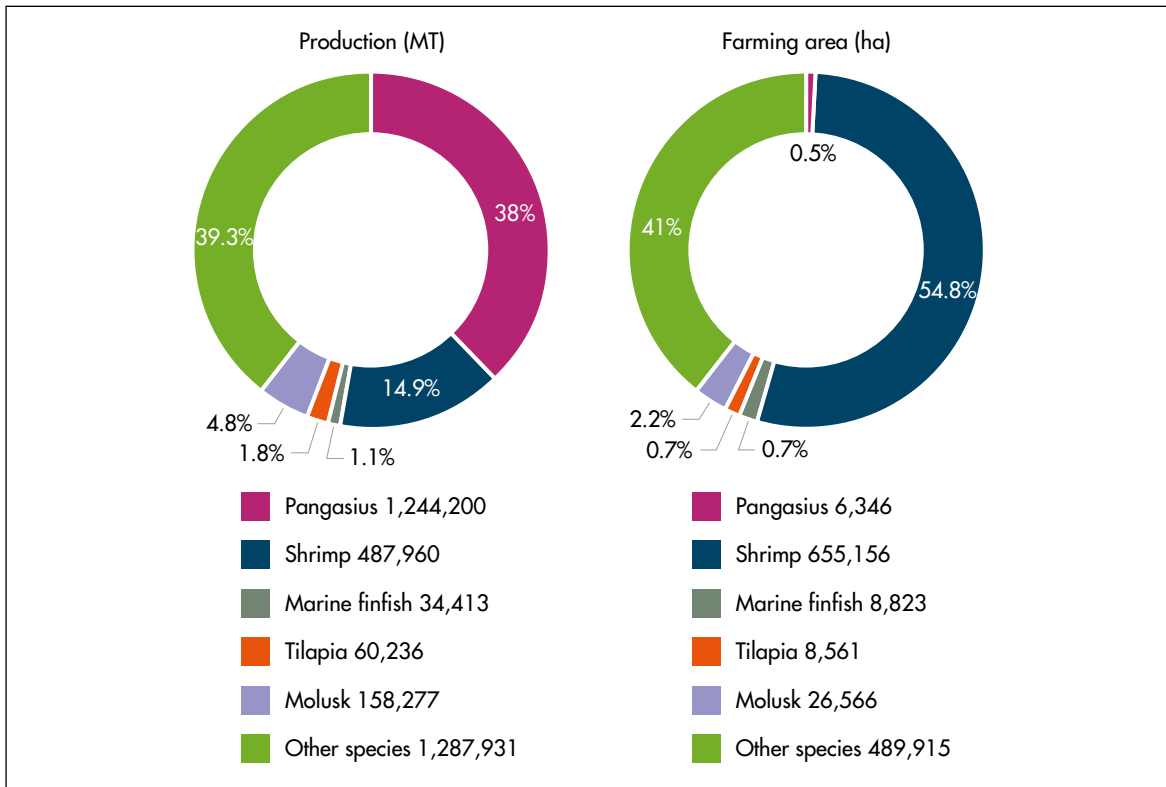
By 2008, Vietnam accounted for five per cent of global aquaculture output, triple its share from 1990. The value of Vietnam’s seafood exports grew rapidly since the country’s accession to the WTO, from US\$ 3.4 billion in 2006, to almost US\$ 6.1 billion in 2012. In 2012, fisheries products represented the fifth largest national export sector, accounting for 5.3 per cent of the total export revenue of Vietnam (see **Figure 8**). The main export markets for Vietnamese seafood are the European Union (25.7 per cent), Japan (21.1 per cent) and the USA (20.4 per cent). **Figure 9** shows the production volume and farming area for key aquaculture species.

Figure 8: Seafood export product structure (by value) in 2013



Source: VASEP, 2014

Figure 9: Production and farming area of the key aquaculture species in 2012



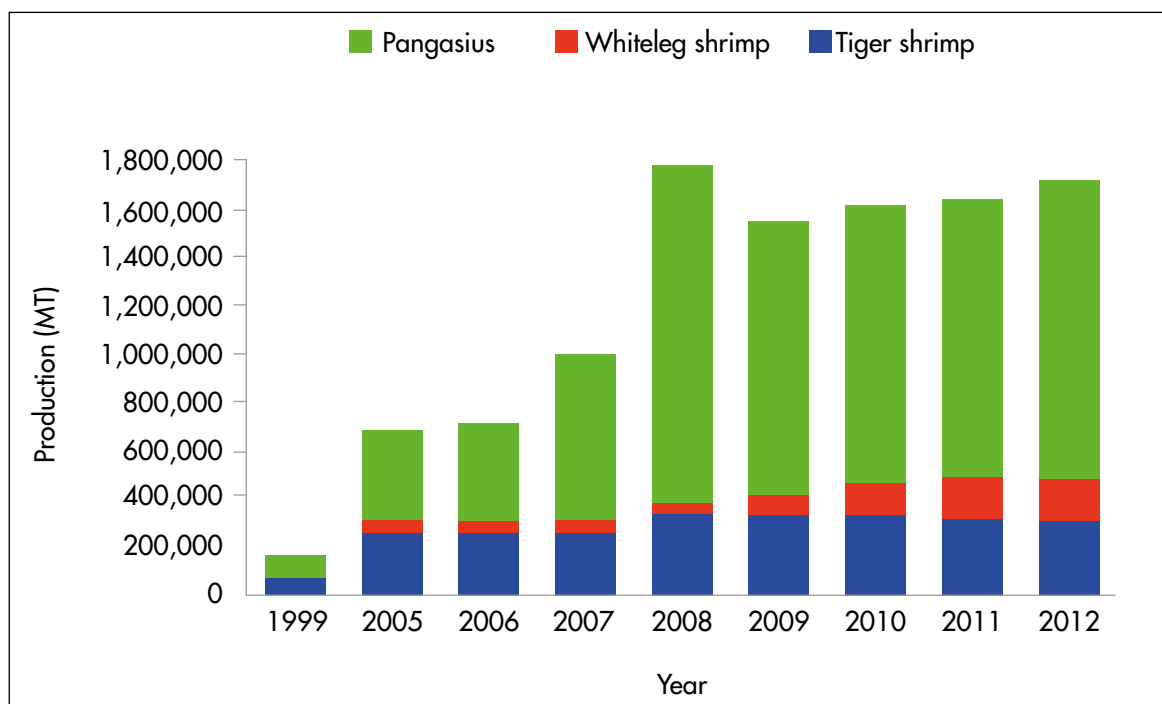
Source: D'fish statistics, 2013

However, the rapid expansion of aquaculture production and processing in Vietnam (see **Figure 10**) has led to serious sustainability issues, including environmental degradation, water pollution, increased greenhouse gas emissions, and overfishing for feeding aquaculture stocks. International consumers' rising awareness surrounding these sustainability issues has led to a growing demand for sustainably produced aquaculture products. Greening processes and production methods in the aquaculture sector provides a sustainable trade opportunity for Vietnam.



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Figure 10: Production growth of the key aquaculture species for export



Source: D-fish statistic, 2013

Sustainability certification has been identified as a promising tool to incentivize a shift towards greener production in aquaculture. Certification and eco-labelling have been identified as policy tools for achieving this objective. An increasing international demand for sustainably certified aquaculture products incentivizes Vietnamese aquaculture producers to implement internationally recognized sustainability standards, shifting their production to socially and environmentally friendly production methods, in order to benefit from this demand. The GE-TOP study focused on sustainable trade opportunities that arise from certifying shrimp and pangasius. The study identified the related challenges and provided policy recommendations for harnessing the sustainable trade potential. In Vietnam, roughly 15 per cent of the volumes of shrimp and pangasius are certified.

The assessment of sustainable trade opportunities in Vietnam’s aquaculture sector demonstrates that an increase in sustainably certified shrimp and pangasius enhances trade opportunities, provides better jobs, increases income and protects the environment. International certification schemes bring about the highest increase in profits. Both national and international certification schemes led to better environment surroundings: less water pollution, better productivity rate per yield, improved survival and feed conversion rate.

The scenario for pangasius looks slightly different than that of shrimp. While certifying pangasius clearly leads to environmental benefits, the economic benefits are less obvious. The study could not find any significant evidence of a price increase or increased sales after certification, leading to uncertain conclusions about the profit margin for pangasius farms after certification.

In order to overcome the challenges of implementing sustainability certification and to fully harness the sustainable trade potential in Vietnam’s aquaculture sector, relevant ministries will have to cooperate under the Vietnamese Green Growth Strategy to increase capacity of small-scale farmers in order to make compliance with certification schemes possible. The study therefore made recommendations related to infrastructure, investment, and the capacity gap for compliance with international sustainability standards.

Challenges for compliance with international recognized sustainability standards remain, including poor planning for both the shrimp and pangasius sectors as a whole, the lack of integrated infrastructure to reach economies of scale in production, the weak model of employment and organization of production, as well as the poor linkages in aquaculture production. In addition, the capacity gap in the private and public sectors still hinders the sector to catch up with international sustainability standards.

The policy recommendations that the study provided emphasized the need to strengthen the capacities of both private and public sectors, in order to facilitate a green transition in the aquaculture sector. For the private sector, this includes awareness raising, financial support and strengthening of the bargaining power of both farmers and processing / exporting businesses. For the public sector, the study recommended that a mechanism for effective collaboration and coordination among key ministerial administrations be created. The structure should allow for on-time issuance of policies and guidelines at the national level, and swift adjustments in response to the existing and projected market demand and the needs of the producers. Such a structure should also be implemented at the local levels.

■ Action Plan for the Sustainable Development of Aquaculture (Shrimp and Pangasius)

The overall objective of the Action Plan is to support the sustainable development of the aquaculture sector, specifically focusing on shrimp and pangasius, relating to its economic, social and environmental aspects. The Action Plan aims to implement and upscale the recommendations of the study *Sustainability Standards in the Vietnamese Aquaculture Sector*. It outlines the steps and actions for Vietnam to harness sustainable trade opportunities arising from sustainability certification in the aquaculture sector.

The Action Plan is developed based on a series of key principles: i) it should aim at bringing the Green Growth Strategy to life in order to ensure the sustainability of aquaculture development while meeting high-level market requirements; ii) it should ensure that sustainable production and consumption activities are implemented synchronically to achieve fast and efficient economic development, to contribute to environmental protection and poverty reduction, and to restructure the economy; iii) it should promote the Public–Private Partnership (PPP) investment model; iv) it should be linked to the national trade promotion programme to support the building of a brand name for Vietnamese aquaculture products and to harness the trade opportunities for responsible aquaculture of Vietnam; v) it should include available financial support (access to finance) to ensure the feasibility of the recommendations; and vi) it should reflect the related macro-policy.

Another of the key objectives of the Action Plan is that it should be strategically aligned with ongoing policy processes in the country including: the National Green Growth Strategy, the National Action Plan on Sustainable Production and Consumption, and ongoing projects being conducted through international mechanisms such as the EU's SWITCH-Asia programme.

The Action Plan makes specific recommendations for the main institutions that should be responsible for overall implementation of the plan. These include 1) the Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD) – Ministry of Agriculture and Rural Development (MARD); 2) the Ministry of Industry and Trade (MoIT); 3) the Ministry of Natural Resources and Environment (MoNRE); and 4) the Ministry of Planning and Investment (MPI).

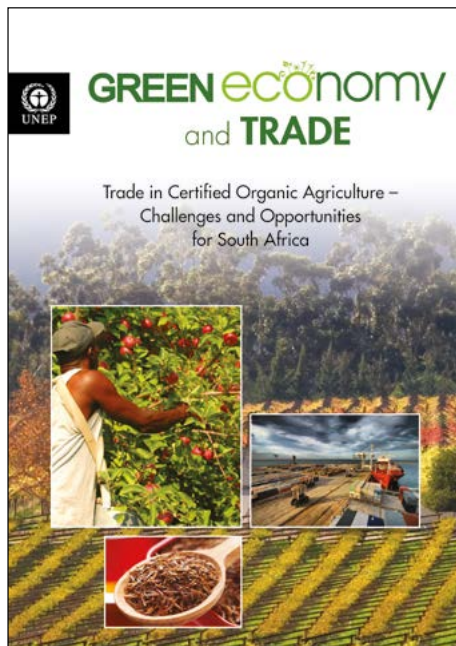
Specific recommendations for responsible institutions are also made for the different objectives and actions listed in the Action Plan. These include: the Directorate of Fisheries (D-Fish) of the Ministry of Agriculture and Rural Development, the Central Institute for Economic Management (CIEM) of the Ministry of Planning and Investment, the Institute of Strategy and Policy on Natural Resources and Environment (ISPONRE) of the Ministry of Natural Resources and Environment (MoNRE), the National Institute for Finance (NIF) of the Ministry of Finance, the Viet Nam Trade Promotion Agency (VietTrade) of the Ministry of Industry and Trade, and the Bank Strategy Institute (BSI) of the State Bank.

The different actions specified in the document are divided into different objectives which include: 1) ensuring that aquaculture sector development is aligned with the objectives of Green Growth Strategy and National Action Plan on Sustainable Production and Consumption; 2) promoting PPP model on a national and provincial scale to mobilize capital for the sustainable development of aquaculture; 3) facilitating access to finance; 4) stimulating trade of sustainable products; and 5) developing supporting policies. For each of these objectives, a list of actions is provided, each with a list of responsible organizations, budget provisions, and an estimated time frame.



South Africa

Trade in Certified Organic Agriculture – Challenges and Opportunities for South Africa



The study *Trade in Certified Organic Agriculture – Challenges and Opportunities for South Africa* (UNEP, 2016d), produced in partnership with the Trade Law Centre NPC (tralac), assessed the ways in which certified organic farmers from South Africa could link to export markets, particularly in Europe. The study showed that the international demand for organic products exceeds supply, and that South African producers are well-positioned to expand their production and harness export opportunities. The study benefitted from regular inputs from key national government departments (agriculture, environment, science & technology, trade & industry) and other key stakeholders, including at the occasion of two national stakeholder workshops.

The study identified trends, challenges and regulatory developments in the organic segment of South Africa, foremost including those related to the export of organic products. South Africa currently has 37,466 hectares of organic agricultural land, which represents only 0.04 per cent of all land used for agricultural purposes. The development potential for organic farming in South Africa is vast, but several key barriers prevent farmers from capturing this market opportunity. Firstly, increased knowledge about farm management is necessary to expand

the production of organic crops. Secondly, an enhanced understanding of local and international markets is required to perceive and satisfy increasing consumer demands for organic products. Thirdly, a particular operation skillset is necessary to meet the requirements of eco-labels and certification schemes. Also, the wider organic agriculture sector in South Africa faces various challenges, including a lack of effective institutional representation and organic legislation, and a discord between production, certification and markets.

Despite these constraints, it is also evident that South Africa can reap many benefits from the production and export of organic products. Examples include: (i) increased revenue, (ii) a reversal of the mechanization of farm activities and labour drain from rural areas, (iii) value addition and employment opportunities from



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on-farm processing, marketing and retailing, (iv) improved health for workers and consumers, (v) increased food production, and (vi) the preservation of natural ecosystems. To comprehensively assess benefits and challenges, the study provided a cost-benefit analysis of organic production and export, in terms of environmental, social and economic indicators, that further underlies the large potential. The potential for organic exports to Europe is summarized in key figures in **Box 1**.

Box 1: Export potential

- The global market for certified organic food and beverage products reached US\$ 72 billion, of which Europe (the 28 member states of the EU plus Switzerland) accounted for 43 per cent of total retail sales (Willer and Lernoud, 2015).
- As a single market, Europe is equally valuable as the US, and export destinations commonly cited include Germany, the Netherlands and the United Kingdom (Willer and Lernoud, 2015).
- The largest consumer markets were Germany with a share of 31 per cent share of the European market, followed by France (18%), the UK (9%), Italy (8%), and Switzerland (7%) (Willer and Lernoud, 2015).
- South Africa has listed 49 organic exporters and one organic importer (Willer and Lernoud, 2015).
- South African producers have, inter alia, the advantage of selling 'out-of-season' products to the EU and the US (Willer and Lernoud, 2015).
- The EU and the US currently constitute more than 90 per cent of the global market for organic products (Willer and Lernoud, 2015).
- In the FRIDGE study, 60 farmers reported sales of ZAR 160 million for organic products. This share was roughly 54 per cent of the domestic market and 46 per cent of exports. The export market constitutes a significant market for organic producers (INR, 2008).

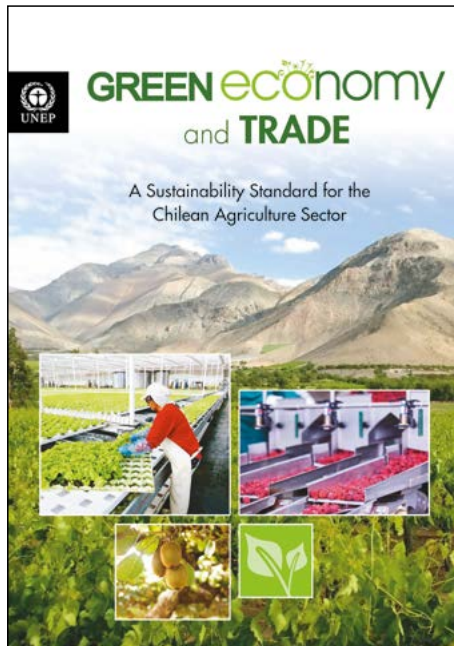
In order to reap the benefits offered by organic agriculture, producers at the farm-level need to be able to mitigate the costs associated with the conversion to organic practices, and require sophisticated market intelligence. At the regulatory level, the study recommends: to establish a national organic standard, ideally combined with a national communication strategy; to facilitate a conversion of non-organic farming systems, for example through financial incentives like subsidies, tax exemptions, or reduced certification fees; to promote integration and development of organic markets, through cooperation with international donor and support agencies, and visits to organic trade fairs; and to establish Organic Development Zones in regions where organic agriculture would benefit the most in terms of social, environmental or economic challenges. These recommendations will serve to advise national agricultural and trade policy, and to inform training and capacity-building activities in the organic sector.



Chile



■ A Sustainability Standard for the Chilean Agriculture Sector



The study *A Sustainability Standard for the Chilean Agriculture Sector* (UNEP, 2016b) was produced in partnership with Fundación Chile, with the objective of assessing how sustainability standards and ecolabels could help to overcome challenges in the Chilean agricultural sector. The study identified implementation and knowledge gaps, as well as opportunities for establishing a sustainability standard for Chile's agricultural export products. The study benefited from the support and inputs of key stakeholders and government institutions (the Office for Agricultural Studies and Policies, in the Ministry of Environment, and ProChile), including during three stakeholder workshops organized in the country.

The agricultural sector makes a significant contribution to Chile's GDP and exports. Chile is an international export leader in a variety of products, being the first-largest exporter of blueberries and grapes, second for cherries, fourth for kiwifruit, and fifth for apples and avocados. The sector employs 9.2 per cent of the population and consists mostly of small and medium-sized companies. At the same time, agriculture is responsible for a large share of the country's emissions of greenhouse gases, as well as soil degradation and water consumption.

Sustainability standards and ecolabels play an important role in agricultural exports, and increasingly in local consumption and production, and have the potential of improving the social, economic, and environmental performance of the sector. There are currently 37 standards and initiatives that apply to the agriculture sector, of which 34 apply to the fresh fruit and vegetable sector, 25 to the wine sector, and 28 to food products. These standards and initiatives vary by destination of the product (see **Figures 11 & 12**). For the fresh fruit and vegetable sector, 26 apply for Oceania, 27 for Asia, 29 for North America, 26 for Latin America, 29 for Europe, and 27 for Africa. For the wine sector, these numbers are 19 for Oceania, 19 for Asia, 20 for North America, 18 for Latin America, 20 for Europe, and 19 for Africa.



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Figure 11: Initiatives for Chilean fresh fruit and vegetables by destination market

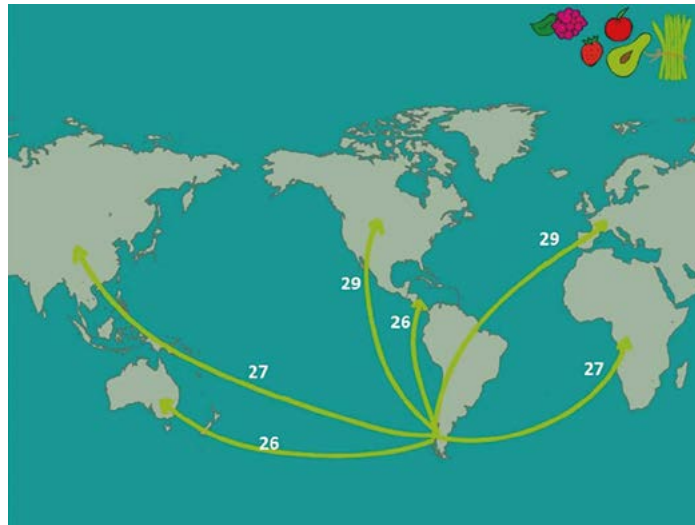


Figure 12: Initiatives for Chilean wine by destination market



A variety of factors are currently hindering the adoption of international sustainability standards. These include a lack of resources, knowledge gaps and the different requirements for each standard. Increased compliance with these standards can provide companies and the country with the benefits of increased international trade, as well as environmental and social benefits.

Given the proliferation of sustainability standards and their importance for the country, the report analyzed a number of sustainability initiatives applicable to Chilean agricultural products in order to inform the design of a national sustainability standard for Chile. The study discussed a series of characteristics of sustainability standards, including the type of initiative, the expected level of change, leadership, level of verification, requirements, focus, compliance assessment, scope, object of certification, and value chain segment coverage.

Through a desk study and through several stakeholder consultations, the study formulated a number of key findings. Firstly, given the high level of fragmentation (variety) and saturation (quantity) of sustainability standards, a new ecolabel should not be created. Instead, a standard based on the suggested characteristics should be developed in order to align local production standards with international ones, thus facilitating the transition for local producers to become exporters and enhancing the international competitiveness of Chilean exports by first establishing stringent local production requirements. Secondly, companies and private stakeholders did not benefit from price premiums as a result of sustainability certifications and ecolabels, but

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rather benefitted from increased access to key markets around the world. This seems to be a result of the high number of labels and standards available, with some wine producers mentioning that they ran out of space on their bottle labels to include all their different certifications. It is also a reflection of the importance that ecolabels have not only in business-to-consumer transactions but also in business-to-business ones. Finally, the high number of standards and ecolabels generates several problems for producers, as there are information gaps on the different standards and their procedures, which make it challenging for them to select the sustainability standards or ecolabels that will have the most impact on their products.



Participants of the third national stakeholder workshop in Chile



Conclusions

Key findings and lessons learned

- Appropriate regulation and incentives are critical elements** for trade to become a driver of an inclusive green economy. With appropriate regulation and incentives in place, trade can facilitate the transition to a green economy by fostering the exchange of environmentally preferable goods and services, and by increasing resource efficiency and generating economic opportunities and employment. For example, the South Africa study identified the need for a national organic regulation or standard that sets the legally enforceable definitions of organic production. The adoption of an organic standard would strengthen organic farming cooperatives, properly align incentives for organic production, enhance conversion to organic farming systems, develop the domestic organics market and facilitate access to export markets. As international trade creates additional wealth, regulation can also help to make sure that this wealth contributes to poverty eradication and reduces inequalities, rather than exacerbates them.
- Demand for sustainably-certified products in international markets is on the rise.** As market demand for resource- and energy-efficient processing and production methods increases, it provides incentives for sustainably-certified production in multiple sectors. In Peru, biotrade exports have increased from US\$ 7.6 million in 2009 to US\$ 58 million in 2014. Exports of native biodiversity products went from US\$ 198 million in 2009 to US\$ 623 million in 2014. Given that exports of other native biodiversity-derived crops are around 1–4 per cent of total production (for camu-camu and lúcuma), there is important potential for increasing exports of these crops. Besides securing access to international markets, certified products often yield price premiums and ensure the long-term market competitiveness of producers.
- Opening new export markets for environmental goods and services leads to enhanced trade opportunities worldwide,** with many markets for sustainability-certified products growing faster than conventional markets. The Vietnam project identified sustainability certification and eco-labelling as a promising tool to access export markets and incentivize a shift towards greener production in aquaculture. In Ghana, it was shown that through access to international trade in renewable energy goods, renewably generated electricity can make a significant contribution to the national energy mix, with lower investments

required than before. Through this trade, it was estimated that 220 MW of intermittent solar PV supplies could be integrated into the national grid system, with little or no system upgrade required and in line with the grid code.

- **There are economic, social and environmental gains to be made from making trade more socially and economically sustainable.** The Ghana Solar Export Potential Study found that a grid-connected 100 MW solar plant in the north of Ghana could create 3,000 direct jobs, provide livelihoods for 23,000 of the poorest people, and earn Ghana up to US\$ 38 million / year in foreign exchange from export. At the same time, the construction of such a plant in the north of Ghana could save 40,000 tCO₂ annual emissions compared to business-as-usual (BAU).
- **Green production sectors, regardless of their contribution to national GDP, often bestow the highest social and environmental benefits.** As the Peru studies on native biodiversity-derived products show, these products are typically produced by poor small-scale producers who live in rural areas of high biodiversity. Trade in these biodiversity-derived products, if managed in a sustainable way, has the potential to lift vulnerable groups from poverty and protect the country's natural resources. For certain products, the majority of producers do not have ownership over the lands they are cultivating. This aspect is of particular importance for biotrade, given its focus on improving land rights.
- **Coordination between the public and the private sector is required for trade and green economy to mutually benefit each other.** The public sector needs to create the enabling regulatory and fiscal environment, while private actors need to recognize and seize opportunities, invest in green production methods and open new markets. This is also among the conclusions of the Chile, Ghana and South Africa country studies. In Chile and South Africa, the need was identified for public and private actors to cooperate in the development of national production standards, whereas it was shown that in Ghana, public-private partnerships could provide an adequate measure to foster energy infrastructure investments.
- **The integration of national and international initiatives** is an important element for the synergistic interplay of green economy and trade. Sustainability standards are an example of international requirements with which domestic producers often need to comply. An enabling environment for domestic producers can be created through the development and adoption of national sustainability standards, as the country work in Chile and South Africa showed. However, these standards also need to connect to the requirements of destination markets.
- **Support is needed for the development of appropriate funding mechanisms to finance a shift to green trade.** The Strategy Proposal for Ghana contains specific recommendations for financing the expansion of the regional integration of power grid systems, in order to enable enhanced regional power trade, including from variable energy sources. Financial institutions have an important role to play in bridging the finance gap to transform production methods and enhance sustainable trade, which often require large initial investments.
- **Capacity-building, including the development of partnership-based hubs,** is needed to facilitate a transition to sustainable practices and trade. As the case of Chile illustrated, a lack of centralized information on sustainability standards and their requirements was a barrier identified by many private actors. Additionally, there was no forum for stakeholders to share experiences related to eco-labelling and sustainability standards, limiting knowledge spillover and diffusion.

A meaningful transition to a greener economy strengthened by international trade will require extensive support. UNEP is committed to assisting governments and other stakeholders in identifying and creating these sustainable trade opportunities, and transforming risks and challenges into drivers for sustainable development and poverty eradication.

Next steps

The global GE-TOP report and the five country projects demonstrate that sustainable trade opportunities can arise in different sectors and national contexts. Their nature varies from access to niche markets for sustainable products, to shifting value chains towards sustainable practices, to building on comparative sustainability advantages in regional markets. Besides all these differences and independent from their contexts, sustainable trade opportunities are all characterized by their potential to advance equitable social and economic development, while improving natural resource management and environmental protection.

Harnessing these sustainable trade opportunities will require further careful assessment of their drivers and challenges and the identification of enabling conditions that exist or can be created by public and / or private stakeholders. Tools such as sustainability certification can become vehicles to harness the sustainable trade potential of a sector, but trade can only be sustainable when accompanied by appropriate rules and regulations at the international level.

With the work on Green Economy and Trade Opportunities, UNEP has stimulated a discussion on the potential of sustainable trade at the global, regional and national levels, and provided best-practice examples for developing countries and emerging market economies to better capitalize on their comparative advantages. This analytical work can be complemented with related capacity-building activities, under the UNEP Environment and Trade Hub.

■ UNEP Environment and Trade Hub

Building on the momentum generated by GE-TOP, and recognizing the importance of international trade and investment for the achievement of the Sustainable Development Goals (SDGs) and for the progress towards the objectives of the 21st Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change, UNEP launched the “UNEP Environment and Trade Hub”, at the WTO Ministerial Conference in Nairobi, on 14 December 2015. The Environment and Trade Hub’s *vision* is to make trade and investment become vehicles for environmental sustainability, inclusiveness and human well-being. Its mission is to enable countries to use trade and investment as vehicles for achieving the 2030 Agenda for Sustainable Development. **Figure 13** details the alignment of the hub with different SDGs.

VISION	MISSION
Trade and investment become vehicles for environmental sustainability, inclusiveness and human well-being.	To enable countries to use trade and investment as vehicles for achieving the 2030 agenda.

The Hub is based on the belief that, while the 2030 Sustainable Development Agenda offers many opportunities for sustainable trade, it cannot be achieved without balancing the rapid growth of international trade with environmental and social safeguards. Therefore, there is a need for capacity-building at the international, regional, national and sub-national levels, to ensure that trade and trade policies promote sustainable production and consumption. Further, trade and trade policies must also be designed to foster access to and investment in critical environmental goods, services and technologies; spark eco-innovation; contribute to achieving climate goals; and enable decent and inclusive job creation.

The lessons learned from the different GE-TOP studies, strategy proposals, national stakeholder discussions as well as the regional and international conferences held around GE-TOP, have contributed to shaping the Hub and its offer, focusing on meeting country-specific demands, and to cultivate an extensive number of close partnerships with national, regional and international actors. The Hub aims to tap into the trade opportunities identified in GE-TOP through tailored capacity-building and trainings for developing country stakeholders.

Figure 13: Environment and Trade Hub focus area, SDG alignment and offer

		FOCUS AREA			
		Enhancing trade and investment in EST	Shaping governance at the trade & environment nexus	Greening GVC to promote sustainable consumption and production	Reducing the footprint of trade and greening the brown
		SDG 17 (means of implementation)			
SDG Agenda	<p>SDG 6 Water & Sanitation</p> <p>SDG 7 Energy Access</p> <p>SDG 9 Industrialization & Innovation</p> <p>SDG 13 Combat Climate Change</p> <p>SDG 17 Technology</p>	<p>SDG 2 Food Security & Sustainable Agriculture</p> <p>SDG 8 Sustainable Growth for Aid & Trade</p> <p>SDG 17 Policy & Institutional Coherence</p>	<p>SDG 2 Sustainable Agriculture</p> <p>SDG 12 SCP Patterns</p> <p>SDG 14 Oceans, Seas & Marine Resources</p> <p>SDG 15 Terrestrial Ecosystems & Forests</p>	<p>SDG 12 SCP</p> <p>SDG 13 Climate Change</p> <p>SDG 15 Reverse Land Degradation & Biodiversity Loss</p>	
	HUB OFFER	<p>Advice & impact analysis for EST trade liberalisation</p> <p>Analysis & training for local capacity creation in EST production & trade</p> <p>Leverage investment, technical expertise & green jobs in EST</p>	<p>Guidance & toolkits for improving trade & environment synergies & governance</p> <p>Training & support for improving sustainability of trade & investment agreements</p> <p>Capacity building to align international & national trade & environment</p>	<p>Advice & impact analysis for sustainability standards & labelling</p> <p>Training for local development & uptake of standards</p> <p>Capacity building for value chain participation & improving access & demand for environmental goods</p>	<p>Advice & impact analysis of trade & investment in extractive industries</p> <p>Analysis & training on the health impacts of environment, trade & investment policy</p> <p>Capacity building to reduce trade footprint & combat illegal & illicit trade</p>
		Global Value Chains, Trade Finance, Investment, Aid for Trade			

The “Hub” aims to enhance the capacity of countries to (i) design and implement trade policies that foster environmental sustainability and human well-being, (ii) assist countries in the realization of trade opportunities arising from a transition to greener economies, (iii) strengthen the sustainability aspects of cross-border trade and investment agreements in negotiations, and (iv) realize a shift of trade practices and trends to more sustainable pathways.

The Hub offers:

- Capacity-building services for developing countries, such as tailored technical trainings to support the international, regional and national design and implementation of sustainable trade and investment policies;
- Targeted stakeholder trainings; technical assistance in designing trade and environment related agreements; and the development of tools, methodologies and indicators for sustainable trade;
- Identification and dissemination of best practices; support to stakeholder consultations and national, regional, and international dialogues on advancing sustainable trade; and
- The identification of sector- or region-specific sustainable production and trade opportunities.

As **Figure 14** shows, the work of the Environment and Trade Hub will be conducted across 4 focus areas, including: (1) enhancing trade and investment in environmentally sound technologies (EST); (2) shaping governance at the trade, investment and environment nexus; (3) greening global value chains (GVCs) to promote sustainable consumption and production; and (4) reducing the footprint of trade and greening the brown.

Figure 14: The Hub’s primary focus areas





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Annex 1 – GE-TOP Stakeholder Workshops

- **National GE-TOP Ghana workshop (1):** The Government of Ghana, The Energy Centre (TEC) and UNEP held a national stakeholder workshop in Kumasi, Ghana, on 12 September 2013, to launch the GE-TOP Ghana project and facilitate up-front stakeholder discussions on the development of the Solar Export Potential Study (SEPS).
- **National GE-TOP Ghana workshop (2):** The second national stakeholder workshop for the GE-TOP Ghana project was held on 16 January 2014, to present and discuss the preliminary findings from the national-level analysis of solar energy export potential to the ECOWAS sub-region. The workshop also provided a forum for stakeholder discussions on follow-up activities, aimed at developing a concrete strategy proposal for harnessing opportunities associated with the production and export of solar electricity and manufactured supply components. The workshop assembled the SEPS Team of key project stakeholders, and overall 30 representatives from relevant government ministries and agencies (national and regional), research institutions and industry.
- **National GE-TOP Vietnam workshop (1):** For the GE-TOP national project, the Ministry of Industry and Trade organized a national workshop on 2 April 2014, convening the key national stakeholders involved in the Certified Aquaculture Export Potential Study (CAEPS). The workshop served to facilitate interstakeholder dialogue on the preliminary findings of CAEPS and the pertaining policy recommendations. It offered a platform to coordinate and synthesize contributions from the national stakeholders involved in the study and to get input on the recommendations underlying GE-TOP Vietnam.
- **National GE-TOP Peru workshop (1):** The GE-TOP national workshop in Peru was held on 5 September 2014. The workshop discussed preliminary findings of the first study in a multi-stakeholder dialogue and served as a forum to initiate a process of uptake of these findings and their corresponding policy recommendations. In order to create synergies between this and other UNEP projects, as well as to reach a larger audience and generate a stronger uptake of the outcomes of the report, the workshop was held together with a 10 Year Framework Programme event and a workshop in the context of the Partnership for Action on Green Economy (PAGE), on the occasion of the inception phase of Peru as a PAGE country.
- **National GE-TOP Chile workshop (1):** The first national stakeholder meeting for the GE-TOP Chile country project was held on 3 December 2014. It was organized by UNEP and Fundación Chile, and involved participants from various international and national organizations as well as certification body representatives. The workshop incepted the GE-TOP national assessment of how national eco-label(s) can create sustainable trade opportunities in the food and wine sector of Chile. Participants discussed approaches to the assessment of opportunities and challenges for eco-labelled products to access international markets.
- **National GE-TOP South Africa workshop (1):** The first stakeholder meeting for the GE-TOP South Africa country project was held on 29 January 2015 in Pretoria. The workshop served to launch the GE-TOP country study, gather initial feedback and inputs, and build stakeholder engagement and national project ownership from the outset of activities. The workshop was attended by 20 key stakeholders, including three national ministries, national organic producer associations and the leading product certification schemes (Fairtrade, UTZ).
- **National GE-TOP Chile workshop (2):** The second stakeholder meeting for the GE-TOP Chile country project was held on 12 March 2015, with the objective of bringing together different stakeholders from the food and wine sector that would be affected by a standard for the sector. The workshop included presentations on sustainability standards from industry representatives (Wines of Chile, Viñedos Emiliana), representatives from the public sector (National Council of Clean Development, Office of Agricultural Policies and Studies from the Ministry of Agriculture) and civil society (WWF Chile). A second element of the workshop focused on gathering stakeholders' experiences on costs and benefits associated with the uptake of sustainability standards, and inputs regarding the main characteristics of a possible sustainability initiative.

- **National GE-TOP Chile workshop (3):** The third stakeholder meeting for the GE-TOP Chile country project was held on 11 August 2015. During the meeting, preliminary findings on the design of the standard were presented, including the type of initiative (protocol, standard, eco-labels), who should lead the initiative, the level of verification, and options for compliance assessment.
- **National GE-TOP South Africa workshop (2):** The second stakeholder meeting for the GE-TOP South Africa country project was held on 11 August 2015 at an organic farm in Stellenbosch. The national workshop served to present the draft analysis, initial findings and recommendations of the national GE-TOP study, stimulate open stakeholder discussion on selected aspects of organic agriculture in South Africa, and obtain expert feedback and inputs from stakeholders to inform the finalization of the study. It also provided a forum for stakeholders to exchange experiences, ideas and challenges related to current and emerging issues associated with trade opportunities to be derived from a shift to sustainable agriculture. The workshop featured attendance of around 35 key stakeholders, including government representatives (three national ministries and government agencies), certification bodies, organic farmers, agro-processing industry and academia.
- **National GE-TOP Ghana workshop (3):** The third national stakeholder workshop for the GE-TOP Ghana project was held on 3 September 2015 in Accra. The workshop consisted of two half-day sessions, namely (i) a formal launch and validation of the Solar Export Potential Study, and (ii) the presentation and discussion of initial findings from the GE-TOP Ghana Strategy Proposal. The workshop was attended by 35 stakeholders from national policy (four ministries - Energy, Environment, Finance, Trade), national energy utilities, academia, finance, investors, industry and regional initiatives / trade partners.

Annex 2- GE-TOP Outreach

- Launch event of the GE-TOP report at the WTO in May 2013, led by UNEP Executive Director Achim Steiner and WTO Director-General Pascal Lamy.
- Green economy and trade event, linking trade opportunities to SDGs, at the European Development Days in Brussels in November 2013.
- Ministerial panel discussion on green economy trade policies and opportunities, at the First Global Conference on Partnership for Action on Green Economy (PAGE) in Dubai in March 2014. This Inaugural Conference has provided an opportunity to engage with government officials, private sector, civil society and development agencies on harnessing sustainable trade opportunities. For more information on this event, see <http://www.unep.org/NEWSCENTRE/default.aspx?DocumentId=2755&ArticleId=9676>
- Event commemorating the 20th Anniversary of the WTO. UNEP and WTO hosted a joint opening session, counting with the participation of UNEP Executive Director Achim Steiner and WTO Director-General Roberto Azevedo. In his opening remarks, Mr. Steiner reflected on the relationship between trade and environment and the past two decades of work on this interface at UNEP and the WTO. He specifically mentioned GE-TOP and the results of the Ghana Solar Export Potential Study to provide an example of the opportunities that trade can present. Mr. Steiner's statement can be accessed here www.unep.org/newscentre/Default.aspx?DocumentID=26815&ArticleID=35009&l=en
- Launch event of the Trade and Green Economy Handbook commemorating the WTO's 20th Anniversary. The launch included a high-level panel featuring Achim Steiner, Executive Director of UNEP, Arancha González, Executive Director of the International Trade Centre (ITC), and Mark Halle, Executive Director of International Institute for Sustainable Development (IISD) Europe.
- On the sidelines of the WTO's 10th Ministerial Conference in Nairobi, UNEP co-hosted the plenary session "Trade and the 2030 Sustainable Development Agenda" with the International Centre for Trade and Sustainable Development (ICTSD). The event represented the formal launch of the Environment and Trade Hub, an initiative which will assist countries to use sustainable trade as a vehicle for achieving the 2030 Agenda for Sustainable Development. For more information on the event, see [unep.org/newscentre/Default.aspx?DocumentID=26856&ArticleID=35634&l=en](http://www.unep.org/newscentre/Default.aspx?DocumentID=26856&ArticleID=35634&l=en)
- In June 2013, during the 2013 European Development Days, GE-TOP was presented during a dedicated session that counted with the participation of Hugo Schally, then Head of the Global Sustainability, Trade & Multilateral Affairs Unit at DG Environment. The session was attended by GE-TOP country partners Peru, Vietnam and Ghana.
- GE-TOP was presented at the 2nd Product Environmental Footprint (PEF) World Summit in Berlin.
- On 2 October 2014, UNEP highlighted the GE-TOP studies at the WTO Public Forum 2014 in Geneva at an event titled *Trade and Jobs in a Green Economy*.
- In February 2015, the GE-TOP South Africa country project was presented at the BioFach in Nuremberg (Germany), the largest trade fair for organic food production.
- On 21 April 2015, the preliminary findings of the Ghana Solar Export Potential Study were presented at the Solar & Off-Grid Renewables West Africa conference in Accra. The conference was attended by a large number of high-level policy makers, project developed and financiers / investors in the solar energy market of West Africa.

- In August 2015, the GE-TOP Vietnam study, “Sustainability Standards in the Vietnamese Aquaculture Sector,” was presented by representatives of the Ministry of Industry and Trade at the 2015 VietFish Fair, one of the world’s leading seafood fairs in the world, bringing together some of the most important local and international actors in the sector.
- In August 2015, GE-TOP Vietnam was presented by the national lead author at the workshop for the national Sustainable Pangasius Value Chain (SUPA) project, “Promoting sustainable pangasius production and consumption in the EU” in Ho Chi Minh City, Vietnam. It included a presentation of the GE-TOP Vietnam findings, dissemination of outreach materials, and discussion with the SUPA project team on ways to harness synergies and build stronger complementarity between GE-TOP and SUPA in Vietnam.”
- In November 2015 two of the GE-TOP reports (Chile and Peru) were presented at the Green Economy Regional Forum for Latin America which took place in Cartagena, Colombia. It featured representatives from Environment and Finance ministries in the region, members of civil society organizations, and representatives of international organizations.
- In November 2015, findings of the GE-TOP Chile study were presented by Fundación Chile at the Expo Food Process 2015 in Santiago, which brings together the major actors in the Chilean food sector.
- In April 2016, the UNEP report *GE-TOP Ghana Strategy Proposal – Realizing solar PV projects in a cross-border power supply context* was launched on the occasion of the Solar & Off-Grid Renewables West Africa conference in Accra.
- In April 2016, the UNEP report *Trade in Certified Organic Agriculture – Challenges and Opportunities for South Africa* was launched in Pretoria.
- The GE-TOP project and its findings from national-level activities were also presented at various international fora, including the WTO Committee on Trade and Environment (CTE) in June and October 2014 and October 2015, and the OECD Joint Working Party on Trade and Environment (JWPTE) in June and December 2014 and December 2015. These contributions to international fora served to raise awareness about GE-TOP country projects, explore linkages with germane project activities, and collect feedback for country-level analyses.





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