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Analysis and news on trade and environment

VOLUME 9, ISSUE 2 – MARCH 2015



The future of fish trade

FISHERIES

Trends in fish trade and governance

BIORES INTERVIEW

An industry perspective on fisheries sustainability

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International Centre for Trade
and Sustainable Development

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The future of fish trade



Fish and fish products are strongly linked to the international trade system as one of the world's most traded food commodities. UN Food and Agriculture Organization (FAO) estimates suggest that in 2012 around 38 percent of total fisheries products were exported to the tune of US\$129.2 billion. At the same time fish play an important role in feeding a growing global population.

The landscape of the fisheries industry is, however, in flux. Fish farming has expanded rapidly in recent years, sustainability concerns have sharpened in the face of alarming declines in wild fish stocks, new market measures have been ushered in to tackle fish piracy, and the effects of climate change on the world's oceans cast uncertainty over the shape of future production.

This issue of BioRes includes several articles focused on some of these challenges. Carl-Christian Schmidt looks at current and emerging fisheries trade issues while Victoria Chomo and Cassandra DeYoung provide a preliminary overview on the possible impacts of climate change on sustainable fish trade. In a BioRes interview, Jim Cannon CEO and founder of the Sustainable Fisheries Partnership, offers a view from the ground level of the fisheries industry on the changing shape of fish trade and the opportunities for supply chains to boost sustainability.

Meanwhile, policy discussions continue at a number of governance levels on the perennial challenge of harmful fisheries subsidies, due to their trade distorting nature and detrimental environmental impacts.

WTO members are in the process of agreeing to a work programme for concluding the Doha Round of negotiations. It remains unclear, however, as to whether and in what form talks on disciplining fisheries subsidies will be included in this effort. A set of proposed sustainable development goals (SDGs), which would be voluntary in nature but could nonetheless provide a useful signal for national development policy priorities, include a target on tackling certain forms of fisheries subsidies with a footnote referring to the Doha Round.

Members of the trade and environment community are also closely watching negotiations between 12 Asia-Pacific economies to hammer out a Trans-Pacific Partnership (TPP) trade deal. Countries such as the US have said that it aims to include commitments on fisheries subsidies in that agreement.

Both the fisheries trade landscape and relevant governance structures will continue to change over the coming decades. Will policymakers and stakeholders be able to respond to current and emerging challenges within the context of fostering sustainable development in a post-2015 development agenda?

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The BioRes Team

FISHERIES

Identifying current and emerging fisheries trade issues

Carl-Christian Schmidt

Fish are among the world's most traded food commodities. What are the key issues affecting fisheries production and trade today and what trends to look out for?

It cannot be repeated enough that fish and fish products are deeply connected to the world trade system. Around 38 percent of all fish, caught in the wild or raised in aquaculture, are traded. But the landscape of fish catch and production is changing. While world catches from the wild have stabilised at around 90-95 million tonnes per year, aquaculture has expanded rapidly, now contributing more than 90 million tonnes to the annual total. Aquaculture is now on track to be the main source of fish in the near future. For developing countries in particular exports of fish and fish products are an important foreign currency earner. The value of fish exports from developing countries exceeds those of most other cash crops, namely food grown for commercial rather than subsistence purposes, including coffee and rubber. Most fish are exported to three main markets - Japan, the US, and the EU - but China is a huge and growing market. The Asian economy has become the most important producer and trader of fish products partly because it imports large quantities of unprocessed fish for processing and re-export.

Fish are also an increasingly popular item on consumers' plates and fish are an important source of nutrients required for healthy growth. In developed countries it is a premium protein source and in many developing countries it is the main one. The UN Food and Agriculture Organization (FAO)'s State of the World Fisheries and Aquaculture 2014 (SOFIA 2014) report finds that globally fish provide just under three billion people with almost 20 percent of their animal protein intake. Based on this current picture, key emerging issues around the future of fisheries trade include: the prospect for aquaculture; how to better manage capture fisheries; whether sustainability certification can address public concerns regarding fisheries and aquaculture; and how to curb illegal, unreported, and unregulated (IUU) fishing. Trade is an important factor across each of these.

The future is farmed

Fish farming has developed more rapidly than any other food commodity and continues to exhibit strong growth potential. Catches from the wild are unlikely to grow in the future as most fish stocks are currently fully exploited or over-exploited. The Organisation for Economic Co-operation and Development (OECD)-FAO medium term Agriculture Outlook predicts that by 2018 fish for human consumption from aquaculture will exceed those from wild fisheries. Aquaculture nevertheless faces some constraints including, for example, potential negative impacts on local water quality and ecosystems. This is nevertheless very dependent on the type of production system. Land-based recirculating systems have minimal impacts while open pen cage systems can be risky if poorly managed.

World aquaculture production currently exceeds a value of US\$140 billion, according to OECD-FAO, and covers a range of species. Half of world production is made up of various finfish with the most important being carp; a quarter are various aquatic plants including seaweed; and the remainder are shrimps and crustaceans such as mussels and oysters. The most important aquaculture producers are China, India, Vietnam, Indonesia, and Bangladesh. Among OECD countries specifically the principal producers are Norway, Chile, Japan, Korea, and the US. These countries all produce vastly different species, however, and in very different production systems.

Glossary

Capture fisheries The harvesting of naturally occurring living resources in both marine and freshwater environments.

Aquaculture The cultivation of aquatic plants or animals for food.

IUU Illegal, unreported, and unregulated fishing

EEZ Exclusive Economic Zone, in other words, the area of the sea in which coastal countries have jurisdiction.

High seas The open ocean not within the territorial waters or jurisdiction of any particular country.

RFMOs Regional Fisheries Management Organisations formed by countries with specific fishing interests. Some of these cover precise areas, while others focus on highly-migratory species, notably tuna.

A number of interactions exist between wild and farmed fish. Farmed carnivorous fish need some fishmeal and oil in their feed compounds and these are based on fish caught in the wild. Secondly fish from aquaculture and from capture fisheries ultimately end up in a common market for fish and fish products. While capture fish may carry a premium because of quality, size, and consumer preference for wild caught fish, farmed fish offer advantages for fish processors and retailers, including standard size, year-round availability, and a known production environment.

Both the fisheries and aquaculture sectors benefit from supportive policies including budgetary assistance for investment and operations. Such support, or subsidies, can alter the competitiveness of these sectors in a global market and can have unforeseen environmental and trade impacts particularly in relation to overfishing in the wild. Increasing subsidies for fish products both farmed and captured could also lead to trade disputes and hamper growth in developing nations. This is an area trade policymakers need to address urgently at both regional and multilateral levels. More competition in global markets from aquaculture will also affect the capture fisheries sector. It is therefore important that policymakers take action early on to ensure that the capture fisheries sector remains as sustainably competitive as possible in order to secure fishers' incomes and livelihoods.

Moving to sustainable wild fisheries

The current situation in capture fisheries is challenging. Too many stocks are overfished or threatened by IUU fishing. Carrying on with business as usual will lead to low fisher incomes, lost economic potential, and undue environmental damage given the delicate balance of marine ecosystems. Policy reform in capture fisheries would improve stock sustainability and overall environmental outcomes, contribute to a better fisheries economy, and increase countries' tax base. Governments need to be clear that reform of fisheries policies will make their capture fisheries more environmentally, socially, and economically sustainable.

Excess capacity, dependence on subsidies, and stressed coastal communities are all signs of an inefficient fishing sector. Market-based and community-based approaches to fisheries management have a track record in improving both stock management and economic efficiency. Rebuilding fisheries that are below their potential requires control of fishing effort and, at the same time, policymakers need to maintain the quality of the ecosystem accounting for biodiversity, habitat, and pollution. Many marine spaces are increasingly subject to more diverse and intensive use. Placing fisheries policy in the context of a broader coastal and ocean economic strategy can help to mitigate spillover impacts and improve policy coherence across domains. When undertaking fisheries sector reform policy packages that address concerns by stakeholders – such as fishermen, fish processors, wholesalers, and retailers – that stand to lose will be important and may sometimes need to include effective flanking measures to ensure buy-in for reform.

Co-operative management of high seas fisheries through Regional Fisheries Management Organisations (RFMOs) can also contribute substantially to sustainability. Many international shared fish stocks are overfished. It has been a challenge in some cases for RFMOs to limit the overall take on the resources given that high seas fish stocks are part of the global commons. In particular, this has been the case for a number of highly migratory tuna stocks, with the continued combination of high prices and readily available markets exacerbating the problem. In certain cases subsidies to fleets have added additional fishing effort and further undermined sustainability efforts. This is yet another case for fisheries and trade policymakers to address.

Sustainability certification

Certification that fish come from a sustainably managed resource took a big step forward in the fisheries sector in 1995 when consumer-goods company Unilever and conservation agency WWF announced plans to set up a fisheries certification system known as the Marine Stewardship Council (MSC). Since then several other certification standards have been developed covering both wild and farmed fish.

Technical barriers to trade

The 1994 WTO Agreement on Technical Barriers to Trade (TBT Agreement) establishes rules that are relevant to both voluntary standards and mandatory technical regulations put in place by policymakers. Some of the TBT principles include transparency and non-discrimination between fisheries imports from different nations.

Why did a multinational company and a major international NGO join forces to create a certification system for sustainable fish? After all, at least 20 years ago, these two players were seen as strange bedfellows. For the WWF it was yet another way of ensuring that fisheries resources would be sustainably managed and that consumers could make responsible choices in a world of food value chains. For its part, Unilever at that time purchased a quarter of all groundfish species sold globally for their processing lines, so it made very good sense for the company to secure their future fish supplies, production, and profits.

However, the proliferation of different eco-labels in the marketplace has since then led to concerns regarding consumer confusion, which may weaken the overall effectiveness of labelling. In turn retailers can “choice edit” information presented to consumers in a manner that is most profitable for them but that may not always serve the public interest. Moreover, multiple incompatible certification systems and labels could present an un-level playing field for fishers and aquaculture producers, and may act as a barrier to trade. Improved co-ordination both domestically and internationally is necessary and would increase the benefits of eco-labels vis-à-vis both consumers and fishers while being minimally trade-distorting. International standardisation work related to eco-labelling in wild capture and inland fisheries as well as in aquaculture has been elaborated, most importantly in the context of the FAO. One challenge moving forward is to ensure that the information given to the public is based on the facts at hand, is reliable, does not make false claims, and provides a basis for consumers to make informed decisions.

Co-operation to tackle fish piracy

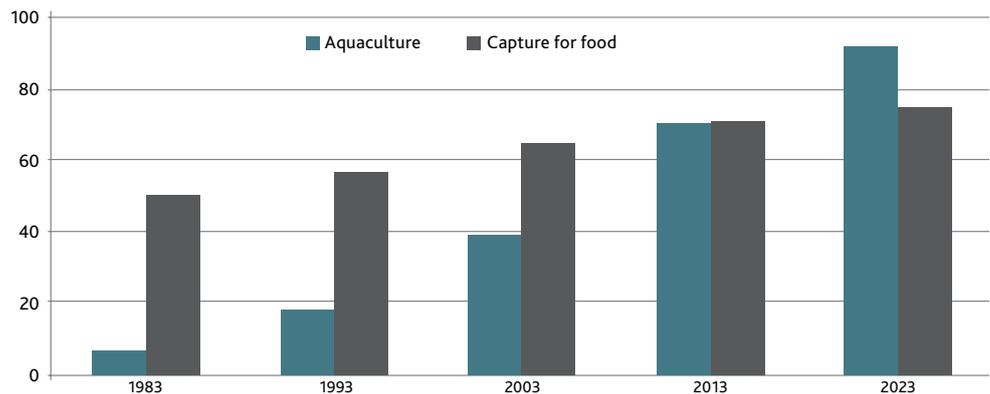
Illegal, unreported, and unregulated fishing is a major challenge to the sustainability of fisheries while also taking its toll on legal fishers and fish markets. IUU occurs in both small-scale and industrial fisheries, in marine and inland water fisheries, as well as in fishing zones falling under national jurisdictions and on the high seas. The issue of “fish piracy” has moved to the forefront of the international fisheries policy agenda in recent years, with governments around the world recognising the gravity of the problem, and stepping up efforts to combat it. However, despite such action, fish piracy continues to be part of almost every fishery and in every size of vessel. While the black market nature of IUU means it is often difficult to identify and measure, the bottom line is clear; fish pirates pursue their activities because it is profitable and will keep pursuing it as long as their revenue exceeds costs.

Higher penalties, more efficient monitoring, control and surveillance measures, and widespread use of catch and trade documentation schemes can increase the cost and risk associated with IUU fishing. Ultimately, for long-term success, international co-operation is needed. One way to do this would be to include all interested parties in the work of the RFMOs and establish management arrangements for areas of the high seas that are currently still unregulated. Sharing lists across countries of vessels engaged in IUU activities and the implementation of port state inspection and certification schemes are additional measures that have been taken in recent years to tackle IUU fishing where it is most obvious, namely, at landing point. Once an IUU fish reaches the market, it becomes very difficult to identify and track, especially for internationally traded fish products.

In 2001 FAO members agreed to a voluntary code known as the International Plan of Action to Prevent, Deter and Eliminate IUU Fishing, outlining various tools for general, flag, coastal, and port states to use to address the challenge. FAO members later began working on developing internationally agreed standards for the implementation of port state measures to tackle IUU, later clinching the binding FAO Agreement on Port State Measures to Prevent, Deter, and Eliminate IUU (PSMA), approved at an FAO conference in November 2009. That agreement is slated to enter into force 30 days after ratification by 25 parties and 11 have done so to date.

However, while more regulation may be a central part in the overall combat of IUU fishing activities, these may be costly to implement. Investing in new, modern surveillance methods such as CCTV on vessels and automatic recognition of fish species brought on

Figure 1: Consumption of fisheries products, million tonnes



Source: OECD/UN FAO, OECD-FAO Agricultural Outlook 2014, OECD Publishing.

board could help to reduce these costs over time. In the case of unreported fishing, better use of existing systems to trace the origins of catches could be put in place, alongside a more generalised use of on-board observers. Private legal operators have a strong incentive to ensure that their markets are not undermined by IUU fishing and can take a more active role in combating illegal activities. For example, they could “name and shame” bad actors, with a view to putting moral pressure on illegal fishing operators and changing the culture in the industry.

Both the code and the PSMA are good regulatory attempts to address IUU fishing. However, as long as it is profitable and as long as some states do not take sufficient action, IUU will not be completely eliminated. Future work at the OECD will also focus on closer links between fisheries enforcement and the organisation’s work on tax evasion. Following the money trail of illegal activities, including IUU, looks to be a new and promising avenue for addressing the problem.

Fish will help feed growing populations

Based on current trends, the OECD-FAO expects that total fish production will grow substantially by 2023, driven entirely by growth in aquaculture production. Aquaculture is estimated to grow 38.2 percent over this period while capture fisheries are expected to increase by only 1.1 percent. However, the annual growth rate in aquaculture is estimated to be only 2.5 percent between 2014 and 2023, which is significantly lower than levels of 6 percent or more that we have witnessed over the past decades. Lower annual growth rates are due to competing uses of the coastal space combined with higher costs of fishmeal, fish oil, and other feeds.

While these predictions are generally positive for the fisheries markets, especially aquaculture products, new disruptive challenges such as ocean acidification and climate change will need to be addressed by policymakers and stakeholders. Fish stocks and particularly calcifying animals, such as oysters and mussels, are vulnerable to changes in ocean pH values, an effect caused by the increasing levels of manmade carbon dioxide in the atmosphere, part of which is subsequently absorbed by oceans. Changing ocean temperatures from climate-warming greenhouse gases will also likely alter the distribution and productivity of fish stocks. In certain areas of the world these phenomena are already having an impact. The shifting distribution of major fish stocks of herring and mackerel in the North Atlantic Sea is a case in point.

These changes could potentially pose challenges to the international trading system. Mechanisms and policy dialogue to address such potential future changes are needed before they occur on a large scale and give rise to major trade conflicts. This is another important agenda item for trade and fisheries policymakers and co-operation across these policy domains could make a significant contribution to future sustainable development.

The views expressed in this article are those of the author and do not necessarily represent the views of, and should not be attributed to, the OECD.



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BIORES INTERVIEW

A view from industry on fisheries trade with Jim Cannon



Jim Cannon

Is the CEO and founder of the Sustainable Fisheries Partnership. Cannon is the advisor on seafood sustainability for McDonald's and Walmart. Cannon has also worked at Conservation International and served as an editor for the UN Food and Agriculture Organization (FAO) World Review of Marine Fisheries. Cannon launched the first Fisheries Improvement Partnership (FIP) in 2002 and Aquaculture Improvement Partnership (AIP) in 2007. You can follow the Sustainable Fisheries Partnership on [Twitter](#). Cannon is also a member of the E15Initiative Expert Group on [Oceans and Fisheries](#).

Fisheries and fisheries trade play a vital role in a number of communities the world over. Trade in fisheries products is extensive and shapes global production. Many wild fish stocks are overfished, however, and the rapid rise of aquaculture has opened up new challenges. Other emerging threats include increased levels of ocean acidity due to higher volumes of carbon dioxide in the atmosphere. In late February BioRes spoke with Jim Cannon, CEO and founder of the [Sustainable Fisheries Partnership](#), on the changing shape of fish trade, the role for supply chains in promoting fisheries sustainability, and how policymakers and the private sector can work together to tackle fisheries challenges.

From your stakeholders' perspective, at ground level of the fisheries industry so to speak, what are the current major challenges to global fisheries sustainability?

[Jim Cannon] It very much depends on where you are sourcing or where you are fishing. We've seen a big expansion in developing country fisheries and that has put a lot of pressure on the stocks. We are seeing evidence of overfishing and environmental impacts being quite widespread.

Moreover, while there are a lot of efforts underway to make improvements happen, it's early days yet. In older or more commercial Western fisheries in Europe and North America we have seen some fisheries improvement partnerships [FIPs] work and a number of these get Marine Stewardship Council [MSC] certified. I think one difference is that, in Europe at least and some other countries as well, the key issues in fisheries reform were related to political will.

In developing countries we are looking at the additional need to improve fisheries science, fisheries collection, enforcement, surveillance – basically all the ingredients for successful fishery management – and many of these are still missing.

Fish are among the most traded food commodities and this necessarily shapes production. What would your predictions be for the major changes in the shape of fish trade over the next ten years?

[JC] Over the next ten years wild production is unlikely to shift dramatically. We may see some overfishing and some rebuilding of stocks but generally I would expect the production to be similar in a decade's time. We will probably see the expansion of cold chain and quality management, resulting in even more products entering international trade than today, meaning that the reach of international supply chains will get further out into more remote areas.

We do expect to see major increases in the aquaculture sector but quite which species and from where is as yet unclear. If you look back over the last ten years and recognise that producers such as Vietnam basically built an entire production industry around pangasius fish, that's likely to be repeated, but it's hard to tell exactly which countries are on the verge of doing the same thing. As a result I would expect to see some major new players emerge and potentially new aquaculture species. We may see an expansion in farm fish coming out of different parts of Africa, that's already happened to a certain extent, and

I think it may continue. But I can't really look into a crystal ball because the history of aquaculture has been one of expansion by leaps if you will.

To go back to your point on the reach of international trade, do you see any challenges or equally any opportunities with that shifting dynamic?

[JC] Increased international trade creates challenges and opportunities. There are of course different types of supply chains. If you have shelf-stable products, or stuff that can be made shelf-stable relatively early on in processing, such fish can come in from very remote areas where cold chain is not an issue. But if you're talking about seafood, any sort of fresh and frozen, that's more restrictive in terms of where to pull the product in from. So there are technological challenges to the industry spreading out.

Another challenge increased trade could bring is potentially a heightened pressure on some of the fisheries resources. But the counter-side to that is there is already a lot of pressure on these resources anyway and by introducing new players in some regions, certainly those who are trying to source sustainably, it could raise the level of sustainability in existing production.

You mentioned the expansion of developing country fisheries earlier. What policy, or non-policy private actor measures, have you seen be the most effective in helping developing countries manage their fisheries exports sustainably across the value chain?

[JC] Certainly the private actor measures we think have been the most effective are around fisheries improvement partnerships, where companies trying to supply to the US and Europe have been asked to look at the sustainability of the fisheries they are sourcing and work together with their competitors, vendors, and producers, to try and do fisheries improvement work. I think that has helped catalyse change in some fisheries. It has also helped to sharpen attention on some of these issues. There's often a long road to travel in some developing economies to build basic fisheries management capacity and infrastructure. However, although it may be a while before we see some of these fisheries really reach a high level of sustainability, many are doing some basic measures and starting out on that journey.

Speaking more broadly, what role do you see for supply chains in improving fisheries sustainability, not just in developing countries?

[JC] I think supply chains have five different things that they are uniquely positioned to do that can effect change. The first is that large processors and exporters tend to be important in local economies, for example, in terms of jobs and export earnings. This gives them the ability to talk to the ministry in charge of fisheries to explain why they are concerned about sustainability and what it means for that country's economy. It's very hard for others to make that case, but when it's the CEO of one of the largest processors or exporters, the ministry will listen.

The second opportunity for supply chains in building sustainability is really around bringing different actors together. Seafood suppliers are often processors of food. They're not fisheries managers or fisherman and so often they are not, or to date have very rarely been, engaged in the fisheries management process. We encourage them to get involved, either directly by contacting the ministry, as well as by engaging the formal consultation processes that are underway, or by joining existing industry associations. Suppliers can help shape the views of industry associations and give them a bit of wider context.

The third way in which suppliers play a unique role is through what we call "control documents," which to date have focused on the question of illegal, unreported, and unregulated fishing [IUU]. The control documents we promote make it very difficult for a trader or a producer linked to illegal fishing to be able to sell any of their stock, whether a specific product is legal or not, to any of the companies participating in the control document scheme. We've seen this system have big impacts in different fisheries around the world and we think that it has a great potential to be expanded. It is also something that could be used to help improve the efficiency of enforcement and surveillance efforts in developing countries where capacity is low.

Catch documentation

In order to tackle IUU fishing, countries may require catch documentation to accompany any fish imports certifying that it was caught in accordance with applicable laws, regulations, and international measures. The EU has put in place this scheme from January 2010.

The fourth way in which suppliers have helped bring up the level of sustainability in fisheries is around procurement specifications. For example, suppliers can reward fishermen who are using lower impact gear.

And the fifth sustainability aspect in supply chains is quite interesting. One of the points that most suppliers will make is that in order to invest in processing capacity or in a brand they need to be assured that source will be there for the long haul and meet their sustainability requirements. We've now got a couple examples of processors actually investing in processing capacity in the producer country as they see improvements being made to the fisheries management. As confidence in the quality of supply goes up, investments go in, with some of the smarter suppliers having made that explicit. It's quite a useful carrot to help governments promote fisheries improvement efforts.

You've mentioned the role of control documents. How else can policymakers work with non-state actors to tackle fish piracy given that illegal, unreported, and unregulated fishing presents a major threat to both sustainable development and fisheries management?

[JC] Control documents work well. It's important to remember that IUU covers a multitude of sins, from very minor technical infringements by otherwise legal operators, to organised crime, "fish piracy" and boats doing nothing but fishing illegally. You can have a very wide range of circumstances and you need different types of actions to address these. If you're dealing with legitimate fishermen who are infringing some rules here and there, that's a very different proposition from trying to combat an organised crime ring, running five to ten or twenty pirate fishing boats in the southern ocean.

Increasingly we are starting to see more vessel blacklists online with the ability to track larger boats. Some of the major buyers are now scanning lists such as the OECD's to make sure none of the boats named there are part of their supply chain. I think that can ostracise large scale illegal fishing operations.

From your perspective, how effective do you think market tools put in place by policymakers are, such as the EU's catch documentation?

[JC] Obviously they are a very good step forward and I am fully supportive. I do think, however, they tend to be a bit of a blunt instrument. But it is good that they draw attention to countries where you have a systemic problem around reporting and monitoring. We've seen some benefit already from the EU's catch documentation proposals and then the yellow/red card scheme has certainly focused minds.

Again I do think the control document approach we've talked about is much more targeted at the bad actors rather than just trying to intercept some of their shipments. But overall there's a good suite of tools out there and a wide range should be used.

Sustainability labelling in fisheries is attracting an increasing amount of government attention. Do you think governments have a role to play in this area and, if so, what?

[JC] It's an interesting question. I don't think governments or government funded marketing bodies should be running certification programmes at the national or sub-national level because there's an inherent conflict of interest in the governments managing wild fisheries "self-certifying" that they are sustainable.

Nor do I think the governments of importing countries should seek to certify sustainability. Individual companies, brands, major retailers, their suppliers all look very carefully at how they manage their brand and their product sourcing.

So we don't see certification of sustainability as a role for governments. I would argue that environmental qualities of seafood or any product is an action for individual brands or retailers to look at and set if they want to go above the legal requirements, that's their responsibility, that's their choice.

Where governments have a very clear role to play is ensuring the claims being made are fair and accurate. Some companies we work with make quite a strong public claim of sustainability and we try to make sure they are doing that on the basis of certified product, independent chain of custody verification, etc. You do have cases where certain governments have yanked claims off of seafood packs – I'm aware of that having happened in France and its certainly been threatened in the UK.

There was also some very good work done in the UK by leading retailers and other groups on a common statement about the type of sustainability claims that they would support. That was a voluntary measure but it's something that governments could perhaps take forward.

That's really interesting. What if you have lots of importing countries with different sustainability standards? Is this a challenge?

[JC] It certainly creates a challenge for producers but I think that's unavoidable. Certainly in terms of voluntary standards, different countries and communities care deeply about a variety of issues, depending on whatever's made the front page of their newspapers over the last ten years or whatever is culturally important. It would be very hard to explain to consumers in Germany, Denmark, or Holland that they shouldn't have such high environmental concerns.

We know that climate change will have impacts such as ocean acidification. How much do you see these changes influencing shifts in productivity?

[JC] There's no doubt we are going to see shifts in productivity in the world's oceans as a result of climate change and marine acidification. We've already seen fish species appearing further north than we've seen before.

We've also seen higher marine acidity cause problems for certain types of fish that have to form a shell. Some of the oyster farms are already looking at adaptation measures, for example, by monitoring the water quality coming in and trying to manage accordingly. However, there may also be increases in productivity in some other areas, so it's not all negative. But it is hard to say what this will mean for trade patterns.

Is climate change something that your stakeholders are taking into account in their planning and sourcing?

[JC] It's increasingly happening in shellfish, yes, and we've also seen some good dialogue and government interest. New Zealand, for example, has led some work recently to raise awareness.

There's a widespread effort to get better data monitoring so we have a better sense of just how marine acidification is occurring and where. Things are moving quite quickly to gain a better handle on this challenge. No matter what you believe about climate change, when it comes to the oceans it's just pH, it's chemistry.

What about leading ideas or trends in the shaping of new governance?

[JC] It's interesting the extent to which trade introduces new stakeholders into what had previously been the providence of national governments in policymaking. In fisheries producer countries, because so much of the product is exported, consumers abroad or the buyers in the supply chain are expressing preferences for how the fishery should be managed. That's shifting governments in some quite interesting ways and it's not clear to me where it will all end up.

Clearly local stakeholders have rights and it's their role to influence national policy priorities. But governments are also trying to protect their export markets and associated revenue so they have to take into account what those markets are looking for as well. I know some countries do increasingly see this it as a threat to their existing governance frameworks. I don't see it as a threat, however, I see it as an opportunity but I think it just depends on your point of view.

CLIMATE CHANGE

Towards sustainable fish food and trade in the face of climate change

Victoria Chomo and Cassandra De Young

How might climate change impact fisheries production and trade? This paper offers a preliminary view of what is known and suggests areas for further research.

The UN [Zero Hunger Challenge](#) aims at providing adequate food for all, making all food systems sustainable, increasing smallholder productivity and income, and eliminating food waste. The capture fisheries and aquaculture sectors are especially important for achieving this challenge as they [provide](#) a world average 16.7 percent of animal protein intake.

In certain regions, namely in the low income food deficit countries (LIFDC), fish contribute on average 25 percent to animal protein intake, and in excess of 50 percent in some small island developing states (SIDS) as well as in Bangladesh, Cambodia, Gambia, Ghana, Indonesia, Sierra Leone, and Sri Lanka.

Trends in fisheries and aquaculture

Like other industries the fisheries and aquaculture sectors face many hurdles to attaining development goals. These include the challenges of managing common pool resources and rising global demand. Add to this chronic overcapacity, harmful practices, increasing incidences of illegal, unreported, and unregulated (IUU) fishing – which negatively impact efforts at national, regional, and global levels to sustainably manage fisheries resources – and finally the observed and predicted impacts of climate change on aquatic resource distribution and productivity of commercially valuable aquatic species.

Some other major changes are also afoot in the fisheries industry. Last year aquaculture production surpassed captured fisheries in providing seafood for human consumption. Aquaculture expanded around 8.3 percent per year during the period 1970-2010 making it the fastest growing food production system.

Farming carnivorous species, however, relies on wild for fish meal and fish oil used in the preparation of feed. For example, salmon aquaculture has the highest fish in-fish out (FIFO). And while the expansion of aquaculture on trade patterns is not always obvious it does nevertheless have an impact on the distribution of income along the seafood value chain.

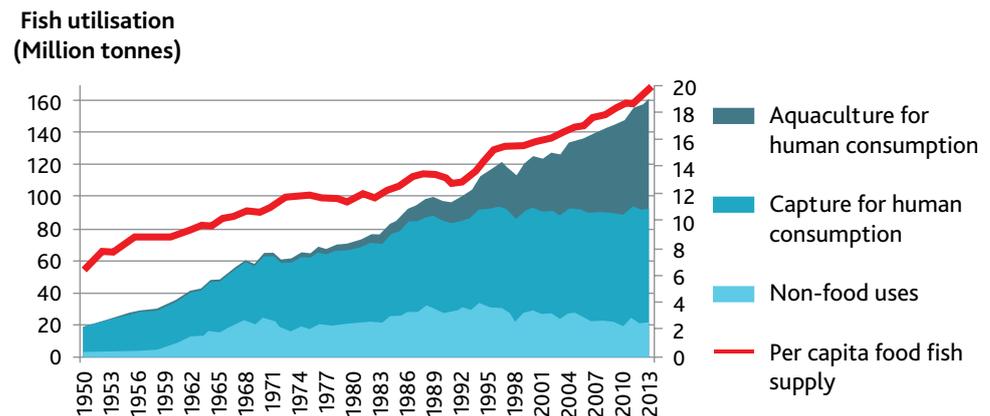
A [joint publication](#) by FAO, the World Bank, and IFPRI – FISH to 2030 – estimates that world fish production will increase by some 20 million tonnes to reach 185 million in 2030, mainly from growth in aquaculture. This will present major challenges in terms of ensuring that the three pillars of sustainability are maintained, namely, environmental, economic, and socially responsible production practices.

The social and economic contributions of the fisheries and aquaculture sectors, including seafood processing and trade, are important and complex. Some 58 million fishers and farmers were in business in 2012 and between 11-12 percent of the world's population depended on fisheries and aquaculture for their livelihoods including fishers, producers, and distributors. Employment in these sectors has historically grown faster than employment in agriculture and faster than world population expansion.

Around 38 percent of fish production enters international markets and this trade is valued at almost US\$130 billion. The majority of this trade, over 54 percent, originates from developing countries.

However, it remains to be seen whether global and regional fish trade can continue to support food and nutrition security and economic growth in fish exporting countries, in the face of climate-induced resource shifts and inflexible market-based measures and trade-tightening policies such as new IUU regulations in the EU. This paper offers a preliminary exploration of the continued challenges to achieve sustainable fish production trade and the possible additional hurdles climate change may present.

Figure 1: World fish utilisation and supply



Source: UN FAO Information and Statistics Branch, Fisheries and Aquaculture Department, 2015.

Current sustainability challenges

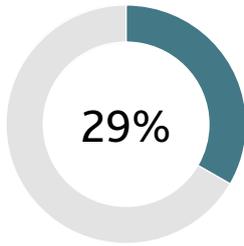
Marine resource sustainability remains a major problem despite efforts in the international community to negotiate agreements for responsible ocean and aquatic resource management and use. Out of the wild fish stocks assessed in the FAO’s State of the World Fisheries and Aquaculture 2014 (SOFIA 2014) report, 28.8 percent were overfished, 61.3 percent fully fished and only 9.9 percent are underfished. The proportion of assessed marine fish stocks utilised within biological sustainable levels declined from 90 percent in 1974 to 71.2 percent in 2011.

The first step in sustainable fisheries trade is to insure that the products are produced in a sustainable agricultural system at the start of the value chain. The 1995 FAO Code of Conduct for Responsible Fisheries (CCRF) sets out principles and international standards for responsible practices with respect to the conservation, management, and development of fisheries.

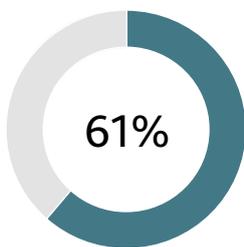
The CCRF explicitly states that one of its aims is to promote “responsible international trade.” Growing global demand and rising prices for seafood has, however, led to IUU fishing and other problems in many national jurisdictions. Evidence from countries themselves suggests that implementation of the CCRF and the ecosystem approach to fisheries and aquaculture is not keeping pace with uncontrolled market forces.

The FAO is tasked with the collection and analysis of self-assessed questionnaires on CCRF implementation submitted by member countries on a biennial basis. The findings highlight some common challenges facing countries in implementing fisheries sustainability and trade-related aspects of the CCRF. These include the complexity of coordinating among all the different responsible ministries and authorities involved at the national level; a lack of qualified human resources trained in sustainable fisheries management; difficulties in monitoring and tracking IUU fishing due to lack of proper coast guards or fishing vessel monitoring systems; the need for support from the respective governments’ in order to align national internal policies with international market requirements; difficulties in establishing and implement traceability systems for activities related to fisheries, especially traditional fisheries; limited capacity to measure the environmental impact

Marine fish stocks



Percentage harvested at a rate beyond biologically sustainable levels.



Percentage fully exploited, no room for further expansion.

Source: UN FAO, *State of the World Fisheries and Aquaculture 2014*.

of fisheries and fishing activities – for example carbon footprint – and to calculate and mitigate the impact of climate change on fishing and aquaculture communities.

One area identified in need of immediate support is the improvement in data collection and analysis especially around artisanal and small-scale operations. Without evidence of sustainable management many of these communities may be unable to meet certain market access requirements. For example, if it cannot be verified that the fishery products sourced by the community are legally caught, then there is no way to distinguish these from IUU fish.

Given that the major seafood importing markets are tightening their regulations to combat illegal activity, this could have serious repercussions for market access of legal fish from “unreported” or “unregulated” fisheries, because the national authorities lack the capacity to collect relevant data and/or enforcement capacity to monitor the length of their coastline to prevent IUU fishing and unrecorded landings. Many North African and West African nations have reported these problems in hindering sustainable management of their fisheries resources.

Climate change impacts on production and trade

Climate change is expected to make the situation of sustainable fisheries governance even more urgent and critical. The full implications, however, of climate change for international trade of fish and fishery products are not well known and require further study on the links between changing resource abundance/distribution and fisheries and aquaculture production at regional and national levels.

It is known that climate change will increase uncertainties and raise risks in the current supply of products from marine and inland capture fisheries. Climate change and increased carbon dioxide absorption in the world's oceans could lead to warming water temperatures; changing ocean currents; southern oscillation; sea level rise; changes in rainfall, river flows, lake levels, thermal structure, storm severity and frequency; and ocean acidification.¹

These impacts could result in changes in total fish catch, composition of the catch, and the distribution of fish, especially within Exclusive Economic Zones (EEZs) in tropic regions, as fish move to cooler waters found further offshore, which could particularly impact small-scale fishers using traditional methods. Extreme weather events and sea level rise are anticipated to impact fisheries-related infrastructure such as ports and fleets, further raising the costs of fishing, processing, and distribution activities.

Climate change therefore has the potential to change the competitiveness of exports from the fisheries sector, the distribution of fisheries production, and ultimately world trade patterns. While some regions may gain from expected resource shifts, others will face major adjustments, which could threaten the sustainability of their livelihoods and food security. Climate-induced movements in aquatic species used by the fisheries and aquaculture sector will require adaptation at all stages of the seafood value chain, from producers, processors, marketers, exporters, and importers as they search for supplies to meet the world's growing demand for seafood.

A model developed to predict the impact of climate change on capture fisheries illustrates a latitudinal shift in currently targeted species that could drastically alter the location of fishery resources (Cheung et al., 2009).² Tropical countries could face up to a 40 percent drop in catch potential of traditional and/or commercially-valuable species. High-latitude regions could gain as much as a 30 to 70 percent increase in catch potential. This has implications for developing countries and small-island states highly dependent on fisheries for livelihoods, export earnings, and domestic food security.³

Box 1: Three national aquaculture case studies

Different conditions for aquaculture exist around the world and different adaptation responses will be needed. For example, although China's population is expected to fall to 1.29 billion by 2050, its current per capita consumption of seafood – 26.5 kg/cap – is expected to rise (Delgado et al, 2003). According to the author's models, climate change is expected to decrease marine capture fisheries production in China by approximately three percent, with resulting fishmeal production estimated to be 0.7 megatons (Mt) by 2050. China's current overall 0.37 FIFO will need to be reduced by over 70 percent to 0.1 to meet a 30 kg/cap per year objective using 80 percent of its national fishmeal production. Technological advances in aquaculture are therefore necessary to fulfil China's fish food demand even with sustained fishmeal imports.

Meanwhile Bangladesh's population, listed as a low human development index (HDI), is expected to grow to 194.4 million by 2050. Fish is a key component of the Bangladeshi diet with a consumption rate of 14 kg/cap per year, making up 50-60 percent of total animal protein intake. The model projects that marine fish production, currently 20 percent of national fish supply by value, may be reduced by five percent leaving aquaculture to produce between 0.3 and 3.8 Mt of fish to achieve national fish consumption targets of 13-31kg/cap. If consumption was increased to 21 kg/cap per year, the FIFO ratio would need to be reduced to 0.025, almost 90 percent lower than the current rate. Recent projections of FIFO estimates suggest that this value could be reached before 2030 for carp aquaculture.

Potential fishmeal production in Norway is predicted to increase by up to 27 percent as a result of the impacts of climate change on small pelagic fisheries due to warming temperatures raising primary productivity and increased fish production. Maintaining current fishmeal imports, salmon FIFO would need to be reduced to below 3 to support a 50 percent increase in salmon production. If salmon FIFO fell below 1, Norway would be able to export 0.23 Mt of fishmeal per annum, while still sustaining current levels of production.

Source: Merino et al., 2012.

Another model was developed to estimate climate change impacts on fisheries production (Merino et al, 2012).⁴ The Merino model predicts a six percent increase in potential yield from large commercially-valuable fish stocks by 2050 but this is less than the expected human population growth rate. The authors propose that aquaculture could fill the gap between future supply and demand but that such intensification will require technological advances, for example, by significantly lowering the FIFO rates as discussed in Box 1.

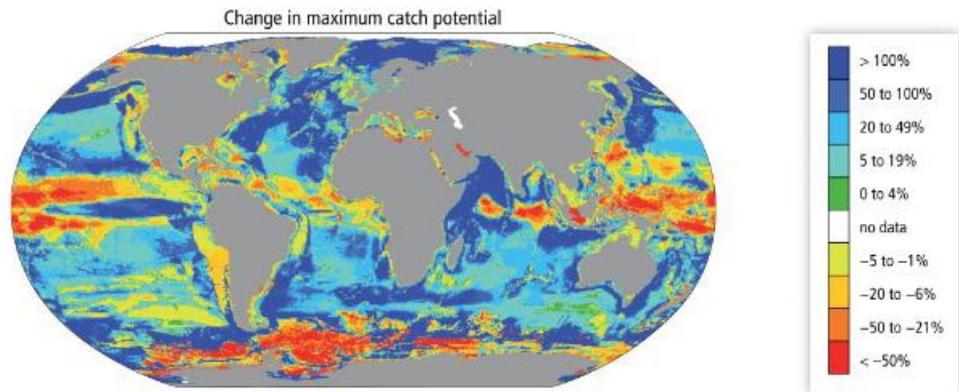
The Merino model does predict one constraint on aquaculture growth due to anticipated falling output from the anchovy fisheries in Latin America under more unpredictable El Nino effects and increasingly severe weather episodes from climate change that will impact the availability of the fish as well as constraints on fishing activity. This is expected to contribute to rising prices and price variability for fish feed ingredients as demand outstrips supply.

Another study is optimistic in its projections that global fish supplies will be able to meet rising global demand in 2050 (Barange et al., 2014).⁵ A redistribution of resources as a result of climate-induced shifts will imply the need for changing trade patterns to move products from surplus to deficit regions. It is possible, however, that the deficit regions will lack the financial resources necessary to pay for these imports.

The 2014 Barange model also combines predicted productivity changes from climate change with measured vulnerability of populations dependent on fisheries resources. The results illustrate that South Asian and Southeast Asian fishing communities are highly vulnerable to the impacts of climate change on fisheries in part due to high population density and dependency on marine resources for food security. Coastal communities in

West Africa are also at high risk, even though the climate change impacts in this region are expected to be less severe, because these populations are less economically able to adapt to changes and thus are more vulnerable. More work needs to be done at national and sub-regional levels in order for these projections to be useful for policymakers, who must decide on how to allocate limited financial resources to assist vulnerable coastal communities to adapt to climate-induced resource changes.

Figure 2: Predicted maximum changes in fisheries catch 2001-2060



Source: IPCC Fifth Assessment Report Working Group II, 2014. 6

Trade and market-based tools

Climate change could exacerbate ongoing efforts to reduce fisheries market distortions, promote sustainable fish trade, and ensure long-term food security. Appropriately designed multilateral and bilateral trade rules can discourage economically unviable and environmentally damaging fishing practices. The international community could also utilise market access and trade policies to foster resilience to climate change in the fish industry including for the most vulnerable communities.

Some essential aspects of trade policy in supporting fisheries and aquaculture adaptation to climate change can be summarised as follows, including recommendations in an earlier ICTSD article [Editor's note, ICTSD is the publisher of BioRes]; eliminate tariff escalation in processed fishery products that discourage value-added production in developing countries; remove non-tariff barriers that do not directly promote human, plant, and animal health or harmonisation of science-based technical standards; eliminate capacity-distorting fisheries subsidies while ensuring national policy space for countries with under-utilised resources and the need to develop their fisheries and aquaculture sectors; encourage product and export diversification through appropriate economic development and trade policies; market and label goods produced following sustainable and legal practices to better inform consumers about their choices and the impact of their consumption on the environment.

At the border, improved trade facilitation rules would promote sustainable fish trade by insuring that these perishable products reach international markets more quickly and thus arrive in high quality to meet market requirements. Improved national trade facilitation rules and intra-regional transport systems based on international standards could develop into better South-South trade links, contributing to long-term livelihood resilience for small-scale fishers and aquaculture farmers, as well as improving regional food security and reducing dependence on international food aid. Increased intra-regional trade would also reduce the carbon footprint of fish trade.

The use of voluntary seafood certification to boost fisheries sustainability, otherwise known as eco-labels, needs to be expanded outside the traditional eco-label markets of North America, Europe, and Japan. While some progress has been made in certifying developing country capture fisheries and aquaculture farms, however, the acceptance of eco-labelled products by consumers in Latin America, Asia, and Africa needs to improve in order for these market-based measures to have an impact on sustainable fisheries management. This is

especially important in Asia where the import demand for fish is fast outstripping demand for traditional food sources, driven by population growth, rising incomes of the new middle class, and changing tastes for seafood products.

Financing for sustainable development is a critical topic this year as governments seek to outline a post-2015 development agenda. In addition to traditional sources of development funding, such as overseas development assistance (ODA) and foreign direct investment (FDI), trade-related assistance such as Aid for Trade and climate change financing mechanisms could be channelled in a complementary and reinforcing manner as part of international efforts to help developing countries improve the sustainability of their fisheries sectors in face of new challenges.

Targeted assistance to strengthen trade-related fisheries infrastructure, including improved boats and equipment to insure safety at sea, stronger ports designed to resist rising sea levels and severe weather episodes, to name a few, could also enhance both the trade-related supply-side capacities and the climate change adaptation needs in the most climate-vulnerable developing countries.

Areas for future work

It is early days for predicting the impact of climate change on marine resources. It is certain that there will be shifts in fish resources with net winners and losers. Linking early predictions with production and eventually trade flows requires significant research efforts, especially moving down from global to regional and national level analysis. There also needs to be more flexibility in existing management tools used by national governments and Regional Fisheries Management Organisations (RFMOs) to allow adequate policy space for countries to adapt to changes in resource availability under climate change.

Ultimately, contributions from all stakeholders – public sector, private sector, and civil society – will be essential to tackle the complex challenges facing the fisheries and aquaculture sectors, particularly given the need to ensure future sustainable development outcomes in a post-2015 development agenda architecture.

The views expressed in this article are those of the authors and do not necessarily represent the views of, and should not be attributed to, FAO.



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ENVIRONMENTAL GOODS AND SERVICES

Can the Environmental Goods Agreement trade talks boost energy efficiency?

Mahesh Sugathan

Energy efficiency measures are sometimes described as the “hidden fuel” in today’s energy mix. This paper explains how a trade liberalising agreement could help scale up products related to energy efficiency.

WTO members of an initiative geared towards concluding an Environmental Goods Agreement (EGA) held a fourth discussion round at the end of January. These talks focused on possible goods related to cleaner and renewable energy as well as energy efficiency to include in an eventual deal. Several EGA participants put forward indicative product nominations along these lines, including products related to hydro-electric equipment, methanol, and hybrid vehicles. EGA participants kick off their next discussion round today focusing this time on goods related to environmental monitoring, analysis, and assessment, environmentally-preferable products, and resource efficiency.

In each round so far, EGA participants have discussed products related to one or more categories of environmental goods, in a bid to ensure the environmental credibility of an eventual list slated for tariff cuts. However, not all EGA participants have yet come forward with indicative product proposals, and EGA participants are only expected to provide their initial product nominations around the beginning of April. After that date tougher talks on the EGA’s scope, tariffs, timeframes, and overall shape are expected to begin. Participants have said that they hope to have made progress on these negotiations in time for the WTO’s tenth ministerial conference scheduled from 15-18 December in Nairobi, Kenya.

The current fossil fuel dependent energy supply sector is the largest contributor to global greenhouse gas (GHG) emissions, responsible for driving planetary atmospheric warming, according to UN climate scientists. Conventional energy sources still account for some 80 percent of the world’s energy supply.

The EGA talks, given the consideration of cleaner energy as well as energy efficiency products, represent an excellent opportunity for trade policymakers to complement emissions abatement and climate change mitigation efforts. Energy efficiency measures, in particular, are often considered to be low-hanging fruit in the fight against climate-warming emissions. Such measures could be further advanced by the inclusion of relevant energy efficiency technologies in a final EGA list.

Energy efficiency to tackle climate change

The International Energy Agency (IEA) expects that by 2050, energy efficiency alone will account for 38 percent of cumulative emissions reductions required to limit global warming below a two degree Celsius rise from pre-industrial levels, with the rest being made up by renewables deployment at 30 percent, carbon-capture and storage at 14 percent, and fuel-switching and nuclear energy at 18 percent. A paper prepared by the World Energy Council has also found that without past energy efficiency improvements G20 countries would be consuming 32 percent more energy today.

In certain cases the use of specific technologies or products can have a major impact on energy consumption and consequently GHG emissions. For instance, motor-driven equipment accounts for around 54 percent of electricity use in manufacturing. The deployment of more efficient electric motors and drives alone is estimated to save

between 20-30 percent of global electric motor demand or 10 percent of all global electricity consumption.

Trade to boost energy efficiency technologies

Trade liberalisation can enable energy efficiency technologies such as solar water-heaters, light-emitting diodes (LEDs), and lighting fittings to circulate more freely in world markets unhindered. The removal of trade barriers lowers the costs of purchasing and deploying such goods for industries, governments, and individuals alike.

Keeping markets open for the highest efficiency class of motors and LEDs, for example, could help in their wider dissemination and reduce the costs of improving industrial and residential energy efficiency. Such high-impact energy efficiency products represent promising sweet spots between trade and environment interests and could be a useful focus area for EGA negotiators.

Trade liberalisation efforts will of course need to be complemented by domestic energy-efficiency policies, regulations, and incentives (PRIs) that constitute major drivers for national market transformation. Such PRIs include minimum energy performance standards (MEPS) and comparable labels for products. However, keeping markets open for energy efficiency technologies by lowering or eliminating import duties represent a policy measure that governments can easily adopt and implement, whereas many domestic PRIs may take time to put in place.

While the case for including energy efficiency products in the EGA is clear, attempts to do so will likely throw up both challenges as well as opportunities, which should be taken into account by policymakers.

Which energy efficiency goods to include in the EGA?

The ease of identifying energy efficiency technologies is an important consideration. Energy efficiency technologies can be conceptualised in terms of both energy efficient products in a performance-based sense relative to other products with the same end-use, as well as energy savings products such as LEDs or plug-in hybrid electric vehicles that minimise system-wide or economy-wide energy consumption – particularly fossil fuel based – when deployed.

From a trade liberalisation perspective it is more challenging to include the former category of products. An energy efficient product such as a highly-efficient air-conditioner, for example, may not be easily identifiable in the absence of internationally accepted certification and labelling. This makes it difficult for trade policymakers to extend zero duties based on the World Customs Organization's Harmonised System (HS) of product customs classifications that rests on the physical description of products.

On the other hand, however, a large number of energy savings products such as LEDs and smart electricity meters or gas meters, may be more easily physically identifiable. Submissions made by WTO members during earlier Doha Round attempts to liberalise environmental goods and services included a large number of energy savings goods rather than energy-efficient products per se. This is also the case for the list of 54 HS subheadings selected by the Asia-Pacific Economic Cooperation (APEC) alliance for applied tariff cuts to five percent or less by the end of this year. EGA participants have said they plan to build on and add to the APEC list.

However, even in the case of energy savings goods, many of these may be grouped together with unrelated products under the same HS subheading at the 6-digit level. For instance, plug-in hybrid electric vehicles are grouped together with gasoline vehicles of the same class under the same HS-6 digit code. The HS covers around 5,000 separate groups of goods identified by a 6-digit code and only few HS subheadings exclusively or predominantly include environmental goods. While zero duties could be applied to the entire 6-digit subheading this would mean that unrelated products would also benefit from tariff concessions.

Next steps

16-20 March Fifth discussion round.

1 April EGA participants each to submit initial compiled list of product nominations for tariff liberalisation.

4-8 May Consultations on EGA lists.

15-19 June EGA negotiation round.

27-31 July EGA negotiation round.

30 November-11 December UN climate talks in Paris, France.

15-18 December WTO ministerial conference in Nairobi, Kenya.

In addition a large number of technologies and components, such as boilers and pipes, may enable energy savings gains only when deployed as part of a system and so individually it may sometimes be difficult to identify such products as being energy-efficient in and of themselves. Other products may have uses in both energy efficiency as well as non-energy efficiency contexts.

EGA delegates and capitals will need to address these considerations as they prepare to submit their initial lists in April. The scope and ambition of the EGA import tariff liberalisation will then depend on modalities hammered out between participants in the coming months.

The final list will ultimately be shaped by how ambitious EGA members want to be, whether they have strong sensitivities for specific products or HS 6-digit subheadings, and practical considerations such as the sunk administrative costs associated with narrow or selective implementation of zero duties. In the latter case, consideration should be given to the fact that the benefits of a selective product liberalisation may be eroded over time, due to broader multilateral or regional trade liberalisation initiatives on all products.

Can the EGA keep up with technology?

An important consideration for EGA negotiators will be whether newer energy efficiency technologies that emerge in time will automatically benefit from import duty concessions extended under the agreement.

This could be the case if the newer technology – potentially representing either a marginal or a dramatic improvement on the old product – falls under an HS subheading that enjoys the tariff concession. In other cases, if the new technology is significantly different and does not fall under the same HS subheadings as the older product or does not yet have an HS subheading assigned to it, EGA members might need to reflect on how best to include it.

To cope with such scenarios delegates should come up with a review mechanism or a similar system to take stock of product developments and ensure that any new energy efficiency technologies left out and deserving of low or zero tariffs are brought into the agreement in years to come.

Moving ahead

While it may be impractical and unwise to raise import duties on products with a low energy efficiency, trade policy can provide at least a competitive leg-up for the most efficient products, initially by ensuring zero tariffs and keeping markets open. Import tariffs may be less of a market access barrier for energy efficiency technologies, however, as compared to non-tariff measures like standards and certification requirements. Import tariffs are nonetheless readily quantifiable and the easiest trade barrier to address initially.

EGA negotiators should seize the opportunity to move forward on import tariff liberalisation on energy efficiency technologies and explore various options for doing so. One of these could involve the categorising of possible energy efficiency product groups into various tiers based on their ease of identification within the HS system as well as their relevance to energy savings in a broader economy-wide context. A first tier of products could comprise those easily identifiable as relevant to energy savings such as LEDs and various types of insulation material.

A second tier would include energy savings products that are easily identifiable physically but are grouped together with non-related products under the same tariff HS subheading including hybrid vehicles.

A third tier of products would be those that are relevant to energy savings but which also have other cross-cutting applications, for example, monitoring and control equipment including switchboards and control panels relevant to energy-efficiency applications.

A fourth tier of products could include spare parts essential for the smooth functioning of energy efficiency technologies but which may also be relevant for non-energy efficiency technologies as well. An important aspect of including this tier would be the possible export opportunities for many developing countries that may be producing such parts and components and which are usually less technology intensive compared to final equipment.

A fifth, and possibly the most challenging, tier to consider would be certain types of energy efficient products based on performance whose diffusion would have a relatively high impact on end-use efficiency. Given that such products can be identified only on the basis of certification and labelling, the best candidates would be products where standards developed by international standard-setting bodies already exist, and for which most or all WTO members are likely to use as the basis for their domestic minimum energy performance standards (MEPS).

A strong candidate in this regard are industrial motors for which the International Electrotechnical Commission (IEC) has developed efficiency classes one to four, with the latter being the highest-efficiency class. EGA members could consider permanently reserving zero-duties for the highest efficiency class of motors. In other words, as more efficient classes are developed, these would automatically benefit from zero tariffs without the need for new negotiations.

A meaningful EGA outcome that promotes the diffusion of energy efficiency products would send a positive signal to the global economy that trade policy can support emissions abatement efforts and systemic long-term decarbonisation.

EGA members could also consider providing duty-free access to whichever product meets their domestic MEPS, even if it does not meet the requirements of an international standard, or if a commonly accepted international standard does not exist. However, while that route might offer negotiators some flexibility to include a wider range of products for import tariff liberalisation such as household appliances, it may not particularly reward the most efficient product in a category.

Trade policy incentives based on zero import tariffs alone might not provide a long-lasting leg-up for energy efficiency technologies. A second phase of EGA negotiations may need to address non-tariff measures and facilitate trade in energy efficiency products through recognition of measures that will need to be pursued outside the trade realm, such as the harmonisation of energy performance standards, mutual recognition initiatives, and standardisation of test procedures for energy efficient products.

Addressing energy efficiency technologies as part of an EGA could also offer benefits for developing countries. As highlighted earlier, EGA members could include energy efficiency related components and other products of export interest, with a view to boosting developing country trade. Ideally trade liberalisation and subsequent diffusion – alongside adequate domestic enabling frameworks – of energy efficiency technologies should help all economies and sectors scale up the use of such technologies.

A meaningful EGA outcome that promotes the diffusion of energy efficiency products would send a positive signal to the global economy that trade policy can support emissions abatement efforts and systemic long-term decarbonisation. This is particularly important given that climate change negotiators are in the process of hammering out a pivotal global emissions-cutting deal under the UN Framework Convention on Climate Change (UNFCCC) in time for a meeting in Paris, France at the beginning of December.



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CLIMATE CHANGE

Switzerland, EU kick off contributions to Paris climate deal

Countries will start outlining their mid-term climate policies in the coming months as part of a universal emissions cutting effort.

Switzerland in late February became the first country to come forward with its national contribution to a planned international emissions-cutting deal due to be signed off at a December climate meet in Paris, France. The move was followed shortly after by the EU, which submitted one contribution for its 28 member states, following consensus between environment ministers earlier this month.

Switzerland commits to reduce greenhouse gas (GHG) emissions by 50 percent relative to 1990 levels by 2030. At least 30 percent of these reductions will be made within the country's borders while the remaining 20 percent can be achieved through financing emissions-cutting projects abroad. The EU commits to a binding target of at least a 40 percent domestic reduction in GHGs by 2030 compared to 1990, with no contribution from international offsets, although an earlier EU Commission [document](#) suggests that this could change if the Paris negotiation outcome warrants a more ambitious target.

The [submissions](#) were made ahead of an end of March target date for countries in a position to do so to outline their "Intended Nationally Determined Contributions" (INDCs). Parties to the UN Framework Convention on Climate Change (UNFCCC) have agreed that these will form the building blocks for a new climate agreement to come into force at the end of the decade. (See [BioRes](#), 14 December 2014)

The universal climate deal will replace the current Kyoto Protocol regime that mandates emissions cuts from so-called developed countries only. Some observers have said that the shape of the new deal is challenging conventional approaches to international responsibility as well as highlighting shifting geoeconomic realities. While parties have said that the new agreement will be applicable to all, the extent of the individual countries' contributions will only become clear in the coming months, although these should include a mitigation component.

Swiss contribution

Switzerland's five-page INDC submission to the UNFCCC secretariat outlines the reference point for its abatement efforts, a time frame, scope and coverage, planning processes, as well as assumptions and methodological approaches.

Following the Lima mandate, the INDC also includes an evaluation of how Switzerland's contribution is both fair and equitable, and how it will help to achieve the overall goal of preventing dangerous manmade climate warming. The INDC indicates that Switzerland will plan its climate policy in 10-year steps and reaffirms the country's indicative goal of reducing emissions by 70 to 85 percent compared to 1990 levels by 2050. A reiteration of the intention to use carbon credits from international mechanisms to achieve this long-term goal is made.

International carbon credits

Switzerland's submission received a mixed reaction among observers, with some experts welcoming the long-term ambition, transparency, and initiative taken by the small but wealthy alpine economy. "However, the INDC allows for the country to heavily use international market mechanisms, such as offsets or through carbon trading, to reach its goals," wrote researchers from the World Resources Institute (WRI) in a [blog](#). "It

would strengthen the contribution if Switzerland undertook further domestic emissions reductions, where much potential still exists, in order to drive ambition and usher in a low-carbon economy," the analysts continued.

Others were more supportive of the Swiss approach. "I think the Swiss INDC is strong. Nothing wrong with offsets per se, as long as the rules lead to additional reductions," Jos Cozijnsen, an emissions trading consultant told BioRes on Twitter.

Switzerland's INDC also specifies that it would use, as appropriate, the new market mechanisms developed under the Convention. The use of international carbon credits and market mechanisms are a hotly debated topic in the UNFCCC talks. Parties remain divided on the role for market mechanisms under the new climate regime, with a variety of formulations on the topic currently listed in a [draft negotiating text](#) for the Paris deal.

Multilateral governance on this topic has also become fragmented within the UN climate process. Talks on a so-called framework for various approaches, geared towards harmonising various market and non-market based mitigation actions that relate to commitments under the UNFCCC, initially kicked off several years ago under a technical body but the discussion has now moved into the negotiating track for the Paris deal.

Meanwhile the Kyoto Protocol laid the foundation for three options for transferring carbon credits between countries. These include international emissions trading, emissions reduction projects between countries with abatement responsibilities, and emissions reduction projects in developing countries. The latter, under the UNFCCC Clean Development Mechanism, has led to the reduction or avoidance of 1.5 gigatonnes of carbon dioxide equivalent emissions according to [official figures](#).

Nevertheless, these abatement approaches have attracted criticism from some countries ideologically opposed to market-based climate solutions, and from others critical of developed economies shirking historical emissions responsibility. Several environmental groups have also raised concerns over the environmental credibility of some carbon credits or projects undertaken.

EU ambition?

For its part the EU's contribution was signalled last October at a meeting of EU heads of state. March's submission builds on this and makes some changes to a proposal put forward by the European Commission in February. (See BioRes, [26 February 2015](#))

Among these, the document now reflects slight revisions to language surrounding treatment of agriculture, forestry, and land use, which had proved controversial among some member states. Rather than a simple inclusion of the sector, which the Commission originally proposed, the EU's INDC now states that policy in these areas relative to the 2030 mitigation framework will be established as soon as technical conditions allow.

Countries such as the UK had said that the inclusion of these areas was not part of last October's agreement. Analysts have said that counting land-use towards the emissions target can lower ambition because this would cover naturally occurring carbon sinks like forests and wetlands. Switzerland's INDC also includes these areas but specifies that an accounting methodology has yet to be developed for non-forest land.

Global effort

The EU Commission's February communication supports a 60 percent global emissions reduction goal relative to 2010 levels by 2050. UN climate scientists last year said that global emissions would need to be cut between 50 to 70 percent below 2010 levels by 2050 to stay within a two degree Celsius warming ceiling from the pre-industrial period.

African environment ministers in early March, however, agreed to a [Cairo Declaration](#) calling for climate efforts to keep the world below a 1.5 degree warming, in other words, requiring between 70-95 percent global emissions reductions.

The newsroom

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African ministers target climate, wildlife trade

African ministers in March called for equal treatment of adaptation and mitigation efforts in a UN climate agreement slated for finalisation at a conference in Paris, France in December. The group said that a global adaptation goal would be important to help drive adaptation investments in and support to developing countries that will feel the impacts of climate change.

Ministers and delegates from 54 African nations were gathered in Cairo, Egypt for the 15th session of the African Ministerial Conference on the Environment (AMCEN) and adopted the Cairo Declaration.

Ministers also pledged to develop and adopt a common strategy to combat illegal trade in wildlife by addressing the drivers of demand and supply. The Cairo Declaration calls for the establishment of an inter-regional co-operation mechanism to combat illegal wildlife trade and further improve the integration of indigenous communities in tackling this challenge.

Illegal trade threatens pangolin populations

Conservationists have warned that illegal trade in pangolin, a scaly anteater, has increased in recent years due to a high demand for its parts for medicinal and food purposes in China and parts of Southeast Asia.

Pangolin are currently the most illegally-traded mammal in the world, with over a million unlawfully caught over the last decade. In Nepal illegal trade of the endangered animal grew by 800 percent over the past five years.

There are eight species of pangolin, four indigenous to Africa, and four to Southeast Asia. All eight are classified as threatened by poaching, although at differing degrees of risk ranging from critically endangered to vulnerable.

Wildlife experts have in the past said that that a major conservation challenge around the pangolin is a lack of awareness. Other campaigners suggest more work should be done at both national and international levels to curb the illegal trade.

Obama's budget makes climate change a priority

US President Barack Obama has put forward a budget of US\$10 billion, out of a US\$4 trillion total 2016 fiscal year proposal, to go towards efforts to mitigate and adapt to climate change. The multi-billion dollar plan would be distributed across multiple agencies, including the Environmental Protection Agency (EPA) as well as the energy and defence departments, and involve various projects, such as disaster preparation and renewable energy development. The proposal houses support for Obama's "Clean Power Plan," an effort to reduce carbon pollution from power plants. It also provides funding for states that surpass standards under the Clean Power Plan in an alleged bid to further incentivise states to cut carbon emissions.

Obama's proposed budget also allots over US\$7 billion to clean energy research and projects. Around US\$1 billion is set aside to aid developing countries in climate change mitigation and adaptation. This includes US\$500 million to help launch the international Green Climate Fund. The proposal will, however, likely face Republican opposition.

EU grants extension to combat illegal fishing

The European Commission in February granted three countries a six month reprieve on a trade ban geared towards helping eradicate illegally caught fish from its market. The EU had earlier issued warnings to the Philippines, Papua New Guinea, and Ghana to clean up their domestic fisheries.

Brussels said in February that over the last six months all three countries, under the watch of the EU, had made progress in tackling illegal, unreported, and unregulated (IUU) fishing. Reform efforts have targeted legal systems, control and monitoring actions, and conformity to international rules. The six month extension will allow the countries to solidify the adoption and implementation of these measures, the Commission said.

The EU introduced its IUU regulation in 2010 with requirements that products entering the bloc be certified as legal by the country responsible for the boat that caught them. The EU is the world's largest fish importer.

UK invests in foreign fossil fuel projects

An analysis of the UK Export Finance (UKEF), a government-based export credit agency, found that it allocated £3.6 million to green energy operations worldwide while spending over one billion on fossil fuel projects during the same period. The main beneficiaries of the UKEF finances reportedly include industries engaged in coal mining, oil and gas exploration, and petrochemical production in countries such as Brazil, Saudi Arabia, and Russia.

The report, commissioned by environmental activists Greenpeace, said that this runs against a 2010 UK government pledge to boost funding for green projects and pull support from fossil-fuel energy production. UKEF has the mandate to decide who to financially back using an export credit guarantee mechanism. This is designed to minimise the risk of making deals abroad for UK exporters. A spokesperson for UKEF said that the agency reviewed environmental and social issues before approving financing. Conventional energy sources account for 80 percent of the world's energy supply. UN climate scientists have said that efforts to move towards sustainable energy systems will be key to tackling climate-warming emissions.

EU new limit on food-based biofuels

The European Parliament's Environment Committee in February backed a draft law geared towards capping the amount of first-generation biofuels – those derived from food crops – used for transport energy, in a move that could ignite tensions between member states over the issue.

Current EU legislation requires that EU member states ensure that renewable energy accounts for at least 10 percent of energy consumption in transport in each member state by 2020. A separate piece of legislation known as the Fuel Quality Directive (FQD) requires a six percent reduction in the carbon footprint of transport fuels by the same year.

The EU environment committee said in February, by 39 votes to 26, that food-based biofuels should not exceed six percent of all transport energy in each member state.

The committee added that subsidies to first-generation biofuels should be limited and their associated direct and indirect emissions should be more comprehensively accounted for.

EU gives green light to GMO crop bans

Rules geared towards allowing the EU's 28 member states to either restrict or ban the cultivation of genetically modified organisms (GMOs) in their territory cleared a final legislative hurdle in March after garnering the support of EU economic ministers.

The EU's Competitiveness Council, a ministerial configuration focused on policy areas such as the bloc's internal market, formally adopted the compromise directive that passed the European Parliament by 480 votes to 159 in January. The topic has proved highly polarising between member states over the past few years.

The directive, as agreed in a political deal between the European Council and Parliament last December, gives member states two options to exercise flexibility over the growth of GMO crops in their territory either during the initial approval procedure or once approved at the EU-level. In a bid to bring some regulatory coherence to a fragmented EU regime around GMO crops the European Commission in July 2010 first proposed the national ban concept. The discrepancies in the EU GMO regime have raised several WTO concerns over the years.

China bans carved ivory imports for one year

China in late February unveiled a new temporary ban on the import of ivory carvings. The moratorium will apply to carved products dating from after 1975 and will be in place for one year. The move is, according to a Chinese official, designed to test the effectiveness of restricting market access in helping to stop the poaching of Africa's elephants.

With an estimated 100,000 African elephants killed for their ivory between 2010 and 2012, conservationists fear that the approximately 400,000 animals remaining in the wild are on track for extinction if such aggressive poaching continues. China has been identified in recent studies as a top destination for illegally trafficked ivory.

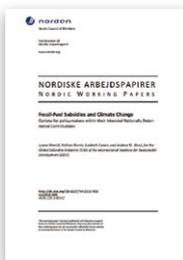
International commercial trade in elephant ivory is banned – barring exceptional circumstances – under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Prior to February's announcement, Chinese citizens were able to import ivory acquired through legal trophy hunting, and limited personal amounts of carved ivory. Smuggling may have increased alongside increasing Chinese workers in Africa.

Publications and resources



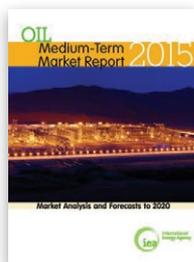
Post 2015: A New Era of Accountability? – UN Statistics Division – February 2015

This paper, presented during a UN Statistics Division seminar ahead of the 46th session of the UN Statistical Commission, discusses the limitations of accountability mechanisms related to the current Millennium Development Goals. The authors suggest that international organisations and rule-making bodies such as the World Bank and WTO have a role to play in assessing structural and systemic progress on addressing poverty. The paper can be accessed at <http://bit.ly/1wVWLgO>



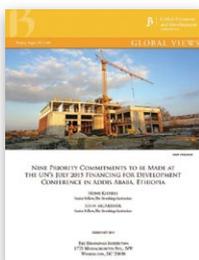
Fossil-Fuel Subsidies and Climate Change: Options for Policymakers within their Intended Nationally Determined Contributions – Nordic Council of Ministers and GSI – February 2015

Governments spend around US\$543 billion annually subsidising fossil fuels. This report from the Global Subsidies Initiative (GSI) finds that removing this public support could reduce global greenhouse gas emissions between 6-13 percent by 2050. The report also outlines steps to include these expected emissions reductions in countries' national contributions to the 2015 UN climate deal. The report can be found at <http://bit.ly/1C2HzAB>



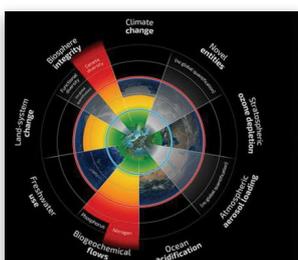
Medium-Term Oil Market Report – IEA – February 2015

The International Energy Agency (IEA)'s report provides forecasts for the oil market. The report finds that the recent drop in oil prices may cause the oil market to rebalance in new ways. The IEA suggests that this is also the result, among other things, of US light, tight oil (LTO) and producers cutting spending due to recent low oil prices. The report can be accessed at <http://bit.ly/185iXJM>



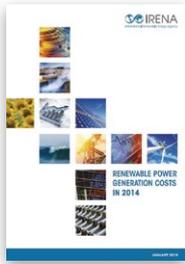
Nine Priority Commitments to be Made at the UN's July 2015 Financing for Development Conference in Addis Ababa, Ethiopia – The Brookings Institution – February 2015

This paper identifies a priority list of nine actions for improvements in global development finance to be considered by policymakers preparing for the Third International Conference on Financing for Development. The authors outline current gaps or issues in each of the nine areas that could present an obstacle to the successful implementation of the planned sustainable development goals (SDGs). The paper can be found at <http://brook.gs/1HpfeTv>



Planetary Boundaries: Guiding Human Development on a Changing Planet – Science – January 2015

This article, published in academic journal Science and authored by researchers from the Stockholm Resilience Centre, suggests that four or nine critical planetary boundaries have now been crossed as a result of human activity. These are climate change; loss of biosphere integrity; land-system change; and altered biogeochemical cycles. The scientists dub the first two "core boundaries" since altering these will drive the earth's system into a new state. The authors suggest that this picture of the earth's limits provides policymakers with a clearer indication of where to take action. More information on the paper can be found at <http://bit.ly/1MomjVB>



Renewable Power Generation Costs in 2014 – IRENA – January 2015

This report by the International Renewable Energy Agency (IRENA) explores global renewable power market trends while comparing the costs of generating electricity from renewable energy sources to those associated with fossil fuel-based electricity. The study finds that some renewable sources, including biomass, hydropower, geothermal, and wind power, are on average competitive with electricity fuelled by coal, oil, and natural gas. The report suggests a positive outlook for the future of renewable energy costs and recommends a shift towards renewable energy as a means of mitigating climate change and advancing sustainable energy systems.

The report can be accessed at <http://bit.ly/1KLoTUx>



Fishing for the Future: Trends and Issues in Global Fisheries Trade – E15 Initiative – December 2014

This paper provides an overview of the intersection between oceans and fisheries issues and trade policy. It surveys the current state and major trends in global fisheries and trade in fishery products; the environmental and social dimensions of fisheries; and explains how the international community has tried to meet the policy challenges of oceans and fisheries using both resource management and trade policy tools.

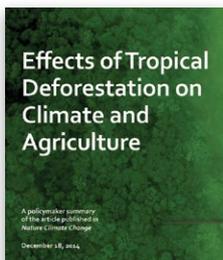
The paper can be accessed at <http://bit.ly/1Aa4XXD>



How to Price Carbon in Good Times... and Bad – Grantham Research Institute on Climate Change and the Environment, GGGI – December 2014

This policy brief, published by the Grantham Research Institute on Climate Change and the Environment and the Global Green Growth Institute (GGGI), evaluates the empirical and theoretical research on how carbon pricing instruments work in times of economic recession and growth. The author provides recommendations on designing climate policies in order to meet the challenges raised by economic fluctuations. The author suggests that these will be particularly important for developing economies where economic activity and annual emissions are less predictable.

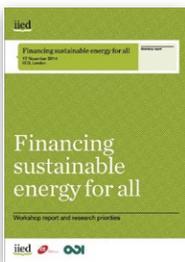
The full report can be accessed at <http://bit.ly/1vE3NGv>



Effects of Tropical Deforestation on Climate and Agriculture – Nature Climate Change – December 2014

This study, published in academic journal Nature Climate Change, looks at a variety of models and recent studies to examine the regional and global impacts of deforestation of tropical rainforests on agricultural productivity and the climate. The report finds that deforestation can cause a rise in mean temperatures, declines in rainfall, and heat extremes, all of which pose a threat to the future of agriculture production in the tropics. The author also suggests that tropical deforestation can have impacts across the globe including by reducing rainfall in regions beyond the deforested area.

The report can be accessed at <http://bit.ly/16QNES7>



Financing Sustainable Energy for All – IIED – November 2014

This report, published by the International Institute for Environment and Development (IIED), compiles and elaborates views expressed in a one-day workshop entitled "Financing sustainable energy for all." The report presents key research ideas developed within the workshop, which are to be used as a guide for further work and discussion between donors, investors, civil society actors, among others. Potential future research themes include the political economy of public sector spending on energy access; public finance for building markets; mechanisms to ensure climate funds are distributed equitably; stimulating local economic development; and social protection, humanitarian assistance and energy access.

The publication can be accessed at <http://bit.ly/1DDWeAL>

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