



Fish for Development

**Sustainable fishing and aquaculture
production in Colombia**

Assessment of opportunities for Private
Sector Development collaboration



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List of acronyms

AIDCP	Agreement on the International Dolphin Conservation Programme
ANALDEX	<i>Asociación Nacional de Comercio Exterior</i> / National Association of Foreign Trade
APC	<i>Agencia Presidencial de Cooperación</i> / Presidential Agency for Cooperation
AUNAP	<i>Autoridad Nacional de Acuicultura y Pesca</i> / National Authority of Aquaculture and Fisheries
CARs	Corporaciones Autonomas Regionales / Autonomous Regional Corporations
CCO	Comisión Colombiana del Océano / Colombian Pacific Commission
CPPS	Declaration of the Permanent Commission of the South Pacific
CENIACUA	<i>Centro de Investigación de la Acuicultura de Colombia</i> / Colombian Centre of Aquaculture Investigation
DIAN	<i>Dirección de Impuestos y Aduanas Nacionales</i> / Colombia's National Tax and Customs Office
EFTA	European Free Trade Association
FAO	Food and Agricultural Organization of the United Nations
FARC	<i>Fuerzas Armadas Revolucionarias de Colombia</i> / Armed Revolutionary Forces of Colombia
FDir	Norwegian Directorate of Fisheries
FEDEACUA	<i>Federación Colombiana de Acuicultores</i> / Colombian Federation of Aquaculture Producers
FfD	Fish for Development
ICA	<i>Instituto Agropecuario Colombiano</i> / Colombian Agricultural Institute
IDB	Inter-American Development Bank
JICA	Japan International Cooperation Agency
ILO	International Labour Organisation
IMR	The Institute of Marine Research
IMR	Institute of Marine Research (Norway)
IN	Innovation Norway
INVEMAR	<i>Instituto Nacional de Investigaciones Marinas y Costeras</i> / National institute of Marine and Coastal Investigation <i>Instituto Nacional de Vigilancia de Medicamentos y Alimentos</i> / National Institute for Drug and Food Surveillance
INVIMA	
IUU	Illegal, Unreported and Unregulated
MADR	<i>Ministerio de Agricultura y Desarrollo Rural</i> / Ministry of Agriculture and Rural Development
MFA	Ministry of Foreign Affairs
MNPPI	National Roundtable on Illegal Fishing and Illicit Fishing Activities
MSME	Micro, Small and Medium Sized Enterprises
MT	Metric Tons
NFD	Norwegian Ministry of Trade, Industry and Fisheries
NMBU	Norwegian University of Life Sciences
NORAD	Norwegian Development Cooperation Agency
NTNU	Norwegian University of Science and Technology
NVI	National Veterinary Institute (Norway)
OECD	Organisation for Economic Cooperation and Development
PLANDAS	National Plan for the Development of Sustainable Aquaculture
PSD	Private Sector Development
SCORE	Sustaining Competitive and Sustainable Enterprises

SECO	<i>Staatssekretariat für Wirtschaft SECO Wirtschaftliche Zusammenarbeit und Entwicklung / State Secretariat for Economic Affairs SECO Economic Cooperation and Development</i>
SENA	<i>Servicio Nacional de Aprendizaje / the National Learning Service</i>
SIU	The Norwegian Centre for International Cooperation in Education
SME	Small and Medium Sized Enterprises
TiLV	Tilapia Lake Virus
TVET	Technical and Vocational Education and Training
UGPP	<i>Unidad Administrativa Especial de Gestión Pensional y Contribuciones Parafiscales de la Protección Social / Special Administrative Unit of Pension and Social Protection</i>
UiB	University of Bergen
UIT	University of Tromsø
UPRA	<i>Unidad de Planificación Rural Agropecuaria / Rural Agriculture Planning Unit</i>
USAID	United States Agency for International Development
VI	Norwegian Veterinary Institute

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Summary and recommendations

Fish for Development (FfD) was launched in 2015, and one of the main pillars of the program is to increase investments and production of fisheries in development countries. It has been decided that FfD should focus on three pilot countries: Colombia, Myanmar and Ghana. This report is focusing on how private sector development within fisheries in Colombia may be operationalised under the FfD program. The Terms of Reference (ToR) defines the following as the purpose of the assignment:

- 1) Provide input into the mission report on mapping private sector status and challenges within Colombian fisheries and aquaculture sector;
- 2) Identify existing or potential partnerships or initiatives in order to achieve Outcome 3: Private Sector entities harness fishery resources and engage in aquaculture production in a sustainable manner.

Colombia is ranked number 59 out of 190 countries in the World Bank's Doing Business Index, and the general business climate is considered good. The general economic outlook for 2018 looks positive, although there are uncertainties on how the upcoming elections might affect the economy. The current government has made efforts to improve the general business climate, and Colombia is currently in the process of becoming an OECD-member, something that is expected to strengthen promotion of business. However, despite a strong legal framework, there are still challenges for private sector development (PSD).

Fisheries and aquaculture represent less than 0.2% of gross domestic product (GDP), but the sector is still important in terms of employment and livelihoods. Some 200,000 people are employed as fishermen and there are about 25,000 aquaculture producers in the country. Fish is increasingly becoming an important export commodity, and national consumption is growing. But even with a growing export over the last few years, there is still a gap between national production and consumption. Although 50% of national production is exported, some 70% of fish eaten in the country is imported.¹ The National Plan for the Development of Sustainable Aquaculture (PlanNDAS) emphasise increase of sustainable production and consumption of fish, as well as assistance to small-scale producers with input, technology and formalisation.

Capture fisheries are in decline, and overexploitation of a number of species is believed to be the main reason. But statistics are highly unreliable, and the industry tends to dispute the quotas being set by the government for this reason. According to Analdex (the national association of foreign trade), the quotas are now so small that many vessels see no point in going out, whereas 70% of the quotas go to the artisanal fishermen. The artisanal fishing sector, however, only sells to the local market and does not have proper landing sites or access to cold storage. The industry claims that the main problem is not overexploitation, but rather the lack of subsidy schemes for commercial fishing.

Aquaculture in Colombia dates back to the 1930s when freshwater rainbow trout was introduced. Production has increased by 91% over the past decade, most of which takes place in inland freshwater culture by small-scale producers. Tilapia represents 62% of the production, Cachama 20% and rainbow trout 15%, whereas the remaining 3% are from native species. Shrimp is the main farmed species in marine waters, but production has shrunk due to diseases and unfavourable exchange rates. There have been trial production of several native species, with promising results. However, research takes time, especially when it comes to breeding and production of fingerlings. This is also why most production in Colombia has focused on species such as tilapia and rainbow trout, which have rapid growth and reproduction. Export is dominated by tilapia, rainbow trout and shrimp.

Despite a comprehensive legal framework, a general challenge is linked to the informal nature of many fishing activities – in particular pertaining to artisanal fishing and aquaculture. Only 2 % of aquaculture producers are formalised², and as little as 1% of producers are currently exporting their product and subject to inspections from ICA (the Colombian Agricultural Institute). The main reason is because producers see

¹ Norsk Sjømat: *Measuring the market potential for Norwegian Seafood in Colombia*, Americas Market Intelligence

² Formalisation in this context consist of obtaining licenses from environmental-, fisheries- and tax authorities.

few advantages in formalising, the red tape by doing so is highly demanding, and the process is very time-consuming. A comprehensive regulatory framework creates a disincentive for formalising.

There is room for growth and investments within both fisheries and aquaculture in Colombia, but perhaps most so within aquaculture. Regarding capture fisheries, lack of data on fish stocks is so fundamental that it is difficult to suggest one thing or another. To the extent FfD should focus on private sector development (PSD) in relation to capture fisheries, it should be included underneath the institutional cooperation between the Colombian National Authority for Aquaculture and Fisheries (AUNAP) and the Norwegian Institute of Marine Research (IMR).

Recommendations

There are several possibilities for PSD initiatives for both fisheries and aquaculture in Colombia, but perhaps most so within aquaculture. An overall recommendation is to do a phased approach, and to start with aquaculture as the main sector for Norwegian-funded PSD interventions. Possible interventions should be carefully planned and monitored, to ensure deliveries under the three objectives of Fish for Development under Outcome 3 (private sector):

- ✓ Output 3.1: Increased investments within the fisheries and aquaculture sectors
- ✓ Output 3.2: Increased aquaculture production
- ✓ Output 3.3: Private Sector have increased knowledge in sustainable fishing and aquaculture production.

There are a number of bottlenecks to aquaculture production in Colombia, however, it is recommended that FfD focuses on a few of these in order to provide practical solutions to some of the main bottlenecks in the value chain, in particular: 1) formalisation of producers, and 2) technology and skills transfer.

It is recommended to develop a comprehensive results overview (dashboard) for all activities underneath the three pillars/components (governance, research/education and private sector development). This is particularly important as many of the interventions will be of relevance for the different outputs and outcomes of the three components. Annexed (Annex 1) is a tentative Dashboard with areas for PSD interventions, activities and target goals. A similar structure may be considered to cover all interventions of a comprehensive FfD country program.

The following interventions should be considered:

1. **Bilateral government agreement on institutional cooperation (chapter post 150.78)**

- ✓ The project proposal will have to be developed by the Colombian government/AUNAP with input from FfD/IMR. Among other things, areas to be explored include institutional capacity building (particularly relating to fish health and research), statistics, diagnostic services, revisions of regulatory framework (for instance relating to "one stop shop" and incentives for formalisation) and possibly also technology transfer – areas of great importance to the private sector. Specific tenders for services underneath IMR's institutional agreement could encompass technology transfer, training and research.
- ✓ The agreement could be managed by the Norwegian Embassy in Bogotá, in close cooperation with the FfD secretariat. IMR may sign an institutional cooperation agreement with AUNAP. Other Norwegian expert institutions such as *the Norwegian Veterinary Institute* and *the Directorate of Fisheries*, as well as different academic institutions and others, may get involved as suppliers to IMR underneath the agreement.
- ✓ As the budget owner is MFA/the Latin-America section, funding must be allocated in close dialogue with the MFA and should be planned for in the Work Plan of the Embassy.

2. **"Strategic Partnership" – a value-chain program for SME development and technology acceleration (chapter post 150.78, 161.70 or 169.73)**

- ✓ FfD could consider establishing a value chain program in Colombia with objectives to: 1) strengthen the industry associations of aquaculture, 2) providing access to credit and/or small grants to SMEs, 3)

providing transfer of technology through an incubator program, and 4) in combination with technical and vocational education and training (TVET).

- ✓ A Project Manager entity for such a comprehensive value chain program should be contracted through a competitive process. A likely candidate would be UNIDO, having a long track record in developing similar programs in Colombia and elsewhere. However, there may also be other possible candidates, which is why contracting the Project Manager should be based on a competitive selection process. Other relevant partners could be FEDEACUA and a Norwegian cluster such as the NCE Seafood Innovation Cluster. This would enable mobilising suppliers of skills and technology, Norwegian and others, based on demand from Colombian producers.
- ✓ UNIDO is already cooperating with SENA (the National Learning Service, in charge of TVET), and one possibility could be to introduce technology and TVET training, but also to focus the project by doing production in line with relevant certification. Another possibility is to focus on export, and bring together several companies to collaborate in a cluster approach. This would enable small-scale producers to collaborate and learn from more experienced producers.
- ✓ A full program should be developed in a phased approach, gradually developing interventions based on needs identified and available funding. The first phase should be to develop a more comprehensive value chain study of the sector, providing a thorough baseline and design for possible interventions. The Project Manager could potentially undertake such an assignment as a pre-project phase study, before designing a full project proposal with the involvement of all relevant stakeholders.
- ✓ Funding could come from Norad/Section for Private Sector Development over the grant-scheme for framework conditions and "Strategic Partnerships", potentially funded by the Education allocation. This would both ensure a competitive process, and thorough vetting/due diligence of the Project Manager. However, a second option is to fund such a project over the regional allocation, in which the Embassy will manage both dialogue, call for proposals and contractual obligations/follow-up. This would ensure that the Embassy is in full control, and may also be easier to handle if a joint funding program is to be considered. However, this option would also entail more management at the embassy level.
- ✓ The budget owner of 161.70 is MFA/Section for Trade and Industry in cooperation with Norad's Section for Private Sector Development. Funding must be allocated in close cooperation between the relevant sections, and should be planned for in the 2019 Work Plan of the Embassy.

3. Individual grants to companies over the Enterprise Development for Jobs scheme (chapter post 161.70)

- ✓ There are already companies that have highlighted their interest for applying for grants under the Enterprise Development for Jobs scheme. However, most aquaculture companies are largely unaware of the possibilities, and Norad/the Embassy should consider how to mobilise further interest.
- ✓ Most of the companies that have highlighted their interest are suppliers, and per definition export companies. A challenge is that the grant scheme is intended towards projects/enterprises looking to invest and establish local production, and not export. In this case, however, export would entail a valuable input to local producers with high development impact.
- ✓ It is recommended that FfD maintains a close dialogue with the Private Sector Section in Norad for the next call for proposals. It is also important that coordination and dialogue is maintained with enterprises receiving support over the grant scheme, as this could be a valuable input to the bilateral cooperation. As an example, Pharmaq is likely to work closely with government agencies such as ICA, and it would benefit the institutional cooperation to have close cooperation and dialogue with Pharmaq pertaining to training, needs, etc.

1. Introduction

In 2015, the Norwegian Minister of Foreign affairs, Mr Børge Brende, launched the Fish for Development Programme (FfD). The secretariat of the program is located in Norad, whereas an interdepartmental advisory group has been established, consisting of the Norwegian Ministry of Trade, Industry and Fisheries (NFD) and the Ministry of Foreign Affairs (MFA). Strategic decisions are to be taken by the MFA, including guidelines and thematic and geographic priorities.

The FfD program is an umbrella program for all Norwegian fisheries related development projects, constituted by three components:

- ✓ Governance and management,
- ✓ Education and research, and
- ✓ Private Sector Development (PSD) and aquaculture.

Underneath the third pillar, the intended outcome is that: "Private Sector entities harness fishery resources and engage in aquaculture production in a sustainable manner." Outcome 3 has the following outputs:

- ✓ Output 3.1: Increased investments within the fisheries and aquaculture sectors
- ✓ Output 3.2: Increased aquaculture production
- ✓ Output 3.3: Private Sector have increased knowledge in sustainable fishing and aquaculture production.

Increasing support to Private Sector Development is also a general priority of the Norwegian government, as mentioned in the White Paper "Meld. St. 35 (2014-2015) Working Together." Fisheries and marine resources are identified as one of the sectors where Norway will give special priority, both in terms of allocation of funding as well as cooperation development dialogue. Other Whitepapers such as "Meld. St. 22 (2016-2017) the Ocean in foreign and development policy", and "Meld. St. 24 (2016-2017) Common responsibility for the common future - Sustainability development goals and Norwegian development policy" also highlights the importance and political priority of blue economy and fisheries.

According to the FfD Steering Document, it is a goal to increase investments and production of fisheries in development countries. The private sector must contribute to what is referred to as "competent capital", i.e. knowledge of production, processing market and export of products. At the same time, government authorities must contribute with an enabling business climate, as well as rules and regulations for sustainable production within fisheries. PSD initiatives underneath FfD may be in the form of support to strengthen government regulations and management, research and development (for instance relating to fish health, veterinary services, etc.), infrastructure investments, support to private companies, civil society, etc.

The interdepartmental advisory group of FfD has proposed that the program should concentrate on a few pilot countries. The Norwegian MFA thus decided to prioritise Colombia, Myanmar and Ghana. This report is an input to how cooperation on private sector development within fisheries in Colombia may be structured, assessing both challenges and opportunities of possible interventions.

1.1 Colombia fact-finding mission

FfD shall be a demand driven program, based on needs and requests from potential partner countries. FfD programs shall focus on poverty alleviation, participation, transparency and fair sharing of resources, as well as gender equality. In 2017, three countries were chosen as main collaboration countries underneath FfD: Myanmar, Ghana and Colombia.

Selecting Colombia as a main collaboration country was based on a request from the Colombian National Authority of Fisheries and Aquaculture (AUNAP) received in 2016. As a follow-up of this, a Norwegian delegation visited Colombia in February-March 2017, followed by a Colombian delegation to Norway in August 2017. In October 2017, AUNAP presented a concept note for areas of potential collaboration: "Promoting Sustainable Fisheries and Aquaculture in Colombia." The concept note outlines nine different areas of possible cooperation:

1. The Nansen programme
2. Statistics
3. Combat of illegal fishing
4. Process technology
5. Aquaculture regulation (with AUNAP)
6. Aquatic animal health/veterinary service
7. Antimicrobial resistance surveillance
8. Aquatic animal health surveillance and diagnostics
9. Postgraduate studies

The Institute of Marine Research (IMR) of Norway was commissioned by Norad to lead a new fact-finding mission to Colombia in February/March 2018, to further investigate to what extent the areas suggested by AUNAP may form the basis for cooperation underneath FfD. AUNAP prepared the program for the Colombia visit, with input from the Norwegian Embassy in Bogotá and IMR.

The delegation was constituted by a number of different institutions relevant to research and management of fisheries in Norway: Mr Reidar Toresen and Jannicke Bergesen Clarke from IMR, Ms Else Marie Djupevåg from the Norwegian Directorate of Fisheries (FDir), Mr Amund Måge from the University of Bergen (UiB) and Ms Brit Hjeltnes the Norwegian Veterinary Institute (VI), as well as Mr Hans Peter Melby from Norad, and Ms Kirsti Andersen from the Norwegian Embassy in Bogotá.

KPMG was commissioned to be part of the delegation, based on a separate Terms of Reference (ToR), providing input to a mapping of private sector and strategic partnerships within the fisheries and aquaculture sector. The findings from KPMG's assignment were to be formulated in a separate report to Norad, with the following purposes:

1. Provide input into the mission report on mapping private sector status and challenges within Colombian fisheries and aquaculture sector;
2. Identify existing or potential partnerships or initiatives in order to achieve Outcome 3: Private Sector entities harness fishery resources and engage in aquaculture production in a sustainable manner.

The assignment included participating in the IMR mission to Colombia, as well as meetings with relevant parties in Norway prior to the visit. In accordance with the ToR, KPMG took part in most of the program and field visits in Colombia, but also arranged separate meetings to focus more specifically on private sector aspects.

This report is intended as an input to discussion on programming of PSD initiatives that may contribute to outcome 3 of the ToR of the fact-finding mission: "Private Sector entities harness fishery resources and engage in aquaculture production in a sustainable manner." Main findings of this report have also been included in the IMR report.

This report is the product of the author, and the findings, interpretations, conclusions and recommendations presented in this report do not necessarily reflect the views of Norad and the Fish for Development secretariat.

2. Methodology

The assignment was undertaken by Mr Knut Lakså (Senior Manager KPMG) – Private Sector Development Expert. Mr Oddbjørn Vegsund (Partner, KPMG) performed quality assurance and has acted as the engagement partner for the assignment.

The assignment has been conducted using a combination of document review, semi-structured interviews and data-analysis. The analysis is based on triangulation of data collected through interviews and document reviews.

The documents reviewed can be grouped into the following;

- ✓ Policy documents related to the purpose and mandate of the FfD program, including relevant White Papers to the Norwegian Parliament (Storting), different Grant Scheme Rules, etc.
- ✓ Background documents about fisheries in Colombia, including Colombian development plans, reports from different UN Agencies and the World Bank, investment studies, academic studies and internal reports (see Annex 4 for full list).

A total of 24 semi-structured interviews were conducted, in addition to a number of joint meetings with participation from Norad, IMR, the Norwegian Veterinary Institute, University of Bergen and the Colombian Government. The interviews can be grouped into two tiers:

The first tier includes interviews in Norway, to assess the possibilities and interest of private sector development cooperation among Norwegian stakeholders.

The second tier of interviewees include Colombian stakeholders: private sector, governmental, donors, multilaterals and NGOs (see Annex 3 for full list).

The second tier of interviews were all conducted during the fact-finding mission in Colombia (20. February - 3. March 2018).

3. Context and background

3.1 Trade and private sector in Colombia – a brief overview

Colombia is ranked as number 59 out of 190 countries in the World Bank's Doing Business Index³, and the general business climate is considered good. GDP grew by 1.8% in 2017, and investments grew by some 0.3%. The general economic outlook for 2018 is positive, mainly due to improving wages, ease of inflation and increased access to credit and lower interest rates. However, there is also some uncertainty on how the 2018 parliamentary and presidential election will affect the economy, in particular if conservative parties opposed to the peace agreement win an absolute majority.⁴

The current government has had a pro-business policy, and has made efforts to reduce bureaucracy relating to establishing new businesses. Colombia is also in the process of becoming a member of the OECD, something that is expected to strengthen promotion of business. Despite a strong legal framework, there are still some distortions, and long-term financing remains difficult for smaller companies.

The capital market has been strengthened, and interest rates have been eased the last few years. Lack of access to finance for small and medium sized enterprises (SMEs) has been considered a main obstacle in the past, however, credit institutions have in recent years grown the exposure to SMEs significantly with the support of governmental subsidy programs such as the Innpulsa program.⁵ Micro- (MSMEs) and SMEs represent a key part of the economy, and some 80.8% of the workforce is employed by SMEs.⁶ Informality is common, especially in the rural areas, and formalisation is often constrained by the family nature of businesses. Lack of managerial quality is critical, in which many SMEs are unable to take advantage of opportunities for growth. Still, the number of formal enterprises is on the rise. Within aquaculture, only 2% of producers are formalised.

The Colombian tax system is highly complex, although there is an ongoing process of reducing the full corporate tax from 40% to 33% in 2019. There have been efforts from the government to tackle tax evasion, which is considered a general challenge.

The government has also tried to increase employment of vulnerable groups, and has had a particular focus on the reintegration of ex-combatants. A number of reforms have been presented in relation to the peace agreement signed with FARC. However, many reforms have had a limited impact due to weak capacity on implementation, for instance relating to the implementation of the *Ley de Víctimas y Restitución de Tierras* (victims and land restitution law) as well as delay in the preparation of special zones for the temporary housing of demobilised combatants. The peace agreement is also linked to President Juan Manuel Santos' fight against illegal drugs, as well as a key issue of financial backing from the USA. A clear strategy is towards crop substitution, and to offer economic alternatives to the production of coca. In Tumaco, an area strongly affected by coca production and armed groups, USAID has actively supported shrimp production as an alternative to production of illicit drugs. However, recent evidence indicates that crops and cocaine production have increased in the country (EIU, 2018).

Colombia has an open and flexible policy towards foreign investments, in particular within hydrocarbons, mining, road construction, energy, agri-business and telecom. Bilateral investment treaties and free-trade agreements are enforced. Further trade integration is focusing on the Pacific Alliance, including Chile, Peru and Mexico. In 2008, Colombia signed a free-trade agreement with EFTA⁷, in which most industrial goods, including fish and other marine products, will benefit from duty-free access to the EFTA markets. The agreement includes provisions on state trading enterprises, sanitary and phytosanitary measures, as well

³ www.doingbusiness.org

⁴ The Economist Intelligence Unit (2018): www.eiu.com

⁵ <https://www.innpulsacolombia.com/>

⁶ OECD (2016), "Colombia", in *Financing SMEs and Entrepreneurs 2016: An OECD Scoreboard*, OECD Publishing, Paris. http://dx.doi.org/10.1787/fin_sme_ent-2016-13-en

⁷ See: <http://www.efta.int/free-trade/free-trade-agreements/colombia>. The EFTA states consist of Iceland, Liechtenstein, Norway and the Swiss Confederation.

as technical regulations and subsidies. The agreement also includes improvement of the legal framework pertaining to non-discriminatory rights of commercial presence, as well as intellectual property rights. However, corruption and a weak judiciary undermine the general business climate.

Colombia is ranked as no. 96 in Transparency International's Corruption Perception Index⁸ and perceptions have not changed, despite efforts to improve rule of law such as a new Anti-Corruption Act in 2011 and a new anti-corruption office in the Presidency. Corruption in the public sector has affected many investment projects, and according to the EIU (2018), evidence of such practices have sharply increased recently. In the past, corruption allegations largely affected lower levels of public administration, however, recently also upper levels of government and the judiciary have been subject to such allegations. The latter is also suffering from politicisation, inefficiencies and backlogs, and delays of 5-7 years in civil trials are common. Reforms to improve the justice system and strengthen its independence are pending, and constitutes an important hindrance to the general business environment.



Figure 1: Fish is increasingly becoming an important export product. Photo: Knut Lakså

3.2 Fisheries and aquaculture's relevance to the economy

In general, fisheries and aquaculture is not among the top prioritised sectors by the government, although the focus may have changed somewhat in recent times due to the fall of petroleum production and revenues. Fisheries and aquaculture represent less than 0.2% of GDP, most of which is constituted by the companies targeting the export market.⁹ However, the sector is still important in terms of employment and livelihoods. Some 190,000 people are employed as fishermen (industrial and artisanal), and there are about 25,000 aquaculture producers in the country. A number of companies pertaining to capture, processing, import, export, sales, import, equipment, processing, etc., are involved.

Colombian consumption of fish is relatively low compared to global consumption: 6.7 kg per year/per person compared to a global average of 20 kg per year.¹⁰ Still, in many rural areas, fish consumption is regarded as an important source of proteins to the local population that may be further exploited.

Fish is increasingly becoming an important export commodity, in particular to the USA and Europe. But despite a growing export from both capture fisheries and aquaculture, there is a trade imbalance in which Colombia imports more fish than what is being exported. Total exports generated by fishing and aquaculture in Colombia amounted to about USD 150 million in 2013, whereas imports reached USD 225 million (ibid). Even with a growing export over the last few years, there is still a gap between national production and consumption. In 2014, total fish consumption reached 286,000 MT whereas national fish production reached some 149,039 MT.¹¹ With the launching of the National Plan for the Development of Sustainable Aquaculture (PlanNDAS), there is a clear emphasis on increasing the sustainable production and consumption of fish, as well as to assist small-scale producers with input, technology and formalisation.

Most companies are national, but there are also foreign investments and collaboration involved. Development aid has played a role, as support from agencies such as FAO has contributed to the development of management plans and policies. UNIDO has worked on improving standards and production quality, and donors such as USAID, the EU-commission, the Inter-American development bank (IDB) and JICA have supported projects related to fisheries.

⁸ www.transparency.org

⁹ OECD (2016)

¹⁰ AUNAP (2016) and FEDEACUA (2016)

¹¹ Americas Market intelligence for Norsk Sjømat (2016): *Measuring the market potential for Norwegian Seafood in Colombia*

Trout, tilapia and shrimp from aquaculture, and tuna and shrimp¹² from capture fisheries, are the major export products. But whereas industrial fishing is declining, aquaculture is rising, both in terms of production as well as the export values.

According to ministry of Agriculture (MADR), the total export value of tilapia, trout and shrimp has increased from USD 66.6 million in 2016, to USD 77.6 million in 2017 – an increase of 16.5%. The increase in export value has grown steadily since 2012, but the most promising growth is perhaps within shrimp that has nearly doubled its value from 2015 – from USD 16.85 million till 28.67 million in 2017 (includes both cultivated and captured shrimp).



Figure 2: Export of aquaculture has increased substantially from 2006 - 2016. Source: FEDEACUA (2018)

It is likely that this trend will continue, especially as there are promising results from farming of new, native species as well as the promising growth of shrimp farming. The government has also increasingly focused on aquaculture as a growing sector.

Nonetheless, there are some very clear challenges ahead, both in terms of incentivising further growth, increased investments and sustainability.

3.3 Ocean and Inland Fisheries

Colombia has a vast continental area, with coasts to both the Pacific and Atlantic oceans of some 1300 km and 1600 km, respectively. In addition, the country has a great amount of inland basins with abundant access to water resources. The country has high biodiversity with a combination of fresh, brackish and marine waters, and one of the planet's richest fish diversity. All of this puts the country in a relatively good position for both capture fisheries and a vast potential for aquaculture development. However, the richness of biodiversity also implies a modest abundance of each species, and harvest is therefore modest compared to neighbouring countries.

The industrial fleet mainly focus on tuna and shrimp, which are mainly harvested for the export market by using bottom trawlers and longline vessels.¹³ Industrial fishing only takes place along the coasts, whereas inland fisheries are solely undertaken by artisanal fishermen mainly for local market and consumption (see. 3.2.2). The tuna fisheries is by far the largest ocean fishing industry, representing some 80% of fisheries and 40,000 MT produced per year. The annual processing, mostly canning, constitutes some 80,000 MT per year, as also foreign vessels are landing their tuna in Colombia. It is still a highly profitable business and is located in a special economic zone with reduced taxes. There is also a processing plant for lobsters in San Andrés, as well as a shrimp processing plant in Cartagena.

However, capture fisheries are in decline. In 2013, some 70,000 MT was captured, approximately half of what was annual capture during the 1990s.¹⁴ Overexploitation of a number of species is believed to be the main reason for this, and AUNAP and INVEMAR (the Marine Research Institute of Colombia) have undertaken surveys in order to quantify the fishing potential in the Caribbean and Pacific coast. Recently, the government introduced a 72 day closure of tuna fishing. Statistics are unreliable, though, which is why the Colombian government has requested assistance from the Nansen program to assess and produce information about the fisheries resources. On the other hand, this is not likely to be a long-term solution to provide reliable data over time, there is a need to develop national systems.

The industry points to the lack of proper data and tends to dispute the quotas set by the government. Also the OECD¹⁵ points out that reliable statistics are critically missing for both the fisheries and aquaculture sector, and it is clearly one of the biggest weaknesses in the whole management system of the fisheries. According to Analex (the national association of foreign trade), the quotas are now so small that many

¹² Note: cultivated shrimp is also an important export product.

¹³ FAO (2017): *El buceo en la pesca y la acuicultura en América Latina y el Caribe*

¹⁴ MADR (2014) in OECD (2016)

¹⁵ OECD (2016): *Fishing and Aquaculture in Colombia*

vessels see no point in going out, whereas 70% of the quotas go to the artisanal fishermen. The artisanal fishing sector, however, only sells to the local market and does not have proper landing sites or access to cold storage. Shrimp fishing used to be a large industry some 25 years ago, with a total of 120 operational vessels. As of today, there are only seven vessels operating. Production of fish meal in the Pacific also used to be a big business, with an annual production of some 30,000 MT. However, today this production is entirely gone.

3.3.1 Lack of economic incentives

According to Analdex, the problem is not only overexploitation of resources, but rather that the government is not providing subsidies for industrial fishing, thereby not creating any incentives for commercial fishing. The only support provided for fisheries is targeted towards artisanal fisheries, and tend to be much politicized, according to Analdex. Accordingly, there are a number of species that are currently underexploited, such as sardines and dorado, which could potentially form a basis for further growth of the sector. However, for this to happen, it would be necessary to incentivise the sector further. It should be mentioned here that the tuna-canning factory in Cartagena, is located in a special economic zone with a lower tax rate (20%), which obviously, constitutes an economic incentive provided by the government.

In 1990, a temporary article of Law No. 13/1990 was introduced to provide incentives to the industry, allowing for duty-free import of vessels and equipment to both aquaculture and fisheries.¹⁶ However, the article was only temporary, and was not prolonged after 2000. As a result, import is very expensive for the industry, and there are no other subsidy schemes in place. For this reason, the Colombian fleet of today is very old and lacks new equipment such as modern long liners and multipurpose vessels. There is a real need to reconvert the fleet and adapt the fishing gear and methods in order to access new resources, however, this must be carefully considered as to not further instigate further overexploitation of certain species. The industry claims the general tax level is too high in Colombia, leading to a relatively small and diminishing formal sector. Commercial banks do generally not provide any credit to fishermen, and is not incentivised by the government to do so either. Adding to this, Analdex is concerned that an OECD membership may prohibit any public subsidy scheme or efforts to incentivise the fisheries.

As a result, many have flagged out to neighbouring countries such as Panama and Ecuador, where taxes are at a minimum, fuel is cheaper and vessels and equipment may be imported at a cheaper cost.

3.3.2 Artisanal fishing

There are approximately 190,000 artisanal fishermen in Colombia, both inland and marine waters. In the continental Caribbean, fishing activity is carried out by boats with outboard motors or in canoes or – sometimes – in sailboats. Fishing gear varies, but is dominated by trawls, hand lines, longlines and scuba diving; mainly capturing snappers, jacks and some pelagic species.¹⁷ In the Pacific region, artisanal fisheries mainly catch pelagic fish such as tuna, dorado and horse mackerel, as well as demersal fish (snappers, groupers and hake). In addition, there is some harvest of snail and lobsters using divers. There have been reports of diving accidents, and few of the divers have proper certifications or related technical training.

More of the artisanal fishing communities have recently been organised in legal associations, and receives some support from the government. Many are poor, and the sector relies on support as many are not able to meet basic needs, hence, the government has focused on fisheries from a livelihood perspective – but less so in terms of fisheries as an industry. Hence, there have been few attempts to commercialise the artisanal sector. Local fishermen have no proper landing sites, and no storage facilities or access to cold chain. According to Analdex, some 70% of the quotas are given to the artisanal fishermen. However, many operates without proper licensing, using illegal methods such as small gill nets, illegal hooks, etc. Fishing in inland waters is essentially artisanal, and overexploitation is believed to be a serious concern. Though, statistics are largely unknown.

Monitoring and enforcement of regulations of the artisanal fishing sector is a challenge, and need to be improved according to OECD (2016) in order to improve the sustainability of the sector. FAO and AUNAP are working to develop a national ship registry of artisanal and industry vessels, as well as promoting and undertaking training programs and support to fishery associations. There have also been attempts to simplify the registration process of small-scale fishers, including a reduction of the fees.

¹⁶ Ley 13 de 1990, Artículo 67

¹⁷ FAO (2017)

3.4 Aquaculture

Aquaculture in Colombia dates back to the 1930s when freshwater rainbow trout was introduced.¹⁸ Marine aquaculture started in the 1970s with introduction of mangrove oyster, and in the 1980s marine shrimp was introduced with the intent of export. In the 1990s, research took place on cultivation of the spotted rose snapper (in the Pacific) and the mutton snapper (in the Caribbean) as well as scallops in the Caribbean. Culture technology for non-native species (trout, tilapia and carp) were further developed during the 1980s, and trout and tilapia have become the main species for production and export. In 2008, these were defined as exotic invasive species, and only allowed for exploitation under specific technical conditions in order to prevent escapees. This decision also made import of genetically modified brood stock illegal. However, recently, the Ministry of Environment decided to declare these species as domesticated, opening up for import of improved genetics. Still, the import is subject to special approval by ICA.

Since 2015, AUNAP has in collaboration with the Rural Agriculture Planning Unit (UPRA) worked to establish a national plan for the productive management for aquaculture and fisheries. The plan is to establish zoning of potential areas ideal for different kinds of cultivation. Prioritised species are tilapia (silver and red hybrid), rainbow trout, white shrimp, cachama, pirarucu, and several native fish species.

Aquaculture production has increased steadily over the past 10 years, with a production of 63,052 MT in 2007 to a total of 120 360 MT produced in 2017¹⁹ - a 91% increase. Tilapia amounts for 62% of the production, Cachama 20% and trout some 15%, whereas the remaining 3% are from other native species. However, export is dominated by tilapia, trout and shrimp, amounting to a total of 10 881 MT exported in 2017.²⁰ The production is dominated by inland freshwater culture, and many small-scale farmers (producing approx. 1/3 of the volume). Shrimp is the main farmed specie in marine waters, but production has shrunk due to diseases and unfavourable exchange rates. However, the past few years, production has started to pick up again.

In 2013, the National Plan for Development of Sustainable Aquaculture was launched, with the assistance of FAO, focusing on increasing the sustainable production and consumption of fish. The plan also has as an important objective of supporting small-scale producers with input, technology and formalisation

3.5 Legal framework

Governance of the fisheries and aquaculture sector is a shared responsibility underneath the Ministry of Agriculture and Rural Development (MADR) and Ministry of Environment and Sustainable Development (MADS). The latter has a central responsibility for sustainable development, as defined by the Constitution and the Law no. 99/1993 regarding environmental management.²¹

Fisheries and aquaculture is mainly governed by the Law No. 13/1990 and the General Fishing Statute (EGP). The aim of the law is to establish a framework for the integrated management and sustainable exploitation of fish resources. It further regulates the fisheries sector composition and operation, fisheries activities, such as research, extraction, fish processing, marketing, aquaculture, the permitting system, etc.²²

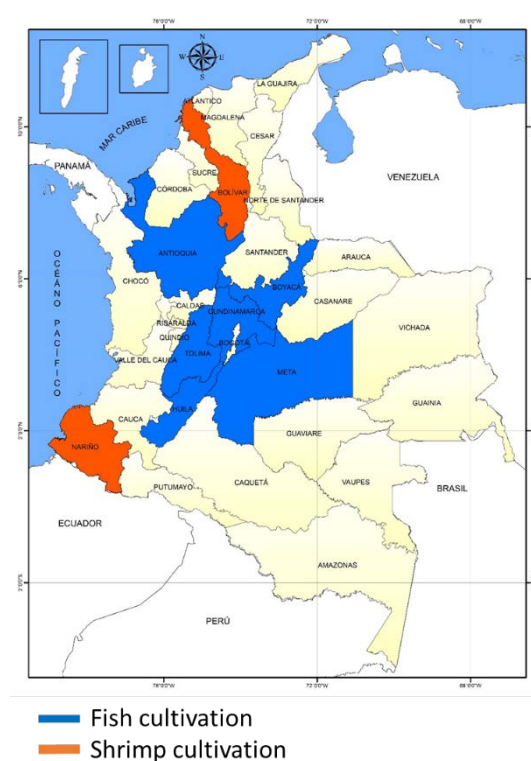


Figure 3: Geographical locations of main hubs of aquaculture in Colombia. Source: MADR (2017)

¹⁸ http://www.fao.org/fishery/countrysector/naso_colombia/en#tcN70044

¹⁹ FEDEACUA (2018)

²⁰ MADR (2018)

²¹ OECD (2016)

²² AUNAP (2018): *AUNAP's report for Norway-Colombian Fisheries Cooperation*

MADR is required to follow the long-term national development objectives and priorities, as outlined in the National Development Plan, produced by the President for each elected term. The National Development Plan also forms the basis for public spending to fisheries and aquaculture. MADR further regulates the Law 13/1990 through decrees, i.e. setting quotas for marine resources, establishing control systems (number, size, type and ownership of vessels), regulating close seasons for fishing (marine and inland waters), establishing exclusive areas for small-scale fishermen and capture, permitting system of concessions, authorizations and permits, providing for inspections and visits, establishing methods for law enforcement, etc.

AUNAP is the governmental entity in charge of the fishing and aquaculture sector in the country. There have been several other entities charged with this responsibility over time, however, statutes, objectives, functions and guidelines have remained largely unchanged. Surveillance and control has the support of the National Navy.

Fishing and aquaculture activities are subject to different kinds of permits depending on scale. MADR-Decree 2256/1991 establishes the following types of permits: concessions for artisanal fishing, commercial and industrial fishing, exploratory commercial fishing, ornamental fishing, fisheries research, sporting fishing, fish processing, fish marketing permits, aquaculture permits and integrated permits for fishing. Environmental aspects are dealt with in each one of the permits, as well as in water concessions and plans for environmental management, which are directly enforced by the Autonomous Regional Corporations (CARs) or by requiring the developer to follow the applicable environmental guidelines. Fisheries are regulated by national conservation provisions and international agreements, implemented through AUNAP resolutions.

Colombia adheres to a number of international and regional management agreements, such as the Agreement on the International Dolphin Conservation Programme (AIDCP) with the objective to reduce incidental dolphin mortalities. Hence, in addition to issuing permits and licenses, AUNAP also issues resolutions to comply with conservation and management measures that are adopted by regional fisheries management organisations, and is in charge of compliance and enforcement of these (ibid).

Colombia has also joined the Declaration of the Permanent Commission of the South Pacific (CPPS), a regional body constituted by Chile, Colombia, Peru and Ecuador, on possible Illegal, Unreported and Unregulated fishing activities (IUU). The declaration reaffirms the commitment to fight IUU fishing, promoting conservation and sustainable use of marine- and fishing resources. In 2012, the National Roundtable on Illegal Fishing and Illicit Fishing Activities (MNPPII) was created, coordinated by AUNAP and constituted by a number of governmental bodies. A specific law against IUU fishing was prepared by the MNPPII in 2016 for Congressional review. In 2014, AUNAP issued resolution no. 1026/2014 on the "Adoption of Inspection and Surveillance Measures for Controlling and Supervising Fishing Activities Performed by Domestic and Foreign Flagged Fishing Vessels". The main provisions of this resolution are the obligations of landing in Colombian ports the fish or fishery products harvested within national waters before entering the national or global market, as well as inspection and surveillance measures of national and foreign fishing vessels (ibid).

4. Findings and analysis

4.1 Potential for growth and increased investments

There is certainly room for growth and investments within both fisheries and aquaculture in Colombia, but perhaps most so within aquaculture. Although industry representatives claim that fisheries could potentially be further exploited for certain species, lack of data is so fundamental that it is difficult to suggest one thing or another. Issues such as IUU, formalisation of artisanal fishermen, economic incentives, etc., could potentially be important steps towards economic growth and investments within fisheries. But these issues are more related to the overall business environment, regulatory framework and research – framework conditions. Norway could advise Colombia on how to further incentivise sustainable growth within fisheries, based on experiences from Norwegian management practices. This would constitute an important input to a sustainable growth, whereas parallel PSD programs targeting bottlenecks and incentivising private companies is, perhaps, a bit premature.

Consequently, a clear recommendation of this report is to focus on aquaculture in terms of PSD initiatives, as a complement to institutional cooperation at government level.

Some main points to consider are:

- ✓ Aquaculture production and export has grown steadily over the past decade, and there is potential for further growth.
- ✓ There is high demand for Colombian fish at both domestic and international markets. Export is dominated by shrimp, trout and tilapia, but also local species have great potential.
- ✓ Colombia has already a highly developed production and processing industry, in addition to professional aquaculture producers and many small-scale producers.
- ✓ There are some 25,000 aquaculture producers in Colombia, of which only 2% are formalised. The high number of informal small-scale producers is a challenge, as many tend to fail within a short period of time. They lack access to credit and export markets, and have limited access to training and technical assistance.
- ✓ Governmental and/or donor support to small-scale projects often fail, as the financial sustainability of the operation is often disregarded. This may lead to flooding the local market with tilapia, and a risk is that this will affect the profitability of producers negatively by driving prices downwards.
- ✓ The bureaucratic burden of company registration creates a disincentive for doing so. In particular the local CARs constitute a major bottleneck. This poses a challenge for the government in terms of monitoring and enforcement of regulations.
- ✓ Formal producers need to further improve operations, environmentally and technologically.
- ✓ Colombia constitutes a potential market opportunity for Norwegian companies, in particular suppliers of research, waste management, vaccines and genetics.

4.1.1 Small-scale production

With the peace process, a lot of efforts are currently towards the inclusion of ex-combatants into the Colombian society and rural development. Several donors support agricultural programs, including aquaculture. And it is likely that the new multi-donor peace fund for Colombia, *Fondo Colombia en Paz*, will encompass support to aquaculture production. It is not yet clear if the focus will be on small-scale production, or a commercial approach.

The European Commission and USAID have already invested in aquaculture projects, mainly tilapia, to provide an alternative to coca production, which has only intensified after the demilitarisation of FARC.²³ A general challenge is that the projects are often small-scale and struggle to be financially sustainable. USAID has co-invested in such projects with the Colombian government, while recognising that financial sustainability of these projects may be at risk. The objective has not been primarily about creating sustainable fish farming projects, but rather to increase the presence of the Colombian government in poor and vulnerable regions where the government is hardly present. However, USAID acknowledges that linking with private sector is key to make fish farming sustainable. USAID has also invested in cultivation of ornamental fish, as well as shrimp production in Tumaco. These projects have proven more sustainable, as the market prices are better. In particular ornamental fish production has become a viable business, as the demand from China and other Asian countries, is high.



Figure 4: Small-scale producer of trout. Photo: Knut Lakså

Also the Ministry of Agriculture and the Agency of Rural Development, as well as many NGOs (including the Norwegian Caritas), have invested in small-scale aquaculture projects. But many fail due to lack of sufficient technical input and training. Local communities usually get access to equipment and very basic training, but it is often not sufficient to provide a financially sustainable income and cover running expenses of the operation. Further, informal, small-scale producers have only access to the local market. This impacts the price of the fish, and FEDEACUA believes that further increasing the number of informal producers for the local market could have a negative impact on the local market prices – reducing prices and profitability. This is particularly the case for tilapia production.

One producer claimed that to have a sustainable production of tilapia, it is necessary to at least have an annual production of 20 MT, whereas trout only needs 3-4 MT and shrimp can be sustainable by producing 1 MT. On the other hand, according to several interviewees, in order to negotiate good prices, it is necessary to partner with one of the larger companies. Access to formal markets is largely controlled by a few wholesalers, and local producers are rarely able to negotiate a better price – even if the company is registered. Formalisation is largely irrelevant at the domestic market, and only a requirement for the export market. However, interviews with several producers suggest that also informal producers may access the export market through sales to third party. This would constitute a risk for the formal licensee, however, pertaining to the quality of the product. To what extent this is the case has not been confirmed.

4.1.2 Formalisation of producers

Many artisanal fishermen operates without licenses, although there are attempts to further regulate the sector (see 3.3.2). There is an extensive and challenging set of regulations, which contributes to a low level of formalisation among those engaged in active fishing. The same applies to aquaculture, which is largely constituted by informal producers.

Small-scale producers are largely operating on a learning-by-doing basis, whereas access to formal training and technical assistance is limited. The capacity to follow up all the producers (25,000) is a challenge, most of which are operating on an informal basis. In interview with ICA, it was stated that ICA only audits some 245 producers (for export purposes), which means that as little as 1% of producers are currently exporting their product and subject to inspections from ICA. It was also clearly stated that ICA does not have the capacity to inspect all the producers.

Formalisation of an aquaculture enterprise entails obtaining licenses from at least four governmental agencies:

1. CAR (Autonomous Regional Corporations) for obtaining environmental licenses, in particular relating to the use of water,

²³ <https://www.theguardian.com/world/2017/mar/14/colombia-coca-cocaine-us-drugs>

2. INVIMA (National institute of Marine and Coastal Investigation) for product license for human consumption,
3. AUNAP (National Authority of Aquaculture and Fisheries) for aquaculture concessions, and
4. ICA (Colombian Agricultural Institute) to register the producer and have sanitary license for export purposes.

Before obtaining an aquaculture concession from AUNAP, it is necessary to have an approval from the CAR for use of water. However, according to several interviewees, the CARs constitute a major bottleneck as the approval process may take as long as 2-5 years (and sometimes even longer). As the CARs are autonomous bodies with delegated authority from the Ministry of Environment, they cannot be instructed by AUNAP or others to process licenses any faster. According to some sources, CARs decisions often depend on personal relations. MADR and FEDEACUA is working to improve this, but it is complicated as the CARs are autonomous bodies.

In addition, registered enterprises are also required to operate in accordance with formal requirements from other governmental agencies such as UGPP (Special Administrative Unit of Pension and Social Protection) regarding workers' conditions, as well as the tax authorities, DIAN. This adds to the bureaucratic burden of a producer, as well as risks. A producer will for instance bear the responsibility that suppliers adhere to formal rules and requirements, and risks being scrutinised and fined if that is not the case. Some producers indicated that there have been claims of corruption linked to enforcement/supervision, although this is not regarded to be a major problem.

In sum, formalising the aquaculture production is largely regarded as a burdensome bureaucratic process implying being scrutinized by the government through inspections, taxation and fees. The main benefits from formalising is to get access to export markets and subsidised credit schemes such as FINAGRO.²⁴ But most producers seem to prefer remaining informal as a way of reducing government interference.

4.2 Sustainability

Sustainability can be understood as the ability of biological systems to remain diverse and productive indefinitely, i.e. the endurance of systems and processes. In terms of aquaculture, sustainability is closely linked to profitability, as the productiveness of biological systems is key.

Inland aquaculture industry is largely unregulated, and inspections and supervision are not sufficient to cope with environmental challenges. Although both AUNAP and ICA are highly competent bodies, the capacity is limited. As already mentioned, ICA is currently only auditing approximately 1% of all aquaculture producers, and has limited capacity to do more.

There could be further potential for introducing new technology and knowledge on more sustainable practices than what is currently utilised by many producers. In particular within genetics, vaccines and research, there is great potential with collaboration with Norwegian private sector. Both the government and Colombian private sector actors have highlighted the need for collaboration linked to transfer of technology and sustainable practices, for instance regarding measurement and monitoring of oxygen level, feed, temperature, diagnostics, etc. A sustainable production is closely linked to the profitability as well, as mortality rates will, obviously, affect the financial outcome. There are some common issues linked to sustainability, but there are also specific sustainability challenges depending on the species.

In the following, a general overview is described of some of the challenges pertaining to the main species for production: tilapia, rainbow trout, shrimp and native species.

²⁴ <https://www.finagro.com.co/>

4.2.1 Tilapia

Lack of formalisation and environmental licensing suggest that operators are not producing in an environmentally sustainable manner. An example is production in the Betania Lake in Huila, which started out as a compensation scheme towards local fishermen when the lake was dammed in the 1980s for hydropower. The local fishermen were dependent on the fishing of migratory species in the river, and after the dam was constructed, aquaculture was introduced as an alternative for the fishermen. Licenses were handed out by the operator of the dam, without the involvement of the government.

The licenses were, allegedly, sold one by one to larger companies, and production increased at an unregulated pace. As a consequence, the lake became overcrowded with tilapia producers, without any proper monitoring or zoning from the government. Due to this, the lake has suffered from pollution, low oxygen levels and pathogens. According to one interviewee, the lake produced some 70,000 MT per year at some point, whereas the level of production has now fallen to 22,000 MT. Today there are a total of 72 operators (mostly large scale) in the, and the government has taken a more active role, putting a cap on production volume in the lake. Most of the fish is processed in local factories and exported. Hence, it constitutes an important part of the local economy and job creation. However, mortality rates at some of the producers visited were reported at some 30-40%, and sometimes as high as 50%. There have been several outbreaks of diseases, and one producer interviewed reported that the only way to expand the operation and to keep control of diseases, is to construct isolated ponds away from the dam. There have also been suspicions of the Tilapia Lake Virus (TiLV) in the lake, but it is yet to be confirmed. This disease may cause mortalities between 80-100% in infected populations.

Most of the production from the lake is processed and exported to the USA. Should the lake suffer from further major disease outbreaks, this could have serious repercussions on revenues and jobs in the area. The issue demonstrates how lack of proper control and enforcement may have a negative effect on sustainability, constituting a potential risk to future production. The government (ICA and AUNAP) is very much aware of the issues at stake, and are discussing options. However, the challenge is that strict measures such as a quarantine period of the entire lake would have serious economic repercussions, and would likely put many producers out of business, as well as the processing industry.

4.2.2 Rainbow Trout

Trout production usually takes place at high altitudes – between 2000-3000 meters above sea level. Trout obtains a good price and there is further potential for growth, however, an increase of unsustainable production practices, especially in the rivers and inland lakes, may cause further negative environmental impact. The production is already causing problems with pollution from biological residues from feed and faeces entering the river systems, polluting the waters of populated areas further down. One of the producers reported that even residue from slaughtering go straight into the river and is not collected.



Figure 5: Tilapia cage-production in Betania.
Photo: Knut Lakså



Figure 6: Extraction of sludge from trout farming in Lake Tota. Photo: Knut Lakså

Approx. 30 % of the rainbow trout production in Colombia is in cages, and – depending on the local CAR – particular emphasis has been put on reducing the environmental impact on the lakes through collection of waste and well as recycling of by-products to produce fish oil. The technology utilised is rudimentary, however, and the oil is mainly used for production of animal feed. There have been some pilot projects utilising improved technology for collecting the residue from isolated ponds. But in general, this technology is not available to most Colombian producers.



Figure 7: Production of fish oil from slaughtering.
Photo: Knut Lakså

In some areas, such as Lake Tota (Boyacá), strict measures have been imposed on the producers to collect residues from cage production. Previous research states that the lake has suffered from a combination of erosion from local onion production and cage-farming of trout.²⁵ For this reason, all producers are now required to collect the sludge from underneath the cages, and dispose of it. The residues can potentially be utilised as fertilizers, and there are ongoing trials for this. However, the local CAR has not allowed usage beyond limited trial production.

4.2.3 Shrimp

The potential for shrimp production was identified in Colombia in the 1980s. CENIAQUA (*Centro de Investigación de la Acuicultura de Colombia*) was formed with public and private support. CENIAQUA has collaborated with Norwegian Akvaforsk Genetics for some 20 years, and was later bought by the owners of Akvaforsk Genetics: Benchmark Holdings PLC. The research was successful, and stimulated growth. However, only some years later, the sector suffered from diseases (notably the Taura Syndrome and the White Spot disease), further exacerbated by unfavourable exchange rate development, effectively put most producers out of business.²⁶ In 2012, Colombia was exporting 7.000 MT shrimp, whereas this dropped to 2.200 MT the following year.

Today there are very few producers left, although the production is starting to pick up again. In 2017 the export was at 4,000 MT.²⁷ The environmental impact of shrimp is not considered to be alerting, however, in order to have a sustainable growth and avoid new outbreaks of diseases, further genetic research and disease resistant shrimp is important. Shrimp production is an area of potential interest and collaboration with Norwegian enterprises linked to genetic research, and both Salmobreed and Akvaforsk are already collaborating with CENIAQUA (as they are all part of the same global enterprise, Benchmark Holdings PLC).

4.2.4 Local species

There are ongoing trials of a number of local species in Colombia, many of which are showing promising results. The main indigenous commercial fresh water fish farming species are white and black cachama, yamu fish and bocachico, as well as ongoing trials in marine waters of the Atlantic goliath grouper or itajara. The breeding of these species suffers from a general lack of research-based knowledge.

There have also been trials on several Amazon species, such as the gamitana, paco, boquichico, bagres, and pirarocou, and others. Several of these species have shown promising results for commercialisation, in particular pertaining to the quality of the fish and growth rates. However, research takes time, especially when it comes to breeding and production of fingerlings. This is also why most production in Colombia has focused on species such as the tilapia and trout, which have rapid growth and reproduction. Still, species such as the pirarocou are now increasingly being commercialised, by companies such as Piscicola Pirarocou. A limiting factor may be that Colombia has strict rules on aquaculture production outside areas of the species' natural habitat. There is currently an application in process by the environmental authorities

²⁵ See: <http://www.eltiempo.com/archivo/documento/CMS-13460221>

²⁶ Campos, Llinas, Maldonado, Musica, Zumaeta (2008): *Shrimp aquaculture in Colombia* https://www.isc.hbs.edu/resources/courses/moc-course-at-harvard/Documents/pdf/student-projects/Colombia_Shrimp_Aquaculture_2008.pdf

²⁷ MADR (2017)

regarding commercial cultivation of pirarocou in a closed system in Cartagena, but it is yet to be decided if the Ministry of Environment will allow the necessary exemptions to this general rule.

There is also some production of ornamental species, which are high in demand from Asian countries in particular.

4.2.5 Feed

Feed constitutes usually some 70-84% of a company's production cost. There are currently five major national producers of fish feed in the country, providing most of the feed fish needed. The fish feed market is limited, however, and the feed factories also produce livestock feed. The quality is, according to one producer, ok, but "could have been better." Some of the larger producers are therefore importing feed from other countries. Foreign feed companies, including the Norwegian company Skretting (owned 100% by Dutch Nutreco), have established feed production in Ecuador, as the market there is much bigger.

All shrimp feed is now imported from Peru. There used to be both hatcheries and feed companies in Colombia in the past, but after the decline of the shrimp industry there are none left. This is also why the only big shrimp company, *Oceaneos*, has focused on an integrated production. However, UNIDO is planning to possibly set up a feed mill in partnership with Tumaco Fish, in Tumaco, and believes this to be viable. Tumaco Fish is a smaller company than *Oceanos*, so a mill would probably have to be integrated into the current operations of Tumaco Fish or be subsidised through development aid. Access to locally produced feed would, however, take down some of the production costs. But in general, there is sufficient competition in the market and feed is not one of the main challenges to producers.

4.3 Strengthening the aquaculture value chain

In order to grow the industry further, a key focus must be to enhance sustainability, and further develop the many small-scale producers by providing input and training. In order to do so, it is useful to assess aquaculture from a value chain perspective. The concept of a value chain means to link all the steps of a production, processing and distribution, analysing each step that follows. A full value chain analysis should describe all activities to bring a product through different phases, ending with delivery to the final consumer. It is a useful model in order to describe how decisions one of step in the process will impact on the following steps. This report is not intended to describe in full detail such an analysis, merely to illustrate some of the more important steps, in combination with a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis.

Figure 9 (next page) is a rough design of the value-chain of aquaculture, starting with feed and ending at the consumer. External parts of the value chain may be understood as upstream and downstream activities. For the sake of clarity, production of fish feed is included in the figure, as this is one of the important upstream inputs to the production.

There are a number of challenges along the value chain, but the most obvious ones were FfD could contribute positively, include: 1) regulatory framework, research and enforcement, 2) fish health and sustainable production practices, 3) access to credit, and 4) training.

Figure 9: Aquaculture value-chain/SWOT analysis on Colombian aquaculture



Strengths					
Access to waste/residues from processing companies	Existing production in country – good competition	Fingerling production in country for most species Most input factors are locally produced	Competent commercial producers Trial production of native species Increased political priority	Professional processing industry Some producers have good brands	High demand at domestic market National consumption is increasing Access to export markets
Weaknesses					
Technology is rudimentary	Shrimp feed has to be imported Feed is costly	Further need for import of genetics (tilapia) Lack of new technology and vaccines Import is expensive, subject to 40% VAT Time-consuming licensing processes for import of vaccines and genetics Mostly on-the-job training Energy access	Licenses take long Few incentives to formalise – too comprehensive regulatory framework Access to credit difficult Insurance is expensive, does not cover all risks Financial sustainability of Informal small-scale production Environmental sustainability Link between research and production	Logistical costs - poor infrastructure and roads Access to markets for small-scale producers No reward for compliance with formal rules Margins are small (tilapia)	Large retail companies set prices Market dominated by few companies Informal producers undercut prices at local/domestic market
Opportunities					
Improved technology could enhance value and quality	Possibly room for shrimp feed production, but small market	Technology transfer Skills transfer on sustainable practices Vaccines	Develop mariculture and shrimp, as well as native species Create incentives for formalising Strengthen research and education	Increased production may increase market share	Growing demand High prices for shrimp Production costs are relatively low
Threats					
Use of waste and technology is subject to approval from CARs		Lack of proper diagnostics and enforcement	Diseases and water quality (in lakes) Enforcement Financial irregularities		Quality of product Exchange fluctuations International competition

4.4 PSD initiatives under Fish for Development

The bilateral agreement to be signed between Norway and Colombia will encompass many issues of relevance for private sector, such as improving the regulatory framework and sustainability of both fisheries and aquaculture. An improved business climate will strengthen the ability to attract more investments and to grow production in a sustainable manner.

In terms of a parallel PSD intervention underneath FfD, as a supplement to a governmental collaboration, the recommendation of this report is to focus on aquaculture. FfD should carefully consider a phased approach, and assess how an additional PSD intervention may deliver on the overall objectives of FfD.

There are three main allocations underneath the Norwegian Development Aid budget that are of particular relevance:

- 1) Regional Allocation to Latin-America (chapter post 153.78),
- 2) Education (chapter post 169.73), and
- 3) Private Sector Development (chapter post 161.70).

Both Education and Private Sector Development are politically prioritised areas where the Government has proposed increased efforts in the Budget Proposition no. 1 to the Storting (Parliament) for 2018.

The FfD secretariat in Norad manages some funds (in particular earmarked for the FAO-Nansen program), whereas other FfD funds are intended to be managed over the regional allocation. Other relevant chapter posts are managed by Norad's department for civil society and the section for private sector development. FfD has already made a call underneath the civil society allocation, with particular emphasis on value-chain development. It is likely that some NGOs will focus on this, potentially in collaboration with private enterprises. The same goes for a bilateral program led by the Norwegian institute of Marine Research (IMR), where private companies may come in as suppliers on certain components.

Still, private sector development cannot be achieved without the participation of companies that fully understand the market potential and constraints. The only available grant scheme for private sector is the [Enterprise Development for Jobs](#) scheme. This could be seen in relation with earmarked call for proposals through Norad's «[Strategic Partnership](#)» scheme, where the lead applicant must be non-commercial. The latter is partially funded by chapter post 169.73 (education).

Also the [Skills for Development](#) scheme managed by The Norwegian Centre for International Cooperation in Education (SIU) could be utilised (note: decision on a new call in 2018 is yet to be decided).

4.4.1 Potential partners and stakeholders

Colombian producers are interested in collaboration with Norwegian enterprises both in terms of investments, as well as accessing technology, innovations and R&D – particularly relating to genetics and vaccines. To what extent it is possible to mobilise investors from Norway is uncertain, however, there is some interest from Norwegian supply companies which sees Colombia as a potential market. Even though this is primarily consisting of export related services, the potential developmental impact should not be underemphasised.

FEDEACUA is the national umbrella organisation for many aquaculture producers, with regional member organisations. FEDEACUA is a key institution within aquaculture, with a vast network among the national producers, and could potentially be a partner in developing a comprehensive value-chain program, introduction of new technologies, matchmaking with international providers, etc.

There are also a number of existing governmental credit schemes such as **FINAGRO** and **Innpulsa**, to enhance SME development and provide access to credit. **UNIDO** has already established credit lines through commercial banks for targeted sectors, something also the **USAID** has done. The latter provides guarantees for small-scale credit programs from commercial banks, enabling the banks to increase the SME loans with a higher risk profile. **FAO** has assisted Colombia in developing the national aquaculture plan, and is an important dialogue partner for all fishery related initiatives.

There is also an existing mechanism for environmental technology through the Cleaner Technology Centre, **CNMPL** (*Centro Nacional de Producción Más Limpia y Tecnologías Ambientales*), funded by the Swiss development cooperation (**SECO**), providing support, credit and business consultancy for accessing

environmental technology. Aquaculture has not been a particular focus of this mechanism, but could potentially be so. Basic investments in hygiene and sanitation can enable export, thereby increasing the value creation of aquaculture, and it may be considered if funding through this mechanism could form the basis for transfer of skills and technology from Norwegian suppliers.

SENA (*Servicio Nacional de Aprendizaje*), the national agency in charge of economic, technological and social development of the country, manages one of the largest fund mechanisms in Latin-America for entrepreneurs: **Fondo Emprender**. SENA is also a provider of TVET training, with centres allocated around the country, often in collaboration with sector-specific programs and funding. Collaboration with SENA on TVET training or research would be an interesting option, possibly also including credit lines and de-risking facilities for investors to support employment opportunities in vulnerable areas.

To the extent that Norwegian funding of peace efforts in Colombia is channelled through the **Fondo Colombia en Paz** (for instance through humanitarian or transitional aid) or other multi-donor funding mechanisms, MFA/Fish for Development may want to consider if aquaculture and support to private sector development should be particularly emphasised.

A comprehensive FfD program in Colombia needs to encompass many aspects, all of which may have an impact on an enabling environment for the private sector. Technical collaboration between institutions in Colombia and Norwegian expert institutions such as the **Norwegian Institute for Maritime Research (IMR)**, the **Norwegian Veterinary Institute**, the **Directorate of Fisheries**, as well as academic institutions such as the **Universities of Tromsø (UiT) and Bergen (UiB)**, **Norwegian University of Science and Technology (NTNU)** and **Norwegian University of Life Sciences (NMBU)**. These are all likely candidates to become suppliers of technical expertise underneath the bilateral government agreement on institutional cooperation.

Parts of this collaboration could be outsourced to private suppliers as well, such as the Norwegian company **Pharmaq**, which is currently in the process of registering and getting approval from ICA for providing a vaccine to Colombia. Pharmaq has a close collaboration with ICA and local operators in Betania for trials of the vaccine, with promising results. The company may be interested in further engagement, and could provide common-good solutions through training in vaccination and production practices.

Colombia may offer opportunities for other Norwegian companies. **Akvaforsk Genetics** and **Salmobreed** are among the most likely candidates. They are both part of **Benchmark Holdings PLC**, which has invested in CENIAQUA (shrimp genetics).

Caritas Norway has invested in a small-scale project on aquaculture for ex-FARC soldiers with funding from the Norwegian Embassy. Technical input was provided from a Norwegian supplier, **Gavita Watertech AS**. The project is, however, small and the financial sustainability is yet to be proven. Caritas is also preparing a project in Caquetá, in collaboration with the regional aquaculture association, **ACUICA** (also a member of FEDEACUA), local business partners and the **Amazon University**. Caritas focuses on small-scale producers, but with a strong emphasis on commercialisation, TVET training and linking up with larger producers to access markets. One local partner enterprise is **Psicicola Pirarucou**, doing trial production on piraroucou – one of the more promising local species.

Many Norwegian enterprises are largely unfamiliar with Norad and the Fish for Development program. The Norwegian **NCE Seafood Innovation Cluster** believes many of its members could be interested. The cluster represents many of the Norwegian suppliers of R&D, technology and innovation, and could be a strategic partner to foster further participation from relevant Norwegian companies. **Innovation Norway (IN)** may contribute to further mobilising Norwegian companies, although Colombia has not been focused so far. There is also a US-based company with Norwegian owners, **Odin Seafoods**, which is currently considering investing in tilapia cultivation in Colombia and could become a partner. The company sees potential for upscaling current production and export to Europe.

Norway also provides funding to multilateral agencies such as the **World Bank** and the *International Labour Organisation (ILO)*. It should be considered if dialogue in relation to Norwegian participation in different trust funds could enhance a Norwegian private sector approach within fisheries and aquaculture in Colombia, thus providing a more direct impact. As an example, Norad is already funding the **ILO-SCORE** program (Sustaining Competitive and Responsible Enterprises), with the aim of enhancing productivity and working conditions in SMEs. The program is global, and has activities in Colombia, including collaboration with SENA. In Myanmar, Norad has already actively promoted a deeper engagement of the ILO-SCORE program in the fisheries sector, something that could also be considered in Colombia.

ILO has entered into a collaboration funded by the Norwegian Embassy on social dialogue in Colombia, in which the Norwegian employer's organisation **NHO**, is likely to get involved. NHO is currently managing a program funded by Norad/Section for Private Sector Development related to TVET training apprenticeships in Vietnam, and is also considering a program in Ghana. NHO could also be considered as a partner to further development of TVET pertaining to aquaculture in Colombia.

Possible donor collaboration should be considered with donors active in the fisheries sector in Colombia, such as **USAID**, **SECO**, the **European Commission**, **FAO** and the **World Bank**. Of particular interest would be to further explore possible collaboration with **UNIDO in Colombia**, which has already worked on both aquaculture and SME development in general with a particular focus on quality standards, formalisation and access to markets. UNIDO is already a strategic partner of Norad. However, the Colombia office does not receive much funding under this agreement. A possibility could be to provide an addendum to the current Norad agreement in order to fund a project in Colombia.

It is also recommended that FfD and the Embassy maintain a dialogue with institutions that could promote Norwegian aquaculture investments in Colombia, in particular **Innovation Norway**, the **NCE Seafood Innovation cluster** as well as the **Norwegian Sea Food Council**. The latter has already undertaken a market assessment of Colombia. Although mainly interested in Colombia as an export market for Norwegian seafood, there may also be room for collaboration and dialogue – as has been the case in Ghana - regarding training of veterinaries (co-funded by Norad and the Sea Food Council).

4.4.2 Main risks and challenges

There are many potential risks and challenges for achieving Outcome 3 in Colombia, most of which have already been mentioned. Main challenges can be summarized to the following:

- ✓ Lack of formalisation and enforcement, lack of capacity at government level, lack of proper data for setting quotas for capture fishing and how to address overexploitation of stocks.
- ✓ Logistical challenges of transport and to access markets, cold chain and landing sites for artisanal fishermen.
- ✓ Insufficient monitoring and enforcement of regulations, in particular for small-scale artisanal fishing and aquaculture. A comprehensive regulatory framework is a disincentive for formalising.
- ✓ CARs as one of the biggest bottlenecks for formalisation and a sustainable growth of the sector.
- ✓ Corruption is perceived to negatively affect the management of aquaculture.
- ✓ Access to credit for informal producers, and expensive insurance for formalised aquaculture producers.
- ✓ Export related production is vulnerable to exchange fluctuations.
- ✓ Environmental risks in particular relating to biological residues and waste management, as well as diagnostics and monitoring of fish health and implementing measures.
- ✓ Too much focus by donors and government support to small-scale aquaculture projects that are not financially sustainable.

5. Annexes

5.1 Annex 1: Example dashboard (tentative)

- a comprehensive PSD program for Fish for Development in Colombia

Bottlenecks for the aquaculture sector	Activity and partner	Due date	Target 2018	Target 2019
Skills Development	<ul style="list-style-type: none"> ➤ Sign agreement between on TVET training (potentially as part of an integrated value-chain program) 	June 2018	<p>Establish long-term support to one public institution for curriculum development and training of trainers in collaboration with SENA</p> <p>Support to 10-20 aquaculture companies for internal training/ certification</p>	Support to 30-40 aquaculture companies for internal training/ certification
Technology incubator	<ul style="list-style-type: none"> ➤ Sign agreement with UNIDO or similar Project Manager agency (Embassy or Norad) 	August 2018	<p>20 small grants provided to start-ups and established companies/ cooperatives</p> <p>Explore opportunities for credit scheme and revolving funds. Assess potential for partner and due diligence of project manager</p> <p>Undertake value chain analysis of the aquaculture sector</p> <p>Stakeholder consultations with aquaculture enterprises and potential investors</p>	<p>40 small grants provided</p> <p>20 loans provided</p> <p>Establish cooperative among small-scale farms</p> <p>Transfer of identified relevant technology</p> <p>Increased sustainable production</p>
SME development	<ul style="list-style-type: none"> ➤ Individual calls "Enterprise Development for Jobs" 		Ensure coordination with individual enterprises investing in Colombia	Investments and job creation
Enabling environment/ governance	<ul style="list-style-type: none"> ➤ Sign agreement between Embassy and Colombian government. ➤ Sign institutional cooperation agreement between IMR and AUNAP 	August 2018	<p>Strengthen research/training</p> <p>Strengthen regulative framework</p> <p>Strengthen fish health</p>	<p>Undertake one-two joint inspections of aquaculture operations</p> <p>20 veterinaries trained</p> <p>Etc.</p>

5.2 Annex 3: List of persons and institutions consulted

Institution	Date	Name of person	Position
<i>In Norway:</i>			
Innovation Norway	02.02.2018	Arnfinn Lundberg Bakke	Adviser
Caritas	01.02.2018	Knut Arild Lid	Director
Caritas	01.02.2018	Maria Vaquez	programme officer
Inocap	13.02.2018	Øystein Falck	Consultant
Gavita Watertech	16.02.2018	Trond Vegger	Founder
Norad	01.02.2018	Hans Peter Melby	Senior Adviser
Norad	15.02.2018	Mehraz Rafat	Senior Advisor
Norfund	16.02.2018	Elin Ersdal	Investment director
Akvaforsk Genetics/ Benchmark	16.02.2018	Morten Rye	Managing director
Sea Food Innovation Cluster	15.02.2018	Tanja Hoel	Managing director
Salmobreed/Benchmark	08.03.2018	Rudi Kipman Seim	R&D and Technical Manager
Skretting/Nutreco	09.02.2018	Arjen Roem	Technical Director
Norwegian Council of Seafood	16.02.2018	Ingelill Jacobsen	Project leader
NHO	14.02.2018	Katarina Sætersdal	Senior Adviser, International Dep.
Norwegian Ministry of Foreign Affairs	01.02.2018	Per Kristian Roer	Senior Adviser
Norwegian-Colombian Chamber of Commerce	02.02.2018	Marisol Guzman Montoya	Board member
NTNU Samfunnsforskning	13.02.2018	Tonje Osmundsen	Research director
Pharmaq	15.03.2018	Børge N. Fredriksen	Clinical scientist
Pharmaq	15.03.2018	Claudia Maira	Manager Technical Support for Mediterranean and Latin America
Pharmaq	15.03.2018	Simen Kristoffersen	Senior Project Manager
<i>In Colombia:</i>			
Agencia de Desarrollo Rural	22.02.2018	Ricardo Andrés Aristizábal	Dirección de Comercialización
FEDEACUA	21.02.2018	Sara Patricia Bonilla	Executive Director
USAID - Office of Rural and Economic Development	21.02.2018	Nathanial Bills	Deputy Director
USAID	21.02.2018	Edgar Prieto	Development Assistance Specialist
USAID	21.02.2018	David Alejandro Huertas	Development Officer
APC Colombia	20.02.2018	Santiago Molina Alvarez	Official Development Aid Officer Manager
AUNAP	20.02.2018	Javier Plata	Fisheries and Aquaculture Research Officer
UNIDO	22.02.2018	Johannes Dobinger	Director
Aqua Primavera	21.02.2018	Reinaldo Ramirez	Managing Director
Analdex	22.02.2018	Enrique de la Vega	
Analdex	22.02.2018	Alejandro Londono	
Agencia de Desarrollo Rural (ADR)	22.02.2018	Ricardo Andrés Aristizábal D	Dirección de Comercialización Vicepresidencia de Integración Productiva
INVIMA	02.03.2018	Juliana Serna Trujillo	Dirección Alimentos y Bebidas
INVIMA	02.03.2018	Monica Moreno	

Institution	Date	Name of person	Position
INVIMA	02.03.2018	Sandra Vega	
INVIMA	02.03.2018	Jimmy Leon	
INVIMA	02.03.2018	Jairo Diaz	
INVIMA	02.03.2018	Fernando Argote	
COLOMBIAN EMBASSY TO NORWAY	21.02.2018	Jorge Leyva	Colombian Ambassador to Norway
MINAGRICULTURA	21.02.2018	Juan Guillermo Zuluaga Cardona	Minister of Agriculture and Rural Development
MINAGRICULTURA	21.02.2018	Juan Camilo Dueñas	International Affairs Office Chief
MINAGRICULTURA	21.02.2018	Alvaro Ortega	International Affairs Officer
AUNAP	21.02.2018	Otto Polanco	General Director
AUNAP	21.02.2018	Sergio Gómez	Fisheries and Aquaculture Research Office Chief
AUNAP	21.02.2018	Neil Gallardo	Provincial Director for the Colombian Caribbean Region
AUNAP	21.02.2018	Javier Plata	Fisheries and Aquaculture Research Office Officer
CENIAQUA	23.02.2018	ANDRÉS SUÁREZ	Director
CENIAQUA	23.02.2018	LINDA GÜIZA	Assistant Director
CENIAQUA	23.02.2018	CONSTANZA ERAZO	Researcher on Genetics
CENIAQUA	23.02.2018	XENIA CARABALLO	Researcher on Animal Health
CENIAQUA	23.02.2018	JAIME FAILLACE	Production Manager
ICA	20.02.2018	Juan Andrés Angulo Mosquera	Animal Protection Submanager
ICA	20.02.2018	Anwar Salim Daccarett Alvarado	Sanitary and Phitosanitary Regulation Subdirector (Provisionally in Charge)
ICA	20.02.2018	Mario Eduardo Peña González	Animal Protection Subdirector
ICA	20.02.2018	Margy Villanueva	Technical Animal Sanitary Officer
PISCICOLA ANDINA	26.02.2018	Armando Naranjo y Yolanda Beltran	Producer
TRUCHAS LA MARIA	26.02.2018	Carlos Eduardo Salazar	Producer
PISCICOLA LAGO DE TOTA PSCITOTA	26.02.2018	Gustavo Pedraza	Producer
SURALA LTDA	26.02.2018	Oscar Murillo / Edwar Sarmiento	Producer
AGUATRUCHA	26.02.2018	Emiro Antonio Bernal	Producer
TRUCHICOL Y CIA LTDA	26.02.2018	Ángel Munar González	Producer
ASO-OREGANO	26.02.2018	Nelson Orlando-Pesca Sandoval	Producer
PROMIGRANJA SAS	26.02.2018	Daniel José Sánchez Puentes	Producer
ACUATRUCHA LTDA.	26.02.2018	Emiro Antonio Bernal Castillo	Producer
PISCIFACTORÍA TRUCHICOL Y CÍA. LTDA	26.02.2018	Ángel Ramón Munar González	Producer
PISCICULTURA LAGO DE TOTA S.A. PISCITOTA.	26.02.2018	Libardo Escobar león	Producer
PISCIFACTORÍA REMAR LTDA.	26.02.2018	Sebastián Sánchez Blanco	Producer

Institution	Date	Name of person	Position
PROLAGO	26.02.2018		Producer
ASOCAÑAS	26.02.2018	Isidro Florez	Producer
JORGE HERNANDO LOPEZ	26.02.2018	Jorge Hernando Lopez	Producer
Juan Fernando Vélez Jaramillo./ Santiago Jaramillo	28.02.2018	Juan Fernando Vélez Jaramillo./ Santiago Jaramillo	Producer
Yuli Fabiola Hernández Guerrero - Efraín Botero	28.02.2018	Yuli Fabiola Hernández Guerrero - Efraín Botero	Producer
Andrés Macías Arango	28.02.2018	Andrés Macías Arango	Producer
Mauricio Silva Ruiz (RL) Gerente Eugenio Silva Ruiz	28.02.2018	Mauricio Silva Ruiz (RL)Gerente Eugenio Silva Ruiz	Producer
Jaime Francisco Macías Arango.	28.02.2018	Jaime Francisco Macías Arango.	Producer
Jairo Fajardo Nuñez	28.02.2018	Jairo Fajardo Nuñez	Producer
Carlos Tovar	28.02.2018	Carlos Tovar	Producer
Sara Bonilla	28.02.2018	Sara Bonilla	Producer
Margy Villanueva	28.02.2018	Margy Villanueva	Producer
Caritas	02.03.2018	Monica Aviles	Aquaculture expert
Caritas	02.03.2018	José Joaquín Cristancho	
Pezco Fish	28.02.2018	Oscar Botero	Owner
Odin Seafoods	28.02.2018	Jostein Hauge	Owner
Piscifactoría Remar	27.02.2018	Sebastian Sanchez	Legal representative

5.3 Annex 4: References

- ✓ Concept note on International Cooperation between The Republic of Colombia and The Kingdom of Norway in the field of Colombian Fisheries and Aquaculture sector. Bogota, D.C. Colombia, October 2017.
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- ✓ AUNAP'S REPORT FOR NORWAY-COLOMBIA FISHERIES COOPERATION, Javier Plata, Bogota, D.C. 2017.
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- ✓ www.doingbusiness.org
- ✓ www.eiu.com
- ✓ <https://www.innpulsacolombia.com/>
- ✓ <http://www.efta.int/free-trade/free-trade-agreements/colombia>
- ✓ www.transparency.org
- ✓ <http://www.fao.org/fi/oldsite/FCP/en/COL/profile.htm>
- ✓ http://www.fao.org/fishery/countrysector/naso_colombia/en#tcN70044
- ✓ <https://www.theguardian.com/world/2017/mar/14/colombia-coca-cocaine-us-drugs>
- ✓ <https://www.finagro.com.co/>

- ✓ <http://www.eltiempo.com/archivo/documento/CMS-13460221>

Presentations (PPT):

- ✓ AUNAP (2018): Research in Marine and Continental Aquaculture
- ✓ AUNAP (2018): Acuicultura en Colombia
- ✓ AUNAP (2018): NUESTRA ENTIDAD
- ✓ MADR (2018): DIRECCIÓN DE CADENAS PECUARIAS, PESQUERAS Y ACUÍCOLAS
CADENAS DE LA ACUICULTURA Y PESCA 2018
- ✓ FEDEAQUA (2018): AQUACULTURE IN COLOMBIA
- ✓ GENIAQUA (2018): COLOMBIAN CENTER FOR AQUACULTURE RESEARCH
- ✓ APC-Colombia (2018): AGENCIA PRESIDENCIAL DE COOPERACION INTERNACIONAL

5.4 Annex 5: Terms of Reference

25.1.2018. Terms of Reference

Fish for Development Programme (FfD). Colombia. Consultancy. Private Sector Development.

1. Background

The Norwegian Government launched the Fish for Development Programme (FfD) in 2015. The identified impact of the Fish for Development Programme is “The fisheries and aquaculture sector helps promote economic development in the partner countries”. The three proposed outcomes for the programme are:

Outcome 1: The authorities manage fisheries resources and aquaculture production in a sustainable manner,

Outcome 2: Research and educational institutions assist the authorities and private-sector entities with knowledge, data and advice about sustainable fisheries and aquaculture,

Outcome 3: Private Sector entities harness fishery resources and engage in aquaculture production in a sustainable manner.

The outputs defined for achieving Outcome 3 are:

Output 3.1: Increased investments within the fisheries and aquaculture sectors

Output 3.2: Increased aquaculture production

Output 3.3: Private Sector has increased knowledge in sustainable fishing and aquaculture production

Colombia has asked Norway for cooperation in fisheries and aquaculture. Norad has asked the Institute of Marine Research of Norway (IMR) to organise a mission to Colombia during 19 February to 2 March to explore opportunities for cooperation. Norad’s terms of reference (ToR) for this mission give further information. The current terms of reference from Norad to KPMG deals particularly with the private sector part of the mission.

2. Purpose

The purpose of this assignment is two-fold:

- 1) Provide input into the mission report on mapping private sector status and challenges within Colombian fisheries and aquaculture sector;
- 2) Identify existing or potential partnerships or initiatives in order to achieve Outcome 3: *Private Sector entities harness fishery resources and engage in aquaculture production in a sustainable manner.*

3. Reporting

Input to IMR’s main report

The mission report (responsibility of IMR) will provide the basis for how best to move forward with the Fish for Development program planning and design in Colombia. Aspects of the report will

require input with regards to the status for private sector engagement and challenges for further development. The consultant will undertake this part of the work in consultation with IMR.

Private sector report (responsibility of this consultancy)

The report will discuss how to best achieve FfD Outcome 3 and its three underlying outputs. The report should include the following topics within fisheries and aquaculture:

1. Mapping of private sector actors (foreign and domestic) and their role in the economy.
2. Current status of aquaculture production and opportunities and constraints for investments and growth (to include a review of the regulatory framework).
3. Opportunities for FfD to contribute to increased investments.
4. Areas in need of increased knowledge to improve the sustainability of private fisheries and aquaculture production.
5. Possible budgetary allocations in MFA/Norad (chapter/post) which can be used to strengthen private sector engagement
6. Possible ways to improve the way Norad, the embassy and Innovation Norway can make better use of available Norwegian grant schemes available for companies
7. Recommended priority cooperation areas and partners for FfD to achieve Outcome 3
8. Main risks and challenges to achieving Outcome 3 in Colombia

4. Implementation

The work shall be carried out in coordination with the National Authority of Fisheries and Aquaculture of Colombia (AUNAP), the embassy and IMR. The assignment includes participating in the mission to Colombia 19 February to 3 March 2018. Work prior to departure should include meetings with relevant parties in Norway.

In Colombia, the consultant will partake in program for the rest of the mission of relevance to the private sector and will develop a parallel program particularly relevant for the private sector. This may include field visits and meetings with private sector, government and non-governmental institutions in Colombia.

4.1 The team

As specified in "Tildelingsskjema ved avrop"

4.2 Organisation of the Assignment

Prior to the mission documentation (plans, policies, laws, studies) relevant to FfD and the private sector in Colombia should be reviewed.

The embassy will assist the consultant in arrangement of transport in Colombia, however payment for transport will be covered under this assignment. The consultant is responsible for booking hotel rooms and flights.

A debriefing meeting containing a short presentation of the findings shall be held at the embassy at the end of the visit.

5. Workload

As specified in “Tildelingskjema ved avrop”

6. Reporting

The consultant shall send Inputs to the draft report to IMR within 12 March 2018 for their comments or follow-up.

The consultant shall send the separate report on Outcome 3 to Norad by 20 March 2018. Norad is responsible for gathering comments from the embassy and Colombian authorities and forward any comments to the consultant within two weeks. A final report is due 10 April 2018.

Inputs and the report will be written in English and include a summary of main findings and recommendations. The report and inputs should not exceed 20 pages in total.



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