



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Project of the Republic of Colombia

Project number:	200025
Project title:	Strengthening quality and standards compliance capacity of shrimp and tilapia aquaculture value chains in Colombia to facilitate market access – GMAP Colombia
Thematic area code:	HC2 Adv. Econ. Competitiveness; HC22 Competitive trade & CSR
Starting date:	1 QRT 2021
Duration:	4 years (48 months)
Project site	Colombia (primarily Tumaco and Huila)
Government Co-ordinating agency:	Ministry of Trade, Industry and Tourism (MINCIT)
Main Counterpart:	Ministry of Trade, Industry and Tourism (MINCIT)
Other Counterparts	Colombia Productiva, National Authority of Aquaculture and Fisheries (AUNAP), Colombian Agriculture and Livestock Institute (ICA), National Food and Drug Surveillance Institute (INVIMA), Ministry of Agriculture and Rural Development (MADR), Producers, MSME, Business (sectoral) Associations and other actors along the shrimp and tilapia aquaculture VC.
Executing agency	UNIDO
Project inputs:	
-Norad:	EUR 2,000,100
-Support costs (13%)	EUR 230,100
-Counterpart inputs:	In kind
-Grand Total:	EUR 2,000,100 (incl. 13% support costs)

As part of the Global Market Access Programme (GMAP), the **overall objective** of the country project for Colombia is to facilitate market access for producers and micro, small and medium-sized enterprises (MSME) through strengthening their quality and standards compliance capacity, thus contributing to fostering Colombia's inclusive and sustainable development for enhanced competitiveness.

The project will pursue three outcomes, thus responding to the main compliance challenges identified in the country in alignment with the outcomes of the GMAP:

Outcome 1: Enhanced technical competence and sustainability of the national quality infrastructure system for services supporting the shrimp and tilapia aquaculture VC.

Outcome 2: Enhanced MSME capacity to comply with international standards and technical regulations relevant to the shrimp and tilapia aquaculture VC.

Outcome 3: Strengthened culture for quality along the shrimp and tilapia aquaculture VC.

Approved:

Signature:

Date:

Name and title:

On behalf of
The Republic of
Colombia:



22 Dec. 2020

Saúl Pineda Hoyos
Vice Minister of Business
Development
Ministry of Commerce, Industry
and Tourism

On behalf of
UNIDO:



15 December 2020

LI Yong
Director General

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ACRONYMS AND ABBREVIATIONS

ACUANAL	National Association of Aquaculture/ <i>Asociación Nacional de Acuicultores de Colombia</i>
ACUAPEZ	Technological Development Center/ <i>Centro de Desarrollo Tecnológico Piscícola</i>
ADR	Rural Development Agency/ <i>Agencia de Desarrollo Rural de Colombia</i>
AECID	Spanish Agency for International Cooperation/ <i>Agencia Española de Cooperación Internacional para el Desarrollo</i>
AfT	Aid for Trade
AMyPE	Medium and small producers
ANC	Andean Community of Nations
AREL	Resource-limited fish farmers/ <i>Acuicultores de Recursos Limitados</i>
ASMUDEPA	Association of Women Seeds of Peace/ <i>Asociación de Mujeres Semillas de Paz</i>
ASTM	American Society for Testing and Materials
AUNAP	National Authority of Aquaculture and Fisheries/ <i>Autoridad Nacional de Acuicultura y Pesca de Colombia</i>
BIPM	International Bureau of Weights and Measures/ <i>Bureau International des Poids et Mesures</i>
BPO	Business Process Outsourcing
BPPA	Good Aquaculture Production Practices/ <i>Buenas Prácticas de Producción Acuícola</i>
BSI	British Standards Organization
BSO	Business Service Organization(s)
CAB	Conformity Assessment Bodies
CENIACUA	Aquaculture Research Center of Colombia/ <i>Centro de Investigación de la Acuicultura de Colombia</i>
CIPM	International Committee for Weights and Measures
COP	Colombian currency/ <i>Peso Colombiano</i>
COPANT	Pan American Technical Standards Commission/ <i>Comisión Panamericana de Normas Técnicas</i>
DANE	National Administrative Department of Statistics/ <i>Departamento Administrativo Nacional de Estadística de Colombia</i>
DFA	Directorate of Fisheries and Aquaculture
DIAN	National Tax and Customs Directorate of Colombia/ <i>Dirección de Impuestos y Aduanas Nacionales de Colombia</i>
DIMAR	Maritime General Directorate/ <i>Dirección General Marítima de Colombia</i>
DIRENA	Development with Regional Identity between Spain and Nariño/ <i>Desarrollo con Identidad Regional entre España y Nariño</i>
DNP	National Planning Department/ <i>Departamento Nacional de Planeación de Colombia</i>
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FEDEACUA	Colombian Federation of Aquaculture/ <i>Federación Colombiana de Acuicultores</i>
FTA	Free Trade Agreement(s)
GDP	Gross Domestic Product
GMP	Good Manufacturing Practices
GNI	Gross National Income
GMAP	Global Market Access Programme

GQSP	Global Quality and Standards Programme
GVC	Global Value Chain
Ha	Hectare(s)
HACCP	Hazard Analysis and Critical Control Points
HQ	Headquarter(s)
IAAC	Inter-American Accreditation Cooperation Organization
IAF	International Accreditation Forum
ICA	Agricultural and Livestock Institute of Colombia/ <i>Instituto Colombiano Agropecuario</i>
ICONTEC	Institute for Standardization and Certification/ <i>Instituto Colombiano de Normas Técnicas y Certificación</i>
ICT	Information and Communication Technologies
IEC	International Electrotechnical Commission
ILAC	International Laboratory Accreditation Cooperation
INM	National Institute of Metrology/ <i>Instituto Nacional de Metrología de Colombia</i>
INVIMA	National Food and Drug Surveillance Institute
IQF	Individually Quick Frozen
IQNet	International Network of Partner Certification Bodies
ISID	Inclusive and Sustainable Industrial Development
ISO	International Organization for Standardization
IT	Information Technology
ITO	Information Technology Outsourcing
KPI	Key Performance Indicator(s)
KPO	Knowledge Process Outsourcing
M	Million
MADR	Ministry of Agriculture and Rural Development/ <i>Ministerio de Agricultura y Desarrollo Rural de Colombia</i>
MADS	Ministry of Environment and Sustainable Development/ <i>Ministerio de Ambiente y Desarrollo Sostenible de Colombia</i>
MERCOSUR	Southern Common Market/ <i>Mercado Común del Sur</i>
MINCIT	Ministry of Trade, Industry and Tourism/ <i>Ministerio de Comercio, Industria y Turismo de Colombia</i>
MRA	Mutual Recognition Agreement(s)
MSME	Micro, Small and Medium Enterprise(s)
NAB	National Accreditation Body
NDP	National Development Plan
NMI	National Metrology Institute
NOK	Norwegian Krone
NORAD	Norwegian Agency for Development Cooperation
NQI	National Quality Infrastructure
NQIS/NQS	National Quality Infrastructure System/ National Quality System
NSB	National Standardization Body
NTC	Colombian Technical Standard/ <i>Norma Técnica Colombiana</i>
OECD	Organization for Economic Co-operation and Development
ONAC	National Accreditation Body/ <i>Organismo Nacional de Acreditación de Colombia</i>
PASC	Pacific Area Standards Congress
PC	Project Coordinator
PDET	Development Programme with Territorial Approach/ <i>Programa de Desarrollo con Enfoque Territorial</i>

PLANDAS	National Plan for the Development of Sustainable Aquaculture in Colombia/ <i>Plan Nacional para el Desarrollo de la Acuicultura Sostenible en Colombia</i>
PM-QIS	Project Manager - Quality Infrastructure and Smart Production Division, UNIDO
PMU	Project Management Unit
PTP	Productive Transformation Programme of Colombia (currently: Colombia Productiva)
QI	Quality Infrastructure
QIS	Quality Infrastructure System
QP	Quality Policy
QTR	Quarter
RBM	Results-Based Management/ Results Based Monitoring
RCM	Colombian Metrology Network/ <i>Red Colombiana de Metrología</i>
ROM	Results Oriented Monitoring
SC	Steering Committee
SDG	Sustainable Development Goal(s)
SDO	Sectoral Standards Development Organization(s)
SENA	National Learning Service/ <i>Servicio Nacional de Aprendizaje</i>
SI	International System of Units
SIC	Superintendency for Industry and Commerce/ <i>Superintendencia de Industria y Comercio de Colombia</i>
SICAL	Colombian National Quality Subsystem/ <i>Subsistema Nacional de Calidad de Colombia</i>
SICEX	Foreign Trade System/ <i>Sistema de Comercio Exterior de Colombia</i>
SIM	Inter-American Metrology System
SIMCI	Integrated Illicit Crop Monitoring system/ <i>Sistema Internacional de Monitoreo de Cultivos Ilegales</i>
SME	Small and Medium-sized Enterprise(s)
QIS	Standards and Quality Infrastructure
SWOT	Strengths-Weaknesses-Opportunities-Threats
T	Ton(s)
TBT	Technical Barrier(s) to Trade
TC	Technical Coordinator
TCB	Trade Capacity Building
ToR	Terms of Reference
TR	Technical Regulation(s)
UNE	Spanish Standardization Organization/ <i>Asociación Española de Normalización</i>
UNIDO	United Nations Industrial Development Organization
UPA	Agricultural-Livestock Production Units/ <i>Unidades Productivas Agropecuarias</i>
USD/\$	Dollars of the United States of America
USAID	United States Agency for International Development
VAT	Value Added Tax
VC	Value Chain(s)
WB	World Bank
WEF	World Economic Forum
WTO	World Trade Organization
ZOMAC	Zones most affected by armed conflict/ <i>Zonas más afectadas por el conflicto armado en Colombia</i>

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A. CONTEXT

A.1. Socio-economic outlook

A.1.1. Overview

Colombia has experienced a stable economic growth for most of the past two decades, that allowed the country to acquire a good position at regional and international level. It has a relative good macroeconomic environment, where inflation and interest are adjusted to international parameters and the volatility of the exchange rate has moderated. However, the country was affected by the fall in oil prices in the 2014-2016 period (oil accounts for nearly 50% of its total exports) and the year 2017 was marked by lower than expected economic growth in response to the environment of uncertainty, both internally and in international markets, the low growth of emerging economies and the global slowdown. After slowing down to 1.4 percent in 2017, economic growth accelerated to 3 percent in the first half of 2019, driven by robust private consumption and stronger investment. Growth was projected to accelerate to 3.3 percent in 2019, supported by stronger investment growth, accommodative monetary policy, and the dissipation of some transitory factors that affected growth in the first semester¹. As a favorable point, it should be noted that there were important advances in electricity quality (36 positions) and closing the credit gap (32 positions).

The Colombian economy secured a positive performance in 2019, particularly when compared to other economies in the region². For 2020, the economy is expected to remain solid on the back of robust growth in fixed investment amid lower corporate taxes and fiscal exemptions, and still-healthy private consumption³. It is expected to accelerate further to 3.6 percent in 2020, as private consumption growth remains strong, and investment spending is boosted by lower effective corporate taxes and an expected recovery in residential investment and improved budget execution at the national level. Higher profitability in the oil sector is expected to incentivize investments in exploitation and exploration. A larger number of financial closings for the 4G projects and a pick-up in execution of existing projects augurs well for investment over the 2020-2021 period. Accommodative monetary policy and favorable financial conditions in the domestic market will also support growth.⁴

Colombia has a total population of 49.3 million, of which 19.55% live in rural areas. Labor force accounts for 54.38% of the population, half of which (51.3%) is self-employment, and unemployment remains at 8.9%⁵. Female labor force participation rate was 57.9% in 2015⁶. Despite the economic growth of the country and the remarkable social change achieved in this century, with a strong fall in poverty (from 49.7% in 2002 to 26.4% in 2017) and a sustained increase in the middle class (which has gone from 16.3% to 31.0% in the same period)⁷, one third of the Colombian population lives below the poverty line and inequalities are strong. Colombia has a Gini coefficient of 0.497⁸, one of the highest in Latin America.

In the Global Competitiveness Report 2019, Colombia scored 63 and occupied the 57th position out of 140 countries⁹, a positive trend from position 69 in years 2012 and 2013¹⁰. The analysis of the country profile (Figure 1) shows that Colombia performs better in the sub-indexes of Health (score 95, position 16) and Macroeconomic stability (90-43), being Innovation capability (36-77), Institutions (49-92) and ICT (Information and Communication Technology) adoption (50-87) the weakest pillars. Compared with average for Latin America and the Caribbean countries, Colombia performs better in all pillars, and the country only performs worst for ICT adoption if compared with average for upper middle-income group.

¹ World Bank (2019).

² BBVA (2020). Colombia Economic Outlook. First quarter 2020

³ Focus Economics (2020). *Colombia Economic Outlook*.

⁴ WB (2019).

⁵ WB (2017) and OECD (2017) for self-employment (data as of 2015).

⁶ Ibid. Data as of 2015.

⁷ DNP (2018). *Bases del Plan Nacional de Desarrollo 2018-2022*.

⁸ World Bank (2019).

⁹ WEF (2019). *Global Competitiveness Report 2019*.

¹⁰ WEF. *Global Competitiveness Reports*, period 2011-2012 to 2017-2018.

In the Doing Business rating, Colombia occupies the 67th position out of 190 countries, after obtaining a slight deterioration in the last year (position 65th in 2019)¹¹. In Latin America and the Caribbean countries, Colombia is the third highest ranked economy, where Mexico and Puerto Rico have the first two places¹².

Payment of taxes and fulfillment of contracts are the most problematic factors for doing business in Colombia.

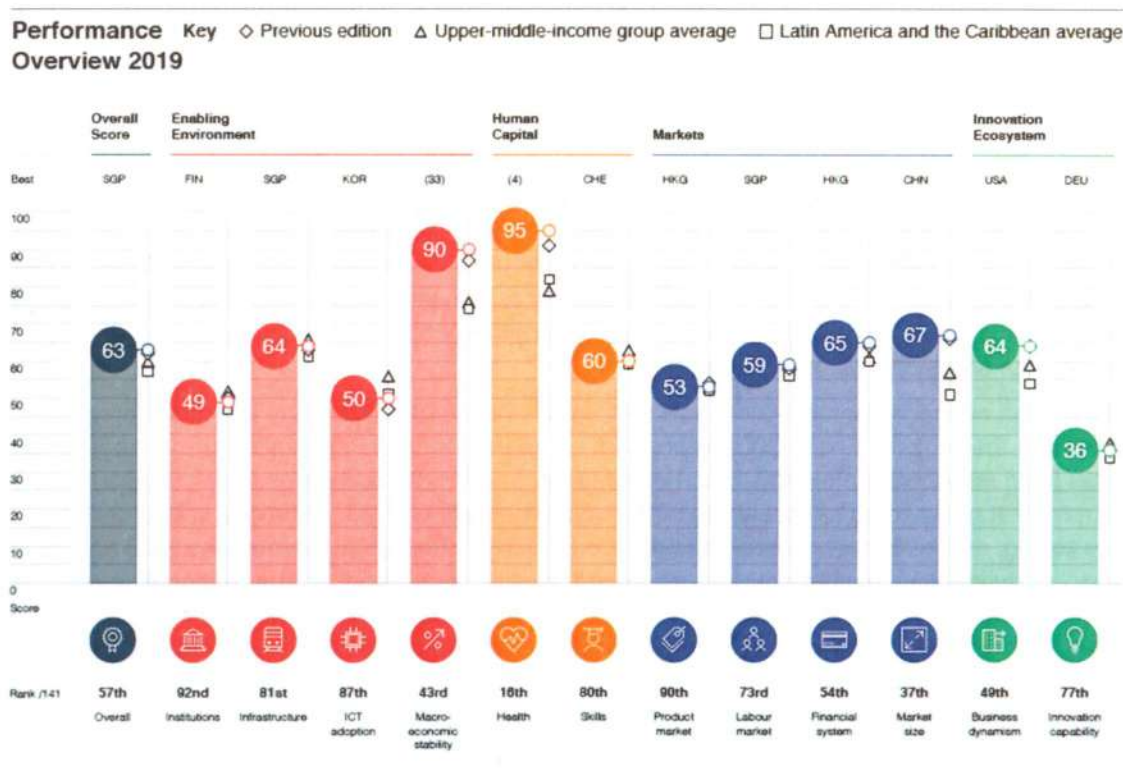


Figure 1. Competitiveness performance overview - Colombia. Reprinted from WEF, Global Competitiveness Report, 2019.

Foreign trade plays an important role in the development trajectory of Colombia. The country is member of the World Trade Organization (WTO) since 30th April 1995 and international trade has been multiplied by five in the past ten years, being 17.1% of GDP in 2016-2018¹³. However, the country's exports have been declining steadily since 2011 due to falling oil prices and economic slowdown in its key partner markets, while imports have increased, leading to a trade deficit since 2014.

Colombia has signed numerous bilateral and regional (Andean Community of Nations, ANC; MERCOSUR; Pacific Alliance) free trade agreements (FTA), including a FTA with Norway. In 2016 the country exported USD 37.8 billion (the 56th largest exporter in the world), of which 84% were products, 16% services and 5.7% others. Exported products were 48.0% fuels and mining, 24.3% manufacturing and 22% from agriculture¹⁴. Top five markets for merchandise exports were USA (32.9%), Panama (6.2%), China (3.6%), European Union (16.1%) and Ecuador (3.9%)¹⁵. Imports are constituted mainly of services, primary resources, machinery and equipment for the industry, grains, chemical products, transport equipment, electric and electronic equipment sectors. Colombia's main suppliers are the USA, China and Mexico.

¹¹ DNP (2018). *Doing Business 2018. Informe de resultados para Colombia*. Banco Mundial.

¹² World Bank (2020). *Doing Business 2020. Fact Sheet: Latin America and the Caribbean*

¹³ WTO (2019). *Trade Profile, Colombia*

¹⁴ Ibid.

¹⁵ Ibid. Data from 2016.

Global Value Chains (GVC) participation of Colombia showed a positive tendency in the period 1995-2011 (14.2% increase) and was 37.9% in 2011¹⁶. A low result compared with the average for developing economies (48.6%) and developed economies (48.0%) but increase in GVC participation for the mentioned period was higher for Colombia than for developing and developed economies (13.1% and 8.0%, respectively).

To assist economic development, Colombia received USD 213.5 millions of Aid for Trade (Aft) in 2017¹⁷. The five top donors were USA (37%), UK (22%), Germany (13%), Canada (9%) and EU institutions (5%). Top Aft priorities were international competitiveness, trade policy and trade facilitation, and the main supported sector was agriculture, forestry and fishing (75.45%).

A.1.2. Socio-economic challenges

In the OECD Economic Survey: Colombia 2019, is stated that Colombia has made a good economic and social progress over the last two decades. Sound macroeconomic policies boosted confidence which together with favorable demographics and external conditions underpinned resilient economic growth, what has contributed to higher living standards and together with improving access to education and social transfer brought significant social improvements. Well-being indicators in Colombia (Figure 2) highlight key challenges for the socio-economic development.

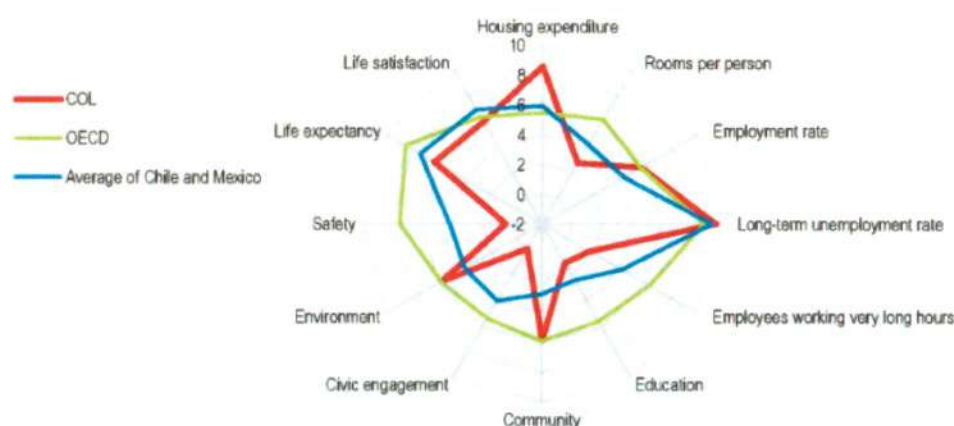


Figure 2. Well-being indicators in Colombia. Reprinted from OECD 2019, Economic Survey of Colombia.

Embarking on a path towards inclusive and sustainable growth is vital in the context of successfully eradicating poverty, providing equal opportunities to men and women and solidifying progress towards lasting peace. Furthermore, the country needs to work towards bolstering government capacities, building strong institutions, and effectively mobilizing domestic revenues to facilitate effective implementation of its public policy priorities¹⁸.

In this context, the country should diversify its production and export offer towards products with greater added value, in order to reduce its economic dependence on coal and oil. Improvement in the levels of education, technological innovation, as well as the development of the basic physical infrastructure, the improvement of the local market, and the generation and access to new markets making efficient use of its resources, are key factors in achieving it¹⁹. In addition to this, the signing of the peace agreement in 2016 increased the demand for accompaniment in the processes of crop substitution, where the participation and leadership of rural women are success factors²⁰, as they have a greater interest in

¹⁶ % share in total gross exports. Data available is as of 2011. WTO (2017). *Trade in Value Added and Global Value Chains – Colombia*.

¹⁷ WTO (2017). *Aid for Trade at a Glance, Colombia*.

¹⁸ OECD (2015). *Colombia Policy Priorities for Inclusive Development*.

¹⁹ OECD (2014). *Better Policies Series - Colombia: Policy Priorities to Boost Productivity and Social Inclusion*. And OECD (2017). *Economic Studies of the OECD, Colombia*.

²⁰ i) UNIANDES and USAID (2016). *Observatorio de la Democracia, The Americas Barometer Colombia. Peace, Post-Conflict and Reconciliation*; ii) Céspedes-Báez, L.M. & Jaramillo Ruiz, F. (2018). Peace without women does not go! Women's struggle for inclusion in Colombia's peace process with the FARC. *Colombia Internacional*, 94, Apr. 1.

rebuilding the social fabric and trust in the rural community, fundamental elements for collective action²¹. The post-conflict reconstruction efforts could also provide a boost to confidence and support growth through increased investments, particularly in the agriculture and energy sectors. It would, however, also put additional pressures on spending, making continued fiscal consolidation efforts necessary²².

With a view to building on this significant progress, the Colombian government prepared the bases of the National Development Plan 2018-2022, subsequently issued by Law 1955 of 2019.

A.1.3. Socio-economic framework

A.1.3.1. The National Development Plan 2018-2022

The National Development Plan (NDP) 2018-2022, "Pact for Colombia. Pact for equity", outlines the course of action to accelerate economic growth and equity of opportunities in Colombia, based on the equation LEGALITY + ENTREPRENEURSHIP = EQUITY. The innovative elements of the NDP 2018-2022 that will achieve this goal are the increase in productivity, led by a deep digital transformation; a commitment to agribusiness that links small and medium producers; a regulatory and tax improvement that promotes entrepreneurship and business activity; greater efficiency of public spending; a modern social policy centered on the family, that connects the poor and vulnerable to markets; and the use of territorial potentials by connecting territories, governments and populations²³.

The "Pact for legality" is based on the consolidation of the Social State of Law, to guarantee coexistence and ensure access to effective, efficient and effective justice. The "Pact for entrepreneurship" and productivity is a pact for a dynamic, inclusive and sustainable economy, and it includes an alliance to boost the development and productivity of rural Colombia. The "Pact for equity" is a pact for a modern social policy focused on the family, efficient, quality and connected to markets, which seeks to guarantee equal opportunities for all Colombians (social inclusion and opportunities for productive inclusion). The NDP also includes a set of twelve transversal pacts that operate as enablers, connectors and coordination spaces, which make it possible to comply with the fundamental equation. One of those transversal pacts is "Pact for the equality of women", that include strengthening gender institutions in Colombia, educational and economic empowerment for the elimination of gender gaps in the labor market; care and other coordinated actions; political empowerment for the participation of women in power and decision-making scenarios; sexual and reproductive rights, promotion of the right of women to a life free of violence; rural women as a pillar for development of the countryside; and gender equity for the construction of peace. These pacts identify the strategic projects that will allow to stimulate the economy and promote social development, and the focused efforts at the territorial level, considering the particularities of each region. This will be consolidated in the "territorial pacts", with specific agreements between the nation and subnational governments. The regional pacts are structured in nine regions: Pacific, Caribbean, Kriul & Seaflower Region, Central Region, Santanderes, Amazonia, Coffee axis and Antioquia, Orinoquia/Llanos and Oceans. In the Pacific region, the NDP is aimed to "*Diversity for equity, peaceful coexistence and sustainable development*" and in Central region is focused as "*innovation center and logistic node of national and international productive integration*".

The NDP contributes to the 2030 Agenda and its Sustainable Development Goals (SDG). In particular, it is aligned with SDG 1, End of poverty; SDG 2, Zero hunger; SDG 3, Health and well-being; SDG 4, Quality education; SDG 5, Gender equality; SDG 8, Decent work and economic development; SDG 9: Industry, innovation and infrastructure; SDG 10, Reduction of inequalities; SDG 11, Sustainable cities and communities; SDG 16: Peace, justice and strong institutions and SDG 17, Partnership to achieve the objectives.

²¹ i) Céspedes-Báez, L.M. & Jaramillo Ruiz, F. (2018). Peace without women does not go! Women's struggle for inclusion in Colombia's peace process with the FARC. *Colombia Internacional*, 94, Apr. 1. ii) IEG, WB Group (2017). *Women's Empowerment in Rural Community-Driven Development Projects*.

²² WB (2018). *Overview Colombia*.

²³ DNP (2018). *Bases del Plan Nacional de Desarrollo 2018-2022*.

A.1.3.2. The PlaNDAS

The National Plan for the Development of Sustainable Aquaculture in Colombia (PlaNDAS) is an instrument of sectoral policy, that brings together several documents that are an instrumental part of the National Policy for the Development of Sustainable Aquaculture. It was prepared by the National Authority for Fisheries and Aquaculture of Colombia (AUNAP) and the Ministry of Agriculture and Rural Development (MADR) in 2014, on the basis of a diagnosis carried out by the Food and Agriculture Organization of the United Nations (FAO), and as result of joint efforts of the government, the private sector and academics.

The PlaNDAS is the result of a consultative process that establish the course of action to promote the ordering and competitive development of aquaculture, with criteria of economic, social and environmental sustainability. It includes a diagnosis of the aquaculture sector in Colombia; an analysis of the institutional framework and regulations for aquaculture; the vision, objectives and principles; the general strategy and the action plan.

The vision of the sustainable development of aquaculture in Colombia is that *"by the year 2023 Colombian aquaculture will have developed successfully in continental and marine environments, through the application of a comprehensive policy. It will be made up of a system of practices that are fully sustainable in terms of the environment, inclusive and participative in the social and highly competitive; it will have consolidated itself as one of the important pillars of rural development and food security in the country and will have reached important levels of penetration in the domestic and foreign markets, with high quality and safe products"*²⁴.

A.1.3.3. Colombia Productiva

Colombia Productiva (former PTP programme) was created by the Ministry of Trade, Industry and Tourism (MINCIT) in 2008, to promote productivity and competitiveness in the industry and to meet the challenges of the National Competitiveness and Productivity Policy (Conpes 3527 of 2008), task that was reinforced with the issuance of the Productive Development Policy (Conpes 3866 of 2016).

Colombia Productiva is one of the executing arms of the country's Industrial Policy, helping the industry to produce more, with better quality and greater added value, to be more productive and competitive, increasing the ability to respond to the demands of global markets²⁵. This institution is also an articulator of the management of public entities and private organizations, with the objective of overcoming commercial, regulatory, tariff and non-tariff bottlenecks that affect the productivity and competitiveness of the industry, especially in sectors that have been identified as important or strategic for the productive development of the country.

Since 2015, Colombia Productiva began executing technical assistance programmes within enterprises and productive units to improve their productivity indicators. At present, it works with 18 industries that were prioritized by the most recent Productive Development Policy (Conpes 3866 of 2016), due to its impact on production, employment and exports, and the potential they have to generate products and services with greater added value and sophistication²⁶. Colombia Productiva implemented projects in 29 departments and supported with technical assistance to more than 11,000 productive units.

By 2018, Colombia Productiva had more than 60 projects underway with the goal of impacting more than 1,000 enterprises to improve their levels of productivity, quality and competitiveness, so that they can respond to the demands of the international markets and have greater capacity to take advantage of the commercial agreements the country has in force. The institution focuses on working inward in companies to help them improve their indicators, make their production times more efficient, reduce costs and increase added value and profitability.

²⁴ AUNAP, MADR (2014). *National Plan for the Development of Sustainable Aquaculture in Colombia (PlaNDAS)*.

²⁵ PTP (2018). <https://www.ptp.com.co/conozcanos/que-hace-ptp>

²⁶ Ibid.

The 18 sectors prioritized by Colombia Productiva are cocoa and its derivatives; specialty coffees and coffee derivatives; aquaculture; bovine meat; dairy products; fruits and their derivatives (Hass avocado, pineapple, mango and papaya); processed foods; mobility industries (auto parts, shipyard and aeronautics); industries for construction; fashion; cosmetics; pharmaceutical Industry; basic chemistry; plastic and paints; business/knowledge process outsourcing (BPO, KPO) and information technology (IT) outsourcing (ITO); software and IT; wellness tourism; and nature tourism.

Similarly, in 2018 - 2019 the Colombian government established the strategy named "Fábricas de Productividad", a commitment to improve the productivity and competitiveness of companies through alliances with regional actors to perform 4,000 interventions to micro-SMEs throughout the country, during 2018-2022 in order to increase their productivity by 8%. This strategy, unlike the previous ones, serves all sectors of the national economy.

Among all the services, Colombia Productiva offers are technical assistance, intervention and support in companies to adopt international methodologies for productive improvement, specialized training programs in partnership with companies and educational institutions, and guidance and financing for obtaining certifications as a requirement for entry to international markets.

A.1.3.4. The Sectoral Business Plans for Colombian Aquaculture

Colombia Productiva recognizes that aquaculture is a productive sector that is demonstrating its capacity for growth in productivity, investments and exports. Two Sectoral Business Plans establish the strategic challenges and road map directed at increasing competitiveness of aquaculture in national and international markets: 1) the Sectoral Business Plan for Pisciculture, 2015, and 2) The Development Plan for the Shrimp Farming Sector, 2010. The first one is addressed to the cultivation and processing of tilapia, trout and native species, and establishes a vision for 2032; the second one covers cultivated shrimp and establishes a vision for 2020.

The **Sectoral Business Plan for Pisciculture, 2015** (PTP-MINCIT, MADR, FEDEACUA, AUNAP, government of Huila, among other institutions) is the instrument of Colombia Productiva aimed to identify the strategic priority actions and road map so that pisciculture could be highly competitive in the international and national markets. The vision of the plan is that *"by year 2032 the Colombian continental fish farming sector will be recognized as one of the leaders of the region in exports and will be consolidated in the domestic market, by guaranteeing the permanent offer of fresh, frozen and added value products of continental fish species, at competitive prices and in optimal conditions of quality, safety and sustainability. For this, it will strengthen the productivity, associativity, innovation, internationalization along the value chain, focusing on the most productive regions"*²⁷. This vision will be achieved through three main objectives: 1) open and consolidate markets; 2) develop a permanent competitive offer; 3) generate an adequate productive environment. The Plan considers three scenarios (optimistic, medium, conservative) and presents a flagship, which will make possible to apply most of the strategies of the Business Plan in the very short term. The goals for 2032 are 454.125 tons of production, more than 454,200 jobs and 31,203 tons exported. Even the most conservative scenario forecast a production to 2020 of 130,972 tons (84,426 in 2013) and 224,007 tons to 2030. The Plan foresees the development and implementation of associative, productive, logistic and promotion schemes that ensure the competitive, profitable and sustainable increase in supply, and generation of products that meet the needs of Colombian consumers, through the integration of the productive system and the promotion of national consumption.

The **Development Plan for the Shrimp farming sector, 2010** (PTP-MINCIT, MADR, AUNAP), establishes the vision of the sector for 2020 as *"to be an important player worldwide, recognized for its capacity for innovation and the sustainability of its operations, capitalizing on geographic and technological advantages, and consolidating itself as a generator of employment and development in the communities where it operates"*²⁸. The vision outlined has been articulated in four strategic objectives: 1) triple the joint value of the sector's exports in the next 10 years; 2) double the per capita

²⁷ PTP-MINCIT, MADR, AUNAP, Governance of Huila (2015). *Sectoral Business Plan for Pisciculture for Colombia*.

²⁸ PTP-MINCIT, MADR, AUNAP (2010). *Development Plan for the Camaroniculture Sector*.

consumption in the next 10 years and supply at least 75% of domestic demand with Colombian shrimp 3) differentiate Colombian shrimp in markets where it competes for the sustainability of its production methods; 4) to be a trigger for growth and development in the communities where the sector has operations.

In order to achieve the objectives, it includes five strategic lines: i) aggressively market Colombian shrimp in the markets with the greatest potential; ii) implement a campaign to promote domestic consumption of Colombian shrimp; iii) promote research and technological innovation; iv) promote the sustainability of Colombian shrimp; v) ensure that all those involved are an integral part of the development generated by the sector.

A.1.3.5. The Sectoral Pacts: Aquaculture

Colombia's government has established a new strategy in policy for the generation of new sources of growth known as "Pact for growth and job creation". This strategy emerges as a private public agreement that seeks to positively impact specific sectors, one of them the fisheries and aquaculture sector, whose agreement was signed in January 2020. This pact focuses on the development of actions, among others, to overcome bottlenecks in procedural issues for aquaculture formalization, weakness in the application of sanitary and quality measures for the aquaculture and fisheries sector, under the use of water resources.

The agreement in question acquires an important boost considering that in February 2020, in the framework of the possession of the new Minister of Agriculture and Rural Development, the President of the Republic Ivan Duque, entrusted the new minister the leadership of the aquaculture sector and enabled new chains and market channels.

A.2. Territorial analysis

Colombia is a unitary republic made up of thirty-two departments and a Capital District. The project *"Strengthening quality and standards compliance capacity of shrimp and tilapia aquaculture VC in Colombia to facilitate market access – GMAP Colombia"* will focus its interventions in **Tumaco** (Department of Nariño), for shrimp VC, and Department of **Huila**, for tilapia VC. These areas correspond to the Pacific and the Central Region (Figure 3), respectively, considered in the NDP 2018-2022.

Huila, as the national cluster for tilapia, is also the focus of Colombia Productiva flagship project included in the Sectoral Business Plan for Pisciculture for the farming of tilapia, which conclusions and good practices could be extended to other areas and regions of the country.

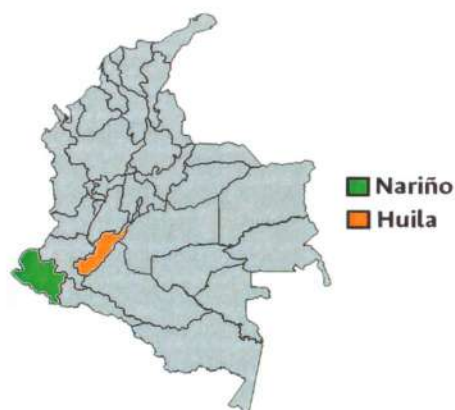


Figure 3. Capital district and departments of Colombia.

Nariño and Huila have a participation of 1.6% and 1.7% in the GDP (Figure 4), which situates them in the middle section, among the poorest (0.1%) and Bogotá as the richest (26%). But given the heterogeneity of the development in the country, the distribution by social classes on a departmental scale is diverse (Figure 5). In Nariño and Huila, a weak middle class (15.2% and 19.5%, respectively) is overwhelmed by the population in vulnerable condition (43.5% and 43.9%) and the population in

poverty (40.2% and 35.7%, respectively). The probability of leaving poverty is positive, despite low (4.4% and 4.3%, respectively for Nariño and Huila)²⁹.

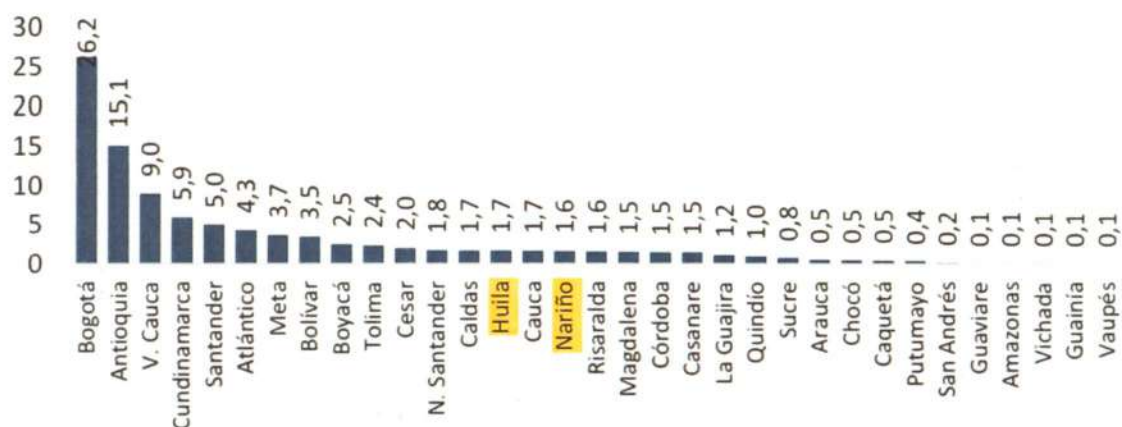


Figure 4. Participation in GDP by departments and Bogotá. Reprinted from NDP 2018-2022.

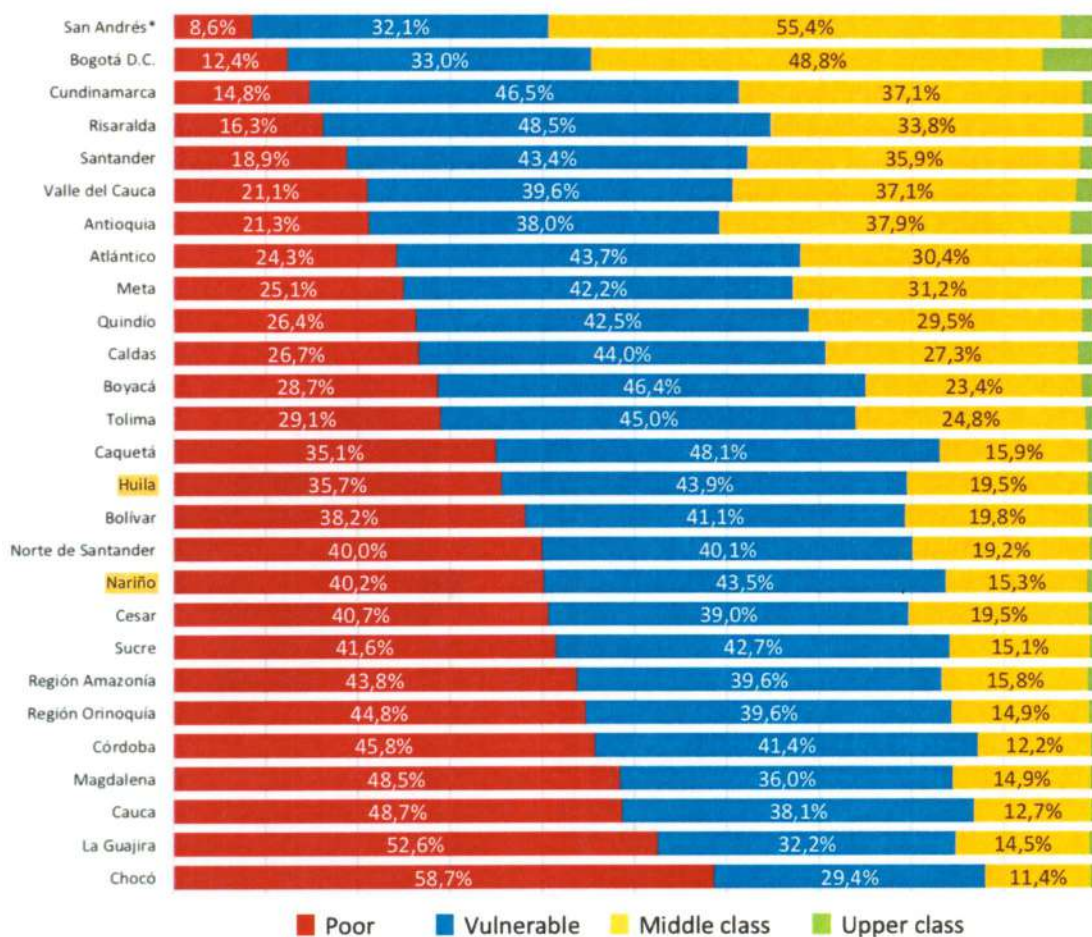


Figure 5. Composition of social classes by departments and Bogotá. Reprinted from NDP 2018-2022.

²⁹ Ariza and Gómez (2018), cited in the NDP 2018-2022.

A.2.1. Pacific - Nariño and Tumaco

The department of **Nariño** is in the Southwest of Colombia, in the coastal area of Pacific Ocean, in the border with Ecuador. It has a population of 1,787,545³⁰ and is one of the four departments of the **Pacific region**.

Poverty is one of the difficulties that most affects the region, along with low productivity compared to the rest of the country and among its departments. The coast is still marked by economic activities associated with agriculture and mining. Business and social services, manufacturing industry and trade are mostly concentrated in the Andean zone of the Pacific region and accounted for 71.1% of the regional economy in 2016³¹.

The region has potential in terms of agro-industrial production chains, in fisheries and aquaculture, wood, fruits, coffee, and cocoa, among others. However, the connectivity and transport infrastructure, the lags in coverage of public services and the presence of illicit crops (the Pacific concentrates 38% of the total area sown with coca, being Nariño and Cauca the departments with the highest number of hectares cultivated, 45,735 and 15,960 respectively), among others, are limitations that put a brake on regional development³².

To face these challenges, the NDP 2018-2022 has established the vision "*Diversity for equity, peaceful coexistence and sustainable development*", and proposes for the Pacific region nation-territory articulation strategies to advance in the fulfillment of the following objectives: 1) improve the transportation infrastructure; 2) promote productive development according to the vocations of the region (enhance the productivity of legal activities); 3) increase coverage and quality in the provision of public services; 4) improve the environmental management of the region by strengthening the territorial order.

Municipality of **Tumaco** is in the Southwest of the Department of Nariño, on the Colombian Pacific Coast, close to Ecuador, and is one of the 64 municipalities of the Department. It has an area of 360,238 ha., equivalent to 12.3% of the area of the Department (33,268 km²). Of these, 48.2% are part of the Community Councils; 33.6% are privately owned by large, medium and small producers, and 18.2% belong to the indigenous reserves³³. Population is 187,084 inhabitants, of which 54.7% live in the urban sector and 45.3% in the rural area. In the urban area there are two communes that show the highest rates of poverty, vulnerability and displaced population (zones 4 and 5), in which there are approximately 60 neighborhoods, with an approximate population of 40,994 inhabitants (40% of the population in the urban area of the municipality). The majority population is Afro-Colombian (95%), followed by mestiza (3%) and indigenous (2%)³⁴.

Tumaco is characterized by a marked structural exclusion, in terms of unsatisfied basic needs, poverty, and less access to basic services such as education, health, decent housing and public services. Among other indicators, illiteracy rate is 24% and the unemployment rate is higher than 40%. However, it has enormous potential and comparative advantages for its economic and social development. It has a great wealth of water, port infrastructure and ponds to reactivate the shrimp aquaculture (about 1,200 ha.). It also has agro-ecologically suitable soils for various crops and forest species and a rich environmental, tourist and fishing biodiversity³⁵. It is a fluvial-maritime border zone with Ecuador, a fact that together with weak public inspection services facilitates contraband practices with Ecuador³⁶.

The fishing activity is one of the most important economic activities in the region and includes artisanal fishing and industrial and artisanal aquaculture. According to the 2010 fishery census, there were 4,438 people engaged in fishing activities in the urban area, and approximately 5,200 artisanal fishermen in the rural area³⁷. During the period 1980 to 2000, the shrimp aquaculture managed to consolidate itself

³⁰ Gobierno de Colombia (2018). <https://www.datos.gov.co/Estadisticas-Nacionales/Estimaci-n-Poblaci-n-por-Departamento-2017/cg4z-y53z>

³¹ NDP 2018-2022.

³² SIMCI (2018).

³³ Cámara de Comercio de Tumaco (2014). *Contexto socio-económico del municipio de Tumaco*.

³⁴ Ibid.

³⁵ Ibid.

³⁶ Information collected during the field mission.

³⁷ Cámara de Comercio de Tumaco (2014). *Contexto socio-económico del municipio de Tumaco*.

as a locomotive in the generation of employment and welfare, through the cultivation of 1,584 hectares, in around eleven shrimp farms (nearly 3,000 people were employed)³⁸. In addition to small associations pools, with a production close to 2,500 tons/year. They, together, consolidated the municipality of Tumaco as the first producer and exporter of cultivated shrimp in the country. However, diseases such as the white spot and other factors, included the revaluation of the COP, determined the end of this industry, with the consequent closure of large companies. The activity in Tumaco was basically reduced to a livelihood for small fish farmers and processing plants that operate far below their capacity; however, shrimp aquaculture has high potential to drive the socio-economic development of Tumaco³⁹.

The Plan of Action of the Municipality of Tumaco has the motto "*Tumaco for all on the roads of peace*" and considers several actions in terms of productive transformation and convergence for peace. Among them, initiatives aimed at increasing the number of people benefited with science, technology and social innovation initiatives; increase territorial investment per capita in the agricultural sector of the Municipality; promote associations that are linked to socio-business models for transformation and commercialization; strengthen production practices for self-sales and marketing for the generation of income and achieve the integration, articulation and coordination of the different sectoral and inter-institutional interventions in the territory.

Also important to consider, Tumaco is a prioritized Municipality classified as ZOMAC (one of the 344 municipalities considered as the most affected by the armed conflict) and as a PDET Municipality (one of the 170 Municipalities prioritized for their high impact by the conflict and the need for greater speed in investments, to overcome the conditions that prolonged the armed conflict and to guarantee their non-repetition). All this means that at the end of 2018, Tumaco agreed with the National Government to create Action Plans that enable the structural transformation of living and production conditions. Specifically, in its pillar number 6, Economic Reactivation and Agricultural and Livestock Production, one of the initiatives proposed is to "*Strengthen the aquaculture production chain through the implementation of integral productive projects that include agricultural extension, land adaptation, transformation, commercialization and organizational strengthening in the PDET municipalities*". The importance of this proposal is based on the fact that the initiatives that are feasible and prioritized in these agreements can be implemented in the next 10 years, according to budgetary availability, the fiscal framework of the national and territorial public sector, and the supply of the private sector.

The selection of Tumaco as an intervention area of the project for shrimp aquaculture has been motivated by two factors: 1) the potential aquaculture represented for the inclusive development of the area, especially in the context of the peace agreements and eradication of illegal plantations, as it is a means of incomes for families in situations of poverty and vulnerability; 2) the results achieved by a previous project implemented by UNIDO ("*Improving productivity and competitiveness of shrimp value chain in LAC through regional Cooperation*"), that constitute a good baseline for the implementation of the project, so maximizing the efficiency in resource use and impact of results.

A.2.2. Central - Huila

The department of **Huila**, which capital is Neiva, is in the Southwest of Colombia. Huila is one of the five departments of the **Central region** and is divided politically and administratively into 37 municipalities. It has a population of 1,182,944⁴⁰ and an area of 19,890 km², which represents 1.74% of the national territory.

The Central region is strategically located in the corridor that connects all other regions of the country, making it an engine of agricultural and industrial economic activity, and a driver of national economic growth. Despite this advantage, low regional integration, low levels of competitiveness, and the environmental impact of productive activity on strategic ecosystems restrict the potential of the region. To boost economic development, it is necessary to reactivate the logistic development, promote innovation processes, and protect water availability. In terms of productivity, Tolima and Huila are among the ten largest contributions to the primary sector in GDP and have great potential in terms of

³⁸ PTP (2014). *Hacia la sostenibilidad y competitividad de la acuicultura colombiana*.

³⁹ Ibid, and information collected during the field mission.

⁴⁰ Gobierno de Colombia (2018). <https://www.datos.gov.co/Estadisticas-Nacionales/Estimacion-Poblacion-por-Departamento-2017/cq4z-y53z>

human and natural resources. Thus, it is necessary to implement processes that contribute to increasing the capacities of the producers, their knowledge and the development of science, technology and innovation activities that maximize productivity and efficiency in the use of resources⁴¹.

To face these challenges, the NDP 2018-2022 has established the vision "*innovation center and logistic node of national and international productive integration*", and proposes for the Central region nation-territory articulation strategies to advance in the fulfillment of the following objectives: 1) connect and accelerate the growth of the region for the country (includes the articulation of a network of regional collection centers); 2) promote creativity, culture, innovation and competitiveness as the engine of the country (includes, among others, the development of innovative and more competitive agricultural production processes); 3) protect and conserve the strategic ecosystems of the region⁴².

According to MADR, Huila was in 2019 the main fish producer nationwide, with 38% of production, followed by Meta with 13%, Nariño 16%, Tolima 9%, Cundinamarca – Boyacá 6% and Antioquia 4%, Tolima and Cundinamarca - Boyacá, each with 5%⁴³. It is one of the five departments supported by the Colombia Productiva through the "Agro Exporta" alliance to improve the competitiveness of fresh trout and tilapia production, with the aim of increasing the exportable supply of these products. The project was articulated through three axes: productivity, quality and international promotion, and a total of 679 small and medium producers have been advised through FEDEACUA. Technical support was provided on issues of business formalization and implementation of good aquaculture practices, which allowed them to improve their processes, food safety in fish processing plants, and reduce the environmental impact in the sector, as well as overall improvement of quality.

Furthermore, the efforts of private sector in Huila regarding quality compliance allowed Colombia to be the first country to receive a "group certification" with 24 producers in 2017 for good practices in tilapia production in reservoirs, awarded by the Global Aquaculture Alliance, in which the links are integrated of the productive chain, from the seed laboratories, the farms and the processing plants. To this achievement (group certification) is attributed the increase in tilapia exports of 2018 by 40% over the previous year⁴⁴. In 2019 a new path was initiated to obtain a new "group certification" with 6 producers from Huila in fishponds, 10 hatcheries and 16 producers in cages, for a total of 32 producers certified (Valid thru November 2020).

With the project "Agro Exporta" in Huila were beneficiated 151 producers as the main group where 15 producers were strengthened in formalization, 15 in quality practices and 15 to prepare to the BPPA certification. From this last group, 14 producers obtained the certification. The results achieved by the "Agro Exporta" project in Huila constitute a good baseline for the implementation of the country project.

The selection of Huila as an intervention area of the project for tilapia culture has been motivated by three factors: 1) the readiness of the department to significantly increase competitiveness through quality and productivity and strengthening linkages along the VC/clustering; 2) the results achieved by Agro Exporta constitute a good baseline to optimize resources while maximizing the impact; and 3) from 2019, Huila will have the first Individually Quick Frozen (IQF) system in Colombia for fish; this means that the region will have a competitive advantage to increase the export offer, creating productive linkages with small and medium producers, meeting market quality requirements to penetrate and deepen in markets like Europe, Mexico and Peru.

A.3. The Global Market Access Programme

Norad and UNIDO have been cooperating for over two decades on providing technical assistance in Trade Capacity Building (TCB) to developing countries. Through more than 30 projects, they supported partner countries to increase their international competitiveness through enhanced NQI and compliance capacity with international standards, resulting in a very active partnership.

⁴¹ NDP 2018-2022.

⁴² Ibid.

⁴³ MINAGRICULTURA (2020). *Data provided through FEDEACUA*

⁴⁴ FEDEACUA, 2018.

In light of the continued and growing relevance of quality and standards compliance for market access, and the solid and positive track-record of joint cooperation, Norad and UNIDO decided to take their cooperation to the next level: a programmatic approach. This strategic and integral approach consolidates UNIDO-Norad interventions within one framework that will lead to synergies, resulting in a more effective and efficient cooperation for greater impact.

The GMAP 2020-2024 reflects this joint programmatic approach. It fits with the priorities outlined in Norad white paper⁴⁵, which underlines the Government of Norway's emphasis on gearing intensified aid to support pro-poor private sector development, particularly through creating a business enabling environment while maximizing development impact.

The proposed Programme presents capacity building opportunities through strengthening selected value chains/sectors in outlined Norad priority countries, being Colombia one of them.

A.4. Quality Infrastructure System

A.4.1. Overview

Quality Infrastructure (QI) is a system that combines initiatives, institutions, organizations (public and private), activities and people. It includes the policies, relevant legal and regulatory framework, and the practices needed to support and enhance the quality, safety and environmental soundness of goods, services and processes.

QI is required for the effective operation of domestic markets, and its international recognition is important to establish its credibility in local and foreign markets. It is also a critical element in promoting and sustaining economic development, as well as environmental and social wellbeing. It relies on metrology, standardization, accreditation, conformity assessment and market surveillance.

A National QIS (NQIS), often named as National Quality System (NQS), includes a Quality Policy (QP) and the institutions which implement it, a regulatory framework, quality service providers, enterprises, customers and consumers (who include citizens as "consumers" of government services), as visualized in Figure 6.

The pillars of a NQIS, are the National Standardization Body (NSB), the National Accreditation Body (NAB) and the National Metrology Institute (NMI). Hence, the standards, metrology and accreditation institutions are imperative for the NQIS to function, and governments need to ensure their establishment, international recognition, and sustainability. In addition to these pillars, the NQI also consists of a wide variety of conformity assessment service providers (CAB) that include calibration laboratories, testing laboratories, inspection bodies and certification bodies for systems, services, products and persons.

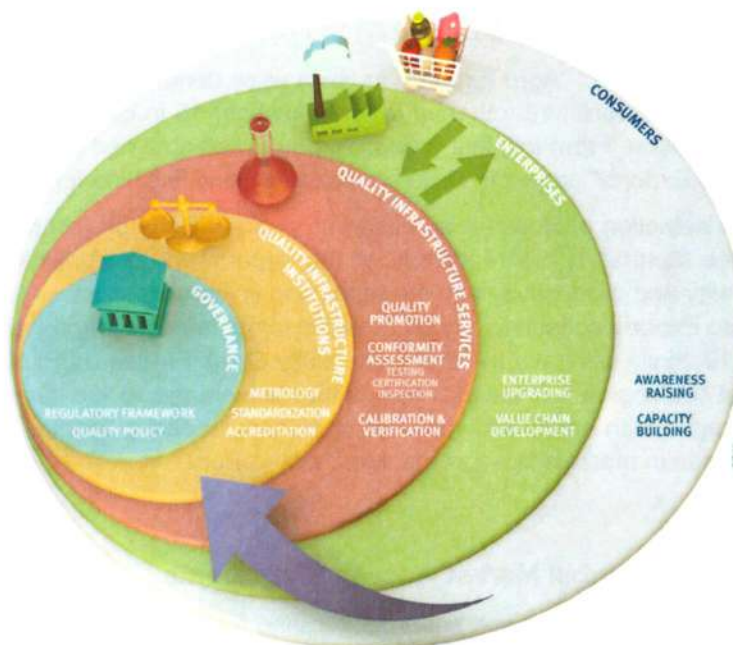


Figure 6. Quality Infrastructure System and UNIDO approach - From policy to consumers.

Figure 7 graphically represents the NQIS and Table 1 summarizes the QI services and institutions at a country level.

⁴⁵ Norwegian Ministry of Foreign Affairs (2015). *Working together: Private sector development in Norwegian development cooperation. Meld. St. 35 (2014–2015). Report to the Storting (white paper) Summary*, p. 15.

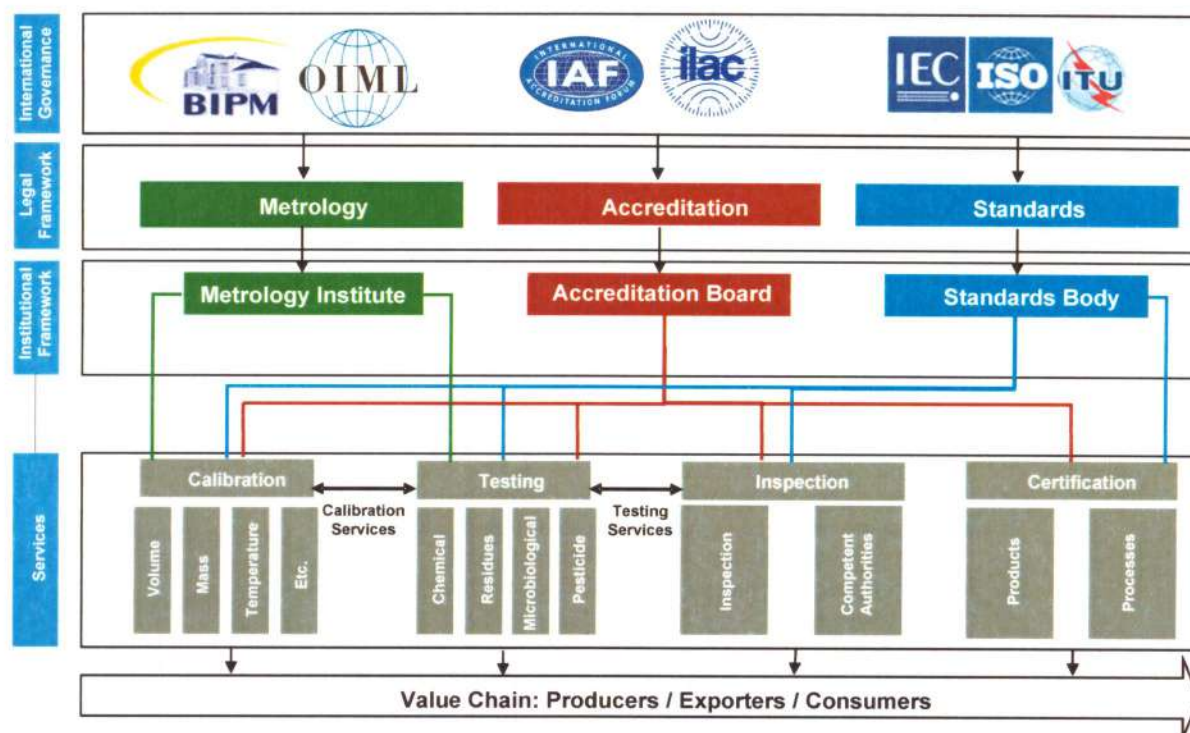


Figure 7. National Quality Infrastructure.

Table 1. Quality infrastructure services and institutions.

Domain	Description	Institution(s)
Standardization	Standards developing. Standards are formal documents, generally developed by consensus, that provide requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose. Standards are considered essentially voluntary in themselves. Suppliers can therefore choose whether to use standards or not. It is only once they are called up in a contract, or referenced in technical regulation, that compliance with standards becomes a legally binding obligation.	• NSB • Sectoral Standards Development Organizations (SDO) • Industry-based standardization organizations
Technical Regulation	Technical Regulations (TR) developing. TR are documents which lay down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method ⁴⁶ . TR establish the mandatory nature through a legal disposition for manufacturing, commercialization or use of product(s), process(es) or industrial premise(s).	• Ministries • National Authorities • Regulatory Commissions • Institutions in charge of inspection and surveillance
Metrology	It is the science of measurement, embracing both experimental and theoretical determinations at any level of uncertainty in any field of science and technology ⁴⁷ . It can be subdivided into <i>scientific metrology</i> (the development and organization of the highest level of measurement	• NMI • Calibration laboratories (public and private)

⁴⁶ WTO (1994). TBT Agreement.

⁴⁷ BIPM (2018).

Domain	Description	Institution(s)
	standards), <i>legal metrology</i> (the assurance of correctness of measurements where these have an influence on the transparency of trade, law enforcement, health and safety) and <i>industrial metrology</i> (the satisfactory functioning of measurement instruments used in industry, production and testing).	Legal metrology department
Accreditation	Third-party attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks⁴⁸. Accreditation is imperative to build up confidence and ensure credibility, to customers and other stakeholders, in the services and results offered by the conformity assessment bodies.	NAB
Inspection	Examination of a product design, product, process or installation and determination of its conformity with specific requirements or, on the basis of professional judgement, with general requirements. Inspection of a process may include inspection of persons, facilities, technology and methodology⁴⁹. Inspection is often conducted on consignments such as import inspection, to ensure that the whole consignment is equivalent to the product sample tested, and also in production.	- General inspection agencies - Import inspection agencies - Enterprises
Testing	Determination of one or more characteristics of an object of conformity assessment, according to a procedure. Testing typically applies to materials, products or processes⁵⁰. Testing can vary from a non-destructive evaluation (e.g. X-ray, ultra sound, pressure testing, electrical, etc. where after testing the product is still fit for use) to a total destructive analysis (e.g. chemical, mechanical, physical, microbiological, etc. where after testing the product is no longer fit for use), or any combination thereof.	Testing laboratories in any field
Certification	Third-party attestation related to products, processes, systems or persons. Certification of a management system is sometimes also called registration. Certification is applicable to all objects of conformity assessment except for conformity assessment bodies themselves, to which accreditation is applicable⁵¹. Certification is the formal substantiation by a certification body after an evaluation, testing, inspection or assessment, that a product, service, organization or individual meets the requirements of a standard.	Certification organizations (products, systems, persons)

A NQI is a catalyst for improving the quality of products and services on a national scale. It therefore helps to stimulate demand for these products and services, which invigorates individual businesses and the economy as a whole, providing the underpinnings that enable enterprises to compete nationally and internationally. By helping national industry to meet the requirements of export markets, a NQIS increases the competitiveness of the nation's economy and its ability to participate in global trade and in GVC. The ultimate goal of the NQI is to provide confidence to the buyers, users and authorities that the product, process or service complies with the requirements of application. Therefore, NQIS plays a crucial role in the internationalization and competitiveness of the enterprises, the transparency of the market and the welfare of society.

⁴⁸ ISO (2014). ISO/IEC 17000:2004.

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ Ibid.

NQI can only function properly as a whole. The absence or weakness of any one of the institutions will compromise the effectiveness, and ultimately the efficiency, of the whole system, thereby negatively impacting the business environment. A healthy business environment is a prerequisite for trade and competitiveness, and it is essential for growth and poverty reduction. The NQIS is an important element of the business environment.

In order to improve market access in developing countries, there is a strong and growing need to develop a sustainable and targeted NQIS, cater to the market entry requirements. Furthermore, strengthening the compliance capacity on firm level, as well as policies promoting awareness and a general culture for quality are needed for a country to reap benefits of a stronger NQIS.

A.4.2. Quality culture

The notion of quality culture comprises of shared values, beliefs, expectations and commitments toward quality, that are supported by policies, systems (including NQI) and processes which guide how actions are performed and how improvements are made to everyday practices and activities. It applies to all levels – individual, organizational, societal and national – that together contribute to the development of effective care for quality, resulting in an “environment” that has incorporated quality at its core.

Developing a quality culture is the most effective, meaningful and sustainable way to ensure and improve quality, and to embed a dynamic system of change for better competitiveness at all levels. As quality does not only refer to products, but extends to all areas of production, distribution and management, a quality culture is required to assist MSME to strengthen their competitiveness sustainably, in order to effectively compete in the global market. In turn, the development of a quality culture is crucial for ensuring demand for the QI services. Thus, it creates a link between the strengthening of the NQI and the private sector, bringing the two components together. Enhancing awareness for quality is the first step in achieving a quality culture.

A.5. Colombia's National Quality Subsystem

A.5.1. Overview

The NQS of Colombia was firstly established by the Decree 2269/1993, later reformed by Decree 1074/2015 and updated by Decree 1595/2015. The current National Quality Subsystem of Colombia (SICAL) forms part of the National Administrative System of Competitiveness and Innovation, and also of the Andean Quality System.

According to Decree 1595 of 2015, the NQS articulates different activities and actors with the purpose of supporting and encouraging the production and innovation of companies and guaranteeing consumer confidence. For that purpose, it is composed of public and private institutions that carry out activities of any kind, for the formulation, execution and monitoring of the policies on standardization, technical regulation, accreditation, conformity assessment, metrology and surveillance and control.

The NSB, named ICONTEC (Instituto Colombiano de Normas Técnicas y Certificación), was born in 1963 as a private non-profit organization. It was granted with the status of Counsel and Coordinator Agency for Standardization by Decree 767 and designated as the NSB in 1984, later ratified by Decree 2269/1993. ICONTEC covers the preparation, distribution and selling of standards, and also acts as a certification and inspection body. It offers various services to the industries, including training courses, assistance in implementing internal quality management systems and calibration services. It has four laboratories covering measurements on temperature, mass, length, pressure and volume. For the certification and inspection activities, ICONTEC is accredited by ONAC and other international accreditation bodies, in order to gain international recognition, and it is member of IQNet. As the NSB, ICONTEC is full member of the International Standardization Organization (ISO), the International Electrotechnical Commission (IEC), Pan American Technical Standards Commission (COPANT) and the Pacific Area Standards Congress (PASC). It has also collaboration with other standardization bodies, such as BSI, UNE and ASTM⁵². Furthermore, since ICONTEC is a signatory to the “gender-

⁵² SICAL (<http://www.sical.gov.co/contenido-entidades-integrantes-del-sical-42>) and Gallego, J.M. & Gutiérrez, L.H. (2016), *El Sistema Nacional de Calidad en Colombia. Un análisis cualitativo del desarrollo del Sistema*. BID.

responsive standards" declaration (UNECE), gender equality should be of central concern when the project supports the review and development of new standards.

The NAB, named ONAC (Organismo Nacional de Acreditación), was established by Decree 2269/1993 and later designed and ratified by Decree 4738/2008, Decree 323/2010 and Decree 2121/2012. It provides independent attestation of the technical capabilities of the conformity assessment service providers. It is also in charge of keeping record of the accredited conformity assessment bodies. ONAC is member of the International Laboratory Accreditation Cooperation (ILAC), Inter American Accreditation Cooperation organization (IAAC) and the International Accreditation Forum (IAF). It is internationally recognized for the accreditation of testing, calibration, management system certification and product certification bodies. Both the ONAC and the ICONTEC provide public functions, although the institutions are not governmental.

The NMI, named INM (Instituto Nacional de Metrología), was created in 2011 as one of the fundamental pillars of the NQS. The principal function of the INM is to act as the articulating body and executor of scientific and industrial metrology in the country: i) it provides the technical capacity of traceability for verification of the quality of products manufactured or marketed in the country as well as compliance with international commitments on quality; ii) establishes, custodies and maintains national measurement standards corresponding to the physical and chemical magnitudes, ensuring traceability of measurements to the International System of Units (SI); iii) coordinates the Colombian Metrology Network (RCM), a synergistic union of public and private testing and calibration laboratories, suppliers of comparison programs, producers of reference materials, natural persons involved in the topics of metrology and users of the metrological products. The INM is a member of the Inter-American Metrology System (SIM), the International Bureau of Weight and Measures (BIPM) and, since 2013, a signatory to the Mutual Recognition Agreement of the International Committee for Weights and Measures (CIPM-MRA).

A.5.2. SWOT analysis

In a preliminary assessment, the NQS of Colombia shows several Strengths and Weaknesses, that together with its Opportunities and Threats (SWOT analysis), catered to the scope of the project, are summarized in Table 2. This preliminary assessment will be complemented during the inception phase of the project.

Table 2. SWOT analysis matrix for the NQS of Colombia.

STRENGTHS	WEAKNESSES
• Clear structure, objectives and functions of the NQS stated by Decree 1595/2015. • NQS is part of the National Administrative System of Competitiveness and Innovation, and of the Andean Quality System. • NQS institutions are members of the main international institutions in the domain of QI/ international recognition. • Long experience of NQIS bodies in carrying out their activities. • Skilled human resources. • NQIS institutions open to continuous improvement and innovation.	• Lack of accredited testing laboratories in the scope of the project⁵³. • Poor culture of measurement, knowledge and access to measurement equipment by producers and MSME. • Poor quality demand by national consumers.

⁵³ For the diagnosis of shrimp and tilapia diseases the only laboratory accredited as of December 2018 is the official laboratory of the ICA, and for residues in these products there is no accredited laboratory in the country (processors send the samples to other countries, to be tested). A few laboratories are in the process of being accredited, but lack resources. INVIMA has three laboratories and a number of tests accredited, that do not cover all the testing needs for processed tilapia and shrimp.

• There is a NTC for Good Aquaculture Production Practices.	
OPPORTUNITIES	THREATS
• Increasing demand of consumers (national and international markets) for quality products, that in turn will lead to strengthen QI services. • Several government development programs/plans apply a systemic approach that includes the NQS, which contributes to its strengthening and development.	• Financial constraints.

Note: Based on information collected through the field mission to Colombia (2018) and executive summary INM report (2018).

In the scope of this project - shrimp and tilapia VC -, the main weaknesses of the NQS are in the area of conformity assessment, since the country lacks accredited laboratories to respond to the conformity assessment needs from the producers and the industry along the VC. Thus, derived from Table 2, the main areas to be strengthened to respond to the shrimp and tilapia aquaculture VC needs are: 1) reinforce culture of measurement, knowledge on how to use the equipment and facilitate access to basic equipment; 2) provide technical assistance to testing laboratories to reach accreditation.

As a result of a preliminary diagnosis made by the INM in Huila (2018), recommendations to face the identified gaps are centered in the need for specific sectoral measurement protocols, addressed to MSME; technical guidelines for the use of measurement equipment; the diffusion of the Colombian Technical Standard (BAPP) as a link for the improvement of the quality of the product; the generation of partnerships for research in specific symptomatology; the use of measurement instruments by MSME and universities in the region; and the strengthening of training in metrology and conformity assessment according to sectoral needs, considering technological advances.

A.6. Introduction to the value chain and private sector development

Private sector is a key agent for economic development and a catalytic driver for change. In enhancing competitiveness, VC have become an increasingly dominant feature that allow more systemic approaches in providing market access to smallholders while creating business linkages to MSME. Moreover, integration into existing GVC can provide a valuable step to economic development.

The use of the VC approach to development allows for a comprehensive approach to working with the private sector, facilitating a deeper understanding of the economic, social and political dynamics, and making the NQI development more directly linked to the goal of export/trade development. Furthermore, the VC approach allows for a focused approach to incorporating key cross-cutting issues, resulting in the design of systemic, demand driven interventions, to ensure more comprehensive and effective impacts and results.

A.7. The selected VC

A.7.1. Selection criteria

Based on the selection criteria stated in the GMAP (Table 3), Shrimp and Tilapia VC were selected as the targeted VC for the project interventions, in the geographical areas of Tumaco (Nariño) and Huila, respectively.

Table 3. Selection criteria for the targeted VC.

Selection criteria	Brief description	Priority
Norad priority sectors	Alignment with Norway particular expertise and competitive advantage.	Key criteria
Nature of potential bottlenecks faced by the VC	Areas where project interventions related to the strengthening of quality and compliance capacity can get impact in facing VC bottlenecks.	

Selection criteria	Brief description	Priority
Alignment with the government needs	Alignment of prioritized VC with the country government identified needs and demonstrated government commitment.	
Alignment with the private sector needs	Alignment to the core needs of the private sector.	
Private sector organization	Maturity and organization level of private sector actors in the chosen VC.	Additional criteria

Note. Selection criteria for the targeted VC, from GMAP.

Both VC show strong potential in terms of competitiveness, targeting and enabling environment criteria, as summarized in Table 4.

Table 4. Criteria considered in VC selection to assess the potential impact.

COMPETITIVENESS criteria – VC is experiencing growth
• Unmet market demand and growth potential. • Potential to meet market demand and export. • Potential for value addition. • Favorable raw material supply for processing (volume, quality). • Unique qualities that promote and differentiate the area from competitors. • Potential number of key enterprises/SME and willingness to improve and invest in the VC.
TARGETING criteria – VC is reaching the targeting populations
• Potential to increase income (of producers, of processors). • Potential to increase employment. • Potential number of producers/enterprises to benefit. • Potential to have a positive impact on the environment and contribute to long-term sustainability.
ENABLING ENVIRONMENT criteria – There is sufficient support & readiness
• Defined as priority sector by Government. • Presence of favorable framework conditions (e.g. laboratories, legal, etc.). • Presence of support institutions.

A.7.2. Overview of aquaculture VC

A.7.2.1. Aquaculture in the world

Aquaculture worldwide increased at an annual rate of 5.8% during the period 2001–2016 and continues to grow faster than other major food production sectors. For the first time, aquaculture provides 53% of fish for human consumption. With capture fishery production relatively static since the late 1980s, aquaculture has been responsible for the continuing impressive growth in the supply of fish for human consumption. Global aquaculture production (including aquatic plants) in 2016 was 110.2M t., with the first-sale value estimated at USD 243.5 billion China is the world's leading fish producer, and since 2002 it has also been the largest exporter of fish and fishery products⁵⁴.

About 19.3 million people were engaged in aquaculture in 2016 (32.38% of total population engaged in fisheries) and the number is increasing (while the proportion of those employed in capture fisheries decreased from 83% in 1990 to 68% in 2016, the proportion in aquaculture correspondingly increased from 17 to 32%). In 2016, overall, women accounted for nearly 14% of all people directly engaged in the fisheries and aquaculture primary sector⁵⁵. In aquaculture, the proportion of women varies per country, type of aquaculture and type of occupation, ranging from 20% in Europe or Africa, to 72% in

⁵⁴ FAO (2018). *State of World Fisheries and Aquaculture*.

⁵⁵ Ibid.

Asia and 25% in the Americas. Most of the women are in small-scale low capital-intensive operations, in charge of all tasks, and are less present in modern industrial units, where men dominate⁵⁶.

In 2016, of the 171 million tons of total fish production (capture plus aquaculture), about 88% were utilized for direct human consumption (a share that shows a positive tendency, as it was 67% in the 1960s) and the greatest part of the rest 12% was reduced to fishmeal and fish oil. Live, fresh or chilled is often the most preferred and highly priced form of fish, and represents the largest share of fish for direct human consumption (45% in 2016), followed by frozen (31%), prepared and preserved (12%) and cured - dried, salted, in brine, smoked - (12%). Freezing represents the main method of processing fish for human consumption. Major improvements in processing as well as in refrigeration, ice-making and transportation have allowed increasing commercialization and distribution of fish in a greater variety of product forms in the past few decades. However, developing countries still mainly use fish in live or fresh form, soon after landing or harvesting from aquaculture. Loss or wastage between landing and consumption decreased, but still accounts for an estimated 27% of landed fish⁵⁷.

Fish and fish products are some of the most traded food items in the world today, and most of the world's countries report some fish trade. In 2016, about 35% of global fish production entered international trade in various forms for human consumption or non-edible purposes, which represents a 242% increase over 1976 (the increase is more than 510% if only trade in fish for human consumption is considered). World trade in fish and fish products also grew significantly in value terms, with exports rising from USD 8 billion in 1976 to USD 143 billion in 2016, at an annual growth rate of 8% in nominal terms and 4% in real terms. Developing countries played a key role in this trade and during the past 40 years.

China is the main fish producer, and since 2002 has also been the largest exporter of fish and fish products. Behind China, Norway is the next largest exporter of fish and fish products and Vietnam situates as third largest exporter, with most of its revenue coming from exports of farmed Pangas catfishes (*Pangasius spp.*) and shrimp, in addition to a significant trade in processed and re-exported products.

As per consumption, since 1961 the average annual increase in global food fish consumption (3.2%) has outpaced population growth (1.6%). In per capita terms, food fish consumption has grown from 9.0 kg in 1961 to 20.2 kg in 2015, at an average rate of about 1.5% per year, and is increasing. The expansion in consumption has been driven not only by increased production, but also by a combination of many other factors, including reduced wastage, better utilization, improved distribution channels and growing demand, linked with population growth, rising incomes and urbanization⁵⁸.

Based on the assumption of higher demand and technological improvements, total world fish production (capture plus aquaculture, excluding aquatic plants) is expected to continue to expand, to reach 201 million tons in 2030. The major growth is expected to originate from aquaculture, and the sector is expected to enter a decade of higher prices in nominal terms. Moreover, a growing share of fish production is expected to be destined for human consumption (around 90%), and in per capita terms, world fish consumption is projected to reach 21.5 kg in 2030. The highest growth rates are projected for Latin America (+18%) and for Asia and Oceania (+8% each). Fish and fish products will continue to be highly traded; it is projected that about 31% of total fishery production will be exported in 2030 (38% if trade within the EU is included), in the form of different products for human consumption or non-edible purposes, traded at various stages of processing⁵⁹.

A.7.2.2. Aquaculture in Colombia

Aquaculture in Colombia dates back to decade 1930-1940. The cultivation of trout was introduced in the country at the end of the 1930s to populate waters for public use in cold thermal floors, and the tilapia was brought in the late 1970s for pond aquaculture and also for repopulation of some bodies of

⁵⁶ Monfort, M. C. (2015). *The role of women in the seafood industry*. FAO Globefish.

⁵⁷ Ibid.

⁵⁸ Ibid.

⁵⁹ Data from WB (2013). *FISH TO 2030. Prospects for Fisheries and Aquaculture*.

water in warm climates. Soon after, some universities and associations began to carry out breeding trials of some native species and cultivation of exotic species, such as carps and tilapia.

These efforts were initially carried out by the National Federation of Coffee Growers, and later by the Integrated Rural Development Program. By the end of the 1980s the country counted with several fish stations that addressed the research and promotion of the cultivation of tilapia, trout and some native species⁶⁰. From the mid-1980s, aquaculture began on shrimp, first in the Caribbean coast and then in the Pacific, but the appearance of viral diseases practically ended production in the latter. It is currently cultivated successfully in the Caribbean and is reactivating in the Pacific.

The growth of aquaculture in Colombia has been unequal. Relatively large business structures have been created for the production of marine shrimp, tilapia and rainbow trout, with strong organizations and export-oriented economic support, while small fish companies and medium and small production units (UPA) have multiplied, with very limited resources that impede their self-sustainability. They include geographically isolated producers whose location prevents them from organizing and taking advantage of the benefits of associativity⁶¹. There are a relatively large number of producers (29,121 AREL and AMyPE⁶²) and 245 medium and large. Of them, 13% are women officially registered. But while 25% of Pacific women who are registered dedicate to bivalve and crab, it is estimated that the population of Pacific women engaged in this activity totalize more than 10,000⁶³.

About 32.3% of the production corresponds to the tilapia produced in cages in the Betania reservoir, in the department of Huila. This reservoir has a Plan for the Regulation of Fisheries and Aquaculture, that established the maximum production capacity in 22,000 tons per year. However, already in 2011, the production officially reported by the producers exceeded that capacity by 2,000 tons⁶⁴.

In 2018 aquaculture production reached 129,410 tons for fish and 5,397 tons for shrimp, which represents This represents, overall, an increase in production of 68% (in the period 2010-2018), going from 80,255 to 134,807 tons (among tilapia, trout, cachama, other native species and shrimp).. between 2013 and 2018, shrimp production registered an annual average increase of 3%, due to the reactivation of some shrimp farms in the Caribbean and the Colombian Pacific. Of total production of shrimp in 2018 (5,397 tons), 84% was produced in Bolívar and 16% in Nariño. For fish, Huila produced 45% by 975 UPA), followed by Meta (12%; 640 UPA) and Antioquia, Tolima (5% each and 2,762; 1,714 UPA, respectively) and Cundinamarca – Boyacá (4%; 1,508 and 997 UPA). Tilapia was the most produced specie (60%), followed by trout (18%), cachama (17%) and native species (3%)⁶⁵. Aquaculture represents 0,7% of Colombian GDP.

During 2018 compared to 2017, aquaculture exports (tilapia, trout and shrimp) grew 26% in volume (tons) and 25% in value (\$ USD) (Figure 8).

⁶⁰ AUNAP, MADR, FAO (2013). *Diagnóstico de la Acuicultura en Colombia*.

⁶¹ PlaNDAS (2014).

⁶² AREL (fish farmers with very limited resources) are those who produce less than 22t. per year; AMyPE (small to medium farmers) produce between 22.1 and 240 t. per year. Over 240 t. are considered big sized. The classification also considers earnings, according to the Resolution 1352 of 16 August 2016. Source: AUNAP.

⁶³ FAO (2016). *El rol de la mujer en la pesca y la acuicultura en Chile, Colombia, Paraguay y Perú*.

⁶⁴ AUNAP, MADR, FAO (2013). *Diagnóstico de la Acuicultura en Colombia*.

⁶⁵ MADR (2019), Cadena de la Acuicultura. *Calculations of the National Aquaculture Chain*

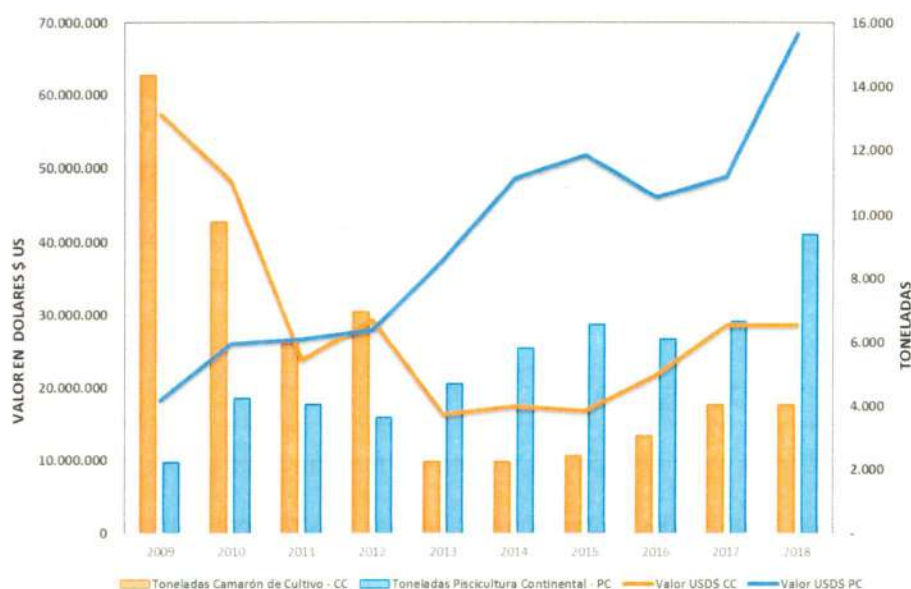


Figure 8. Exports of Colombian aquaculture 2009 – 2018. MADR (2019), Cadena de la Acuicultura.

During 2018, fish exports (tilapia and trout) represented 70% of both the volume (tons) and the value of production (\$ USD), compared to the total exported product of aquaculture.

The main destination of Tilapia exports is the USA, for trout USA and Germany, and shrimp is exported mainly to France and Spain. About 25% of the national production has been certified under the different quality standards for export to the EU and the USA. By departments, the first fish exporter is Huila (80.24% of total exports by volume, and 78.33% by value) and 86.96% of the exports corresponds to tilapia (86.69% if considered by value)⁶⁶. For shrimp, the first exporter is Bolívar. But while exports grow steadily, fish imports do so at a higher rate. Of the total imported fishery and aquaculture products in 2018, approximately 35% correspond to aquaculture products, mainly base and tilapia.

The domestic market offers high potential for aquaculture products. In per capita terms, consumption of products from aquaculture is only 3.23 kg per year (6.86 kg. if considered capture and aquaculture), while for chicken is 33.80 kg., 18.20 kg. for beef, and 10.40 kg. for pork. It is estimated that aquaculture generates 40,400 direct and 121,000 indirect jobs (in 2018)⁶⁷.

A.7.3. Analysis of the aquaculture VC in Colombia

A.7.3.1. Structure

The structure of aquaculture VC has five stages, graphically represented in Figure 9, and briefly analyzed below⁶⁸.

⁶⁶ DIAN - Análisis Cadena Nacional Acuicultura – MADR, cited in MADR (2018). *Cadena de la Acuicultura*.

⁶⁷ FENAVI, FEDEGAN, ASOPORCICULTORES, FEDEACUA – MADR, cited in MADR (2019). *Cadena de la Acuicultura*.

⁶⁸ Information of this section was sourced from AUNAP, MADR, FAO (2013), *Diagnóstico de la Acuicultura en Colombia*, unless other references are provided.

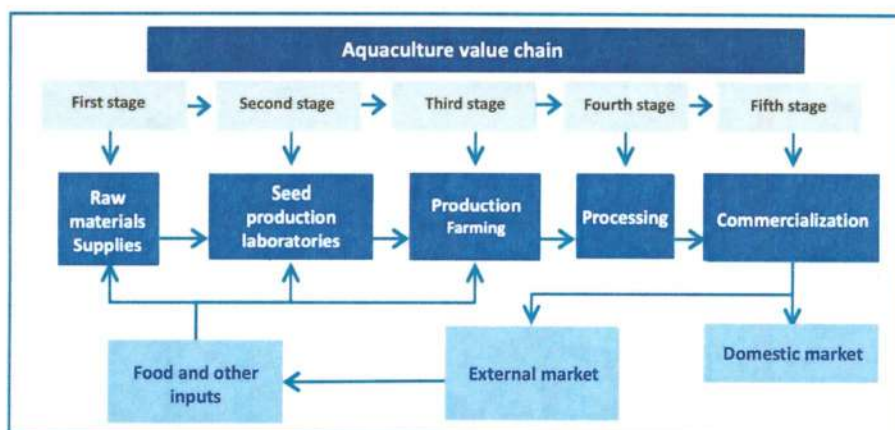


Figure 9. Scheme of the structure of the aquaculture VC. Reprinted from MADR (2012), Aquaculture VC.

1. **Inputs - supplies.** The inputs used in aquaculture are very diverse, but can be grouped into three main groups: i) alkalinizers and fertilizers; ii) feed inputs (for fish they are all domestically produced, although an important part of the raw materials are imported (fish flour, soybeans, fish oil and corn), and for shrimp they are all imported); iii) packaging materials and ice (fish is refrigerated and transported preserved with ice; only large process plants have cold rooms and rapid freezing systems).
2. **Seeds and fingerlings production.** The production is mostly based on genetic material selected from families grown in Colombia, as part of special genetic selection programs, except in the case of trout, for which the embryonated eggs are imported. The largest producers have integrated the production of fingerlings. For fish, there is production of fingerlings in almost all areas where aquaculture takes place, basically the three departments leaders of this segment (Huila, Meta and Córdoba). In the case of shrimp, almost all of the genetic material used in the country comes from the CENIACUA laboratories in Cartagena (the one in Tumaco is not operating), and there are two other laboratories (C.I. Océanos and Cartacua). CENIACUA sells nauplii (crustacean larvae) to larviculture laboratories, some of which are vertically integrated with the producer and commercialization companies⁶⁹. Due to the costs of the genetic material (seed and transport) and the different conditions of the Pacific with respect to the Caribbean, a large part of the producers of Tumaco bring it from Ecuador illegally (contraband), which is a high risk source of diseases⁷⁰. The quality of the seed has improved over time and post larvae have achieved a high resistance to viral diseases and good survival rates. The good resistance to diseases has allowed, by means of an agreement made by CENIACUA with Akvaforsk (Norway), to begin to explore potential clients in international markets for the improved seed. However, currently some big producers of tilapia are addressing genetic improvement programs.
3. **Production - farming.** Large producers, fully integrated in the production chain, from inputs to commercialization, coexist with farmers of small-medium size for whom aquaculture is their main activity and, in some cases, exclusive, and a large number of AREL farmers, for most of which aquaculture is a complementary activity to others that take place on the farm (for 91.7% of the sample, aquaculture is a "complementary" activity).
4. **Processing.** The vast majority of fish farming products are sold whole, and post-harvest management is limited to the removal of gills, evisceration and de-scaling, which are carried out in facilities built very close to the ponds. But recently, the commercialization of Nilotic tilapia in fillets and other value-added products is increasing, especially for export. There is no supply of cold chain located in the main producing regions, except for small slaughter sites or plants certified HACCP and with Good Manufacturing Practices (GMP). According to INVIMA, until 2011 there were 234 plants with this certification. There is also a mobile process pilot plant that supports small businesses certified by INVIMA with GMP, located in the department of Tolima. And some

⁶⁹ Ibid.

⁷⁰ Information collected during field mission. Interviews to producers and institutions.

processing companies, generally belong to the exporters, that do product transformation (value added) and market products such as hamburgers, loins, sausages and nuggets, among others. To ensure the quality of the products, the live fish is transported from the harvest site to the processing plant, which implies that specialized transport equipment is available, such as tank cars or floating tanks in the large reservoirs. The companies that have this system are mainly those that have their facilities in water bodies of public use such as the Betania Reservoir, in the department of Huila, and Lake Tota, in the department of Boyacá.

5. **Commercialization.** Production is oriented 80% to the domestic market and 20% to export in the case of fish, and mostly to export for shrimp. The marketing scheme has several routes: direct sale from the producer to the consumer or through retailers, wholesalers or several distributors. Few producers also do the commercialization process on their own, which are those that usually arrive directly at the distribution centers (large supply centers, large areas and specialized establishments selling fish and shellfish) and export part of their production. The vast majority of fish farmers sell their product to broker-dealers or intermediaries, who reach the final distributors. Of AREL, 89.34% market between 60% and 100% of their production, and 98.77% commercialize their production in local markets close to their farms, while the rest reach other regions and large consumption centers.

A SWOT analysis of the aquaculture VC in Colombia is included as Annex 1, and following are the main conclusions⁷¹:

- A relatively large number of producers with markedly different characteristics participate in aquaculture, from AREL and AMYPE, who attend an important part of the national market, to a small number of exporters, that have technology (intensive and super-intensive production), processing plants and logistic systems to place the product in domestic and international markets.
- The AREL and AMYPE farmers face technological limitations, inadequate practices to ensure the product quality and safety, and logistic dependence on the intermediaries, which represents restrictions on access to markets and limit their incomes.
- Small and medium processing plants have quality limitations; certification is a requirement on access to markets.
- Exporters and large producers need to expand their production and logistics capacity to increase their participation in the external and internal markets. As it represents large investments, it could be achieved through strengthening linkages in the VC (creating supply chains with small and medium fish farmers). They also could benefit from training on import markets requirements, consumer trends and commercial intelligence, to exploit new market opportunities.
- Associative processes still remain at a low level and are weak. They present high potential of strengthening, to take advantage of technology and efficiency for better productivity and quality (e.g. production of fingerlings, buy of inputs, processing and commercialization). The feed industry could be an important ally in the process if manufacturers increase the participation of fish feed in their offer (it remains at 3-5% of their total offer).
- The environmental impact aquaculture had in the country indicates the need to implement measures and practices more protective for ecosystems.

Based on these conclusions, the challenges the aquaculture VC faces in Colombia can be summarized in six, as follows:

1. Development of the research agenda.
2. Improvement of competitiveness through quality and productivity: formalization of fish farmers and small/medium processing plants; modernization of production systems; reduction of production costs; quality improvement along the VC and development of value-added products.
3. Strengthening associativeness: linkages and clustering along the VC.

⁷¹ Based on the *Sectoral Business Plan for Pisciculture for Colombia* (2015), the *Diagnóstico de la Acuicultura en Colombia* (2013), *Atlas de la Camaronicultura Colombiana* (2015), *Sectoral Data – Aquaculture VC* (MDR, 2018) and information collected during the field mission.

4. Promotion of consumption of aquaculture products in domestic market.
5. Strengthening interinstitutional articulation and integral accompaniment to AREL and AMYPE (extensionism).
6. Achieve a more sustainable aquaculture: rational use of water; decrease discharges to the natural environment (organic waste, nutrients, etc.); control diseases and optimize biosecurity.

Support programmes, providing technical assistance (including integral accompaniment - extensionism) to AREL and AMYPE and processing plants, as well as credit and financing, will contribute to face these challenges.

This country project will mainly focus on challenges 2 and 3, although it will indirectly contribute to others.

A.7.3.2. Institutional framework and other actors

Aquaculture in Colombia has a broad and relatively complex institutional framework, a number of private organizations formed mainly by national and regional associations, some research centers, and a series of alliances among them that work to benefit the activity.

a) Public institutions

The institutional framework of fisheries and aquaculture in Colombia has undergone a series of changes since the 1970s. Currently, the main institutions involved in aquaculture are summarized in Table 5.

b) Private organizations – associations and conformity assessment bodies

The most relevant organizations in aquaculture are the associations, which represent the needs and interests of the productive sector. The most significant ones, due to their national scope with presence also at the regional level, are the National Association of Aquaculture (ACUANAL), which focuses on shrimp aquaculture and is also the creator and administrator of the Aquaculture Research Center (CENIACUA), and the Colombian Federation of Aquaculture (FEDEACUA), for fish species. FEDEACUA, is the creator and founder of the Technological Development Center ACUAPEZ.

Together with these two main organizations, other local and regional associations coexist, that have great potential for strengthening the aquaculture VC in the country. In the private sphere, testing and calibration laboratories, and certification and inspection bodies play a critical role in the aquaculture VC.

Table 5. Most relevant public institutions acting in the aquaculture VC.

Domain	Brief description of main functions
MADR - Directorate of fisheries and aquaculture (DFA)	Establishes the fisheries and aquaculture policy, through the Directorate of Fisheries and Aquaculture (DFA). It formulates the policies of administration, research, ordering, registration and control of fisheries and aquaculture resources, and coordinates the activities related to the formulation of policies, plans and programs focused on the promotion and development of aquaculture and fishing at the national level. The MADR has several attached and linked several entities (ADR, AUNAP, ICA, FINAGRO, among others) ⁷² .
AUNAP	Executes the fisheries and aquaculture policy in the Colombian territory for the purpose of research, ordering, administration, control and surveillance of fishery resources, and the promotion of aquaculture by promoting productive development and social progress ⁷³ .

⁷² MADR. <http://www.minagricultura.gov.co>

⁷³ <http://www.aunap.gov.co>

Domain	Brief description of main functions
ICA	Carries out prevention, surveillance and control of sanitary, biological and chemical risks for animal and plant species, applied research and management, research and sort of fishery and aquaculture resources, in order to protect people, animal and plant health and ensure trade conditions. Research and technology transfer activities are executed by the Institute through association with natural people or legal entities ⁷⁴ . ICA is responsible for the surveillance and control of animal health in general, including cultivated aquaculture species. The sanitary control covers the production and sanitary certifications for the international trade of the aquaculture products regarding risks by the introduction or exit of organisms that can transmit pathologies. It also does the quality control to the balanced foods, ensuring that they do not involve risk for the production ⁷⁵ .
Rural Development Agency (ADR)	Manages, promotes and finances agricultural and rural development for the transformation of the field and advances programs with regional impact ⁷⁶ . ADR implements plans and integral projects for agricultural development, to take advantage of the resources in the regions and to support small, medium and large producers, through associativity.
Ministry of Environment and Sustainable Development (MADS)	Guides and regulates the environmental order of the territory and defines the policies and regulations to which the recovery, conservation, protection, management, use and sustainable use of renewable natural resources and the environment of the nation will be subject, in order to ensure sustainable development, without prejudice to the functions assigned to other sectors ⁷⁷ . Responsible for establishing the environmental policy, which includes the policy of water use concessions, channel occupation, dumping and related to the introduction of exotic species for production processes in the country, among others.
INVIMA	Protects and promotes the health of the population, by managing the risk associated with the consumption and use of food, medicines, medical devices and other products subject to health surveillance ⁷⁸ . Is in charge of the functions of inspection, surveillance and control to the processing and commercialization establishments and certification in good practices and sanitary conditions to those establishments.
Other institutions	In addition to the above indicated, other institutions intervene in aquaculture. The concessions for the use of lands in estuarine and coastal areas are in charge of the General Maritime Directorate (DIMAR), attached to the Ministry of National Defense. The MINCIT keeps the register of exports and imports of all products, including agricultural products, in addition to having a relevant role in the development of aquaculture, through Colombia Productiva. The SICAL is also located in MINCIT (NSB, NAB, INM, CAB). The national and regional institutions for training (e.g. SENA) and research also play an important role in the VC.

Note. Data collected from Diagnosis of the Aquaculture in Colombia (2013), official web pages and field mission.

c) Public-private alliances

The main public-private partnerships that work for the benefit of the aquaculture in Colombia are the following: The Aquaculture Chain, the Fishing and Aquaculture Nodes and the Colombia Productiva (former PTP)⁷⁹.

A.7.3.3 Aquaculture productive Chain

The Aquaculture Chain was formalized through Law 811 of 2003, "By means of which Law 101 of 1993 is modified, chain organizations are created in the agricultural, fishing, forestry, aquaculture sector, agrarian societies of transformation and other provisions are dictated". The chain organization is a space for dialogue, and its mission arises from a free decision of its members to coordinate or ally to improve their competitiveness, after an analysis of the market and their own willingness to adapt to the needs of their chain partners. Regulations also include Decree 3800 of 2006 and Resolution 186 of 2008.

⁷⁴ <https://www.ica.gov.co/el-ica/funciones>

⁷⁵ Diagnóstico de la Acuicultura en Colombia, 2013.

⁷⁶ <https://www.adr.gov.co/Paginas/Agencia-de-Desarrollo-Rural.aspx>

⁷⁷ <http://www.minambiente.gov.co>

⁷⁸ <https://www.invima.gov.co>

⁷⁹ AUNAP, MADR, FAO (2013). Diagnóstico de la Acuicultura en Colombia

The Shrimp Aquaculture Chain was the first one to be established (2001), followed by the Fish Aquaculture Chain - fish farming (2005) and the Ornamental Fish Chain (2009), which subsequently merged into the National Aquaculture Chain (2009), which also integrates the production of bivalves.

The Aquaculture Chain is governed by a National Council, integrated by actors from the private sector and the public sector, and thematic tables are set up to address the main challenges of the chain. Within the MADR there is a Directorate of Fishing, Livestock and Aquaculture Chains.

A.7.3.4 Fishing and aquaculture nodes

The fishing and aquaculture nodes were established by Resolution 177 of 2015. They are sub-regional or local groups made up of entities, organizations and representatives of civil society involved and committed to the fisheries and aquaculture sector, under the vision of sustainable use and the environmental approach in the productive processes. Thus, the nodes are spaces for subregional and local participation and agreement for the definition of strategies oriented to the management of the resources and the development of fisheries and aquaculture, in which the principles of "co-management" can be applied as a mechanism for the management of resources. The action of these nodes is based on the policy guidelines of the MADR and are led and permanently accompanied by the AUNAP.

A.7.3.5 Colombia Productiva

Colombia Productiva was summarized in point A.1.3.3.

A.7.4. Analysis of the shrimp aquaculture VC in Tumaco

A.7.4.1. Overview

The shrimp aquaculture industry, installed in Colombia since the 1980s (the Caribbean coast and Tumaco, in the Pacific coast), practically disappeared between 2005 and 2013, due to the effect of the Taura virus first, and later the White Spot, among other factors. The 1,545 ha. that occupied this activity in Tumaco stopped cultivating almost all, and the two enterprises installed there closed. But at the same time, the shrimp aquaculture in Tumaco received a new air with associative projects, aimed at small entrepreneurs, who had introduced changes in the cultivation of shrimp tolerant to the White Spot, with the support of CENIACUA. This new production is entirely destined to the national market⁸⁰. Currently, Tumaco has 6 active farms, 2 partially active and 18 inactive. The total number of active cultivation hectares is 393⁸¹, of the total 1,933 ha. built⁸². The production system is mainly extensive, but there are also semi-intensive, intensive and some pools for super-intensive, although they are not being used for that density.

In 2017, Tumaco produced a total of 692 tons of shrimp, which represents 14.39% of the aquaculture shrimp produced in the country (4,807 tons; of them, 4,115 were produced in Bolívar, 85.60% of the total, almost entirely destined for export)⁸³.

With the reactivation of farms, a good amount of unqualified formal work has been generated, with about 150 current direct jobs, and there is a projection of at least two times more. There are 1,304 UPA⁸⁴, which include producers AREL and AMyPE, mainly (the large producers are in general enterprises that own processing plants). Level of associativeness and linkages along the VC is very low, and the existing associations lack management and negotiation capacities.

Tumaco does not currently have a maturation laboratory (CENIACUA is not operational, and putting it into operation requires a strong investment, although it would be necessary to reduce the risk of diseases, since currently the nauplii is mostly brought illegally from Ecuador, through contraband) and has two larviculture laboratories. The industry has three processing plants, that work under capacity

⁸⁰ PTP (2014). *Hacia la Sostenibilidad y Competitividad de la Acuicultura Colombiana*.

⁸¹ Information collected during February 2020.

⁸² AUNAP-CENIACUA (2015). *Atlas de la Camaronicultura Colombiana*.

⁸³ DANE – 3er CNA 2014, Análisis Cadena Nacional Acuicultura – MADR. Cited in MADR (2018). *Cadena de Acuicultura*.

⁸⁴ Acuanal – Tumako Fish - Cadena Nacional Acuicultura – MADR. Cited in MADR (2018). *Cadena de Acuicultura*.

(some operate at 30% capacity, and to keep them operational it is not uncommon to import shrimp from Ecuador, sometimes in an illegal way) and a fourth one is foreseen⁸⁵. Tumaco's processing plants work exclusively for national consumption, since infrastructure limitations, lack of certification and their reduced production do not allow them to access international markets. The largest number of direct jobs in the sector are generated in the processing phase, which are mostly occupied by women. Women workers are chosen for a range of reasons: they are perceived to be trustworthy, dedicated, meticulous, flexible, compliant, quality minded and cheaper than men⁸⁶. ASMUDEPAZ women's association carries out the processing in one of the processing plants⁸⁷.

A.7.4.2. SWOT analysis

Table 6 summarizes the results of the SWOT analysis carried out for the shrimp aquaculture VC in Tumaco, as a basis for determining the project interventions. Based on the analysis, the challenges the shrimp aquaculture in Tumaco faces can be summarized as follows:

1. Improvement of competitiveness through quality and productivity.
2. Strengthening associativeness: linkages and clustering along the VC.
3. Strengthening interinstitutional articulation and integral accompaniment to AREL and AMYPE (extensionism).
4. Achieve a more sustainable aquaculture, through a more responsible production.
5. Strengthening research, inspection and surveillance services.

The country project will mainly focus on challenges 1 and 2, although it will also contribute to others.

Table 6. SWOT analysis matrix for the shrimp aquaculture VC in Tumaco.

STRENGTHS	WEAKNESSES
• There is culture of shrimp aquaculture in the area, with significant accumulated experience and good reputation of product quality. • The country has a national standard for BPPA and developed visual material to motivate and help in the process of implementation. • There are adequate environmental conditions for shrimp aquaculture. • Previous programs and projects have supported to set up the basic conditions that may allow to achieve improvements in quality and productivity. • People (farmers, processors, workers) are motivated to improve their skills, quality and production. • Although with limited capacity and lack of compliance with requirements, there are processing plants in the area, maturation, and seed/larvae production laboratories. • There is connectivity by air, sea and land, although with limited infrastructures.	• Low levels of productivity and quality (by producers/farmers and processors), including BPPA and GMP requirements. • Low level of formalization. Complex and expensive procedures for formalization and operation. • Weak inspection and surveillance services to ensure appropriate safety and animal health. • Lack of certified testing laboratories. • Weak support from institutions through comprehensive extension programs, designed <i>ad-hoc</i> for the area. • Low basic administration, management and negotiation capacities by small and medium producers. • Existing associations lack management capacity. • Shrimp farms lack infrastructure, or the existing one is very limited. • Dependence on international markets for the nauplii and food/other inputs. Contraband practices from Ecuador increase risk of diseases and affect productivity. • High costs of inputs, mainly for feeding, aggravated by the cost of fuel and the lack of associations or capacity to take advantage of synergies. • Important financial constraints, which affect the purchase of inputs by small producers and the basic infrastructure for production. • Insecurity and low levels of social services.

⁸⁵ Information collected during the field mission.

⁸⁶ Monfort, M. C. (2015). The role of women in the seafood industry. FAO Globefish.

⁸⁷ Non-profit women's association made up of 145 women heads of household, from displaced and vulnerable sectors of Tumaco. Data from www.tumakofish.com

	• Difficulties for land tenure. • Low level of linkages along the VC and low culture of associativeness. • Low added value to the final product.
OPPORTUNITIES	THREATS
• Aquaculture is an activity prioritized by Colombia Productiva and by the NDP 2018-2022. • Tumaco is target of a set of interventions by the Government for economic and productive reactivation (municipality categorized as ZOMAC and PDET). • Aquaculture is highly significant for food security. • CENIACUA is well positioned in the sector and can play a role in the development of shrimp aquaculture in Tumaco. • Development of a local/domestic market with increasing income. • Potential to access to new markets/niches that value antibiotic-free products or products with social implications. • Potential to produce products with higher added value (processed). • Being a, potential strengthening of the region through state instruments • The bi-national highway that will link Tumaco (Colombia) with San Lorenzo (Ecuador) is expected to open in mid-2020, which could reduce the cost of inputs currently coming from Ecuador.	• Increasing imports of other (fish) substitute products at more competitive prices (low productivity/lack of economies of scale). • High risk of shrimp diseases (nauplii imported from Ecuador without sanitary control). • New food safety regulations are foreseen in the domestic market, with higher food safety and quality requirements.

Note. Data from information collected through the field mission to Colombia (2018); PTP-MINCIT, MADR, AUNAP (2015). *Development Plan for the Shrimp farming Sector*, and AUNAP-CENIACUA (2015). *Atlas de la Camaronicultura Colombiana*.

A.7.4.3. Quality demand and bottlenecks

Shrimp can be consumed fresh or processed; the more transformation, the higher the price. Five stages were considered in the VC (Figure 9): inputs, seed/larvae production laboratories, production (farming), processing and commercialization. These stages were summarized in section C.2.3.1 for the aquaculture VC and are briefly analyzed below, as per the quality demand and bottlenecks along the shrimp aquaculture VC in Tumaco⁸⁸.

The applicable standards and requirements related to quality, including safety, should be ensured along the whole VC through the country project. Also, along the VC, from producers to processors, the culture of quality should be strengthened for all actors to understand the impact their actions have on the quality of the products, so as they are accepted and valued by the markets/consumers. During the field mission, producers showed willingness to improve, based on the understanding of the important financial constraints they face to operate the farms and to financing for quality improvements (e.g. improving facilities, implement food safety and quality principles, etc.). They recognized the lack of training on good practices along the VC stages and were willing and highly committed to improvement.

- 1. Inputs - supplies.** The main inputs used in shrimp aquaculture are food, fertilizers, packaging materials and ice (Nauplii as inputs are analyzed in the second stage). Food for breeding is imported from Ecuador, mostly depending on one importer. Cost is high and small farmers do not associate or negotiate by volume to get better prices, so they try to reduce the use of food, affecting productivity. Quality control is low or inexistent (also part of the food and other inputs arrive by contraband). The illiteracy of many of small farmers and low-quality culture do not prevent them from being the victims of bad practices. Quality/safety is also an issue for ice and other materials.
- 2. Nauplii and larvae production.** The genetic material produced in the country is costly (aggravated

⁸⁸ Information sourced from PTP (2014). *Hacia la Sostenibilidad y Competitividad de la Acuicultura Colombiana*; AUNAP, MADR, FAO (2013). *Diagnóstico de la Acuicultura en Colombia* and collected during the field mission.

by the high cost of transportation from Cartagena) and according to the producers it's not adapted to the environmental conditions of the Pacific coast. So that, they bring the nauplii from Ecuador, mostly illegally, which constitute a high risk of introducing diseases in the country and limits productivity. Larviculture laboratories are usually integrated in the producer enterprises.

3. Production - farming. Some large producers, integrated in the production chain, coexist with a bigger number of shrimp farmers for whom aquaculture is their main, and mostly exclusive, activity. Several challenges should be faced at this stage:

- **Productivity and quality.** Productivity per hectare is low⁸⁹ so it is quality of production. Several factors seem to contribute to it: culture/mindset; lack of financial resources on the farmer side (e.g. infrastructure, inputs) and on the Government side (e.g. limited inspection and extension services); low level of literacy, administration and negotiation abilities. Therefore, there are opportunities to improve, that could be covered through training in BAPP, as a transversal issue. Proper practices should lead to increased quality and productivity, resulting in improved farm incomes and better quality of shrimp. While productivity is not the target of the country project, training on BAPP should be conducted to strengthen quality and competitiveness. Health control and management require a high level of organization of the members of the aquaculture VC, which implies an individual responsibility and discipline of each producer and actor along the VC.
- **Formalization.** There is low level of formalization (registration). Low awareness, complex and costly processes, geographical dispersion of producers, and lack of institutional inspection capacity seem to be the main reasons that contribute to it. Moreover, Resolution 20186/2016 on biosecurity, of application to all actors along the aquaculture VC, came into force in July 2018 but no actor along the shrimp VC in Tumaco comply with its requirements.
- **Animal health control.** The ICA is in charge of inspections and technical assistance to ensure animal health, but they do not have a specific inspection plan for Tumaco (they do active surveillance for shrimp aquaculture on the Caribbean coast). The main reason is that there is no geographical barrier with Ecuador that allows them to compartmentalize, and Ecuador does not have optimal animal health status⁹⁰.

4. Processing. Most of shrimp is sold fresh or frozen or with minor processing like peeling. There are three processing plants in operation in Tumaco and a fourth one under construction, but none of them is certified (one is in the process). They also operate under capacity (around 30%) and it is not infrequent that they bring shrimp from Ecuador (contraband) to cover operation costs. They need technical support to improve their productivity, quality and compliance capacity.

5. Commercialization. Production is oriented to the domestic market. Small and medium producers sell their production to the processing plants. But they lack negotiation capacity, so they rely on the willingness of the buyer. Moreover, they are pressed by financial needs to buy new larvae and inputs, so they mostly accept the price they are offered.

6. Transversal issues. Weak inspection, surveillance, research and extensionism services; lack of equipment and culture of testing/monitoring in production (water temperature, oxygen concentration, salinity, PH, etc.); poor associativeness/linkages along the VC; and not certified testing laboratories in Tumaco for tests related to quality control of production are transversal issues that affect the shrimp aquaculture VC in Tumaco. In the case of associativeness, there are several women associations, constituted by women heads of households, but management capacity and negotiation skills should be reinforced.

Based on the previous analysis, the main bottlenecks along the shrimp aquaculture VC relevant to the country project are summarized in Table 7, together with potential interventions.

⁸⁹ From 240 Kg/ha to 800 Kg/ha. PTP (2014). *Hacia la Sostenibilidad y Competitividad de la Acuicultura Colombiana*.

⁹⁰ Information collected during the field mission.

Table 7. Main bottlenecks along the shrimp aquaculture VC in Tumaco and potential interventions.

Stage	Bottlenecks	Actors	Potential interventions
Inputs/supplies	High costs of food and other inputs and risk of non-compliance with sanitary requirements. Dependence on international markets.	- Producers (shrimp farmers) - Industry - Government agencies	- As part of BPPA and overall quality assurance, provide training and advice on the risks of continuing with the current practices, the opportunities to optimize costs and the alternative ways to achieve it. Also include support to improve their administration and negotiation skills. - Promote linkages or basic associativeness to negotiate better prices with suppliers, by volume (or to directly import the inputs). - Implement comprehensive support programs by Government agencies, including the transfer of technology and commercial links, among others. The reactivation of shrimp aquaculture in Tumaco depends on accessing the cheapest and best quality inputs available in Ecuador.
Nauplii and larvae production	Genetic material/Nauplii is mostly brought from Ecuador by contraband. High risk of diseases and poor-quality affect productivity.	- Industry - Producers - Government agencies	- As part of BPPA and overall quality assurance, provide training and advice on the risks of continuing with the current practices. Jointly analyzed alternatives to optimize costs by volume and buy certified genetic material. - Technology transfer and investment by Government agencies, or with the support of Government, to canalize private investment (e.g. reactivate the CENIACUA laboratory in Tumaco), aimed at standardizing larviculture systems under quality guidelines and under the supervision of the corresponding agencies.
Production	Low levels of quality and productivity. Lack of compliance with quality requirements.	- Producers - Government agencies	- Provide technical assistance (training, advice, other required support) on BPPA and other quality issues, to increase quality and compliance, thus leading to better access to market and to increased income. Train-the-trainers approach where possible. - Support small farmers (associations) with purchase of equipment for monitoring of basic parameters. - Strengthen leadership and associativeness as a way of knowledge transfer (for sustainable impacts), within the existing cooperatives/associations and cooperation between them.
	Low administration, management and negotiation skills.	- Producers - Association of producers	Provide training (mentoring) to improve their administration, management and negotiation skills.
Processing	Low levels of quality and productivity. Lack of compliance with quality requirements (no processing plant is certified).	Processors	- Provide technical assistance on the requirements of application, so enhancing compliance capacity of MSME. Train-the-trainers approach where possible, for sustainability of knowledge transferred. - Provide training on consumers trends and market niches, to promote more value-added products (more processing or fair trade/social aspects).
	Processors operate under capacity.	- Producers - Processors	Promote associativeness/linkages along the VC to ensure a continued supply of quality product (coordinated planning, good aquaculture practices) and enhance

			competitiveness (e.g. alliance among processing plants).
Commercialization	Low negotiation skills and commercial/business intelligence.	- Producers - Processors - Associations	- Provide technical assistance to enhance negotiation skills (in producers/association of producers) and commercial/business intelligence for processors. - Promote social responsibility programs, in local actors and with international enterprises (capitalize on the results of previous projects and potentiate synergies with new ones).
Transversal issues	Low quality awareness/culture of quality.	- Producers - Processors - Associations - Other actors	Enhance quality awareness through awareness activities, training, promotion material, as appropriate.
	Low level of formalization (complex and expensive procedures for formalization and operation, the same for small and big producers).	- Government agencies - Farmers	- Simplification of procedures for small producers (AREL and AMyPE) by government agencies. - Enhance awareness on the benefits of being registered/formalized.
	Farms lack infrastructure or the existing one is very limited. Shrimp farmers face strong financial constraints, which even affect the purchase of inputs by small producers.	- Producers and other actors along the VC - Government agencies	Financial constraints could be slightly faced through associativeness/linkages promotion during project implementation. For deeper impact financing/credit programs are needed. Integrated/holistic programs <i>ad-hoc</i> for the area.
Transversal issues	Lack of proper facilities for processing and proper operational processes.	- MSME - Other actors along the VC	Financing/credit programs are needed. Integrated/holistic programs <i>ad-hoc</i> for the area.
	Weak sanitary surveillance services to ensure appropriate animal health and food safety.	- Government - Producers	Enhance knowledge on preparation of inspection plans based on risk analysis and other related issues.
	Lack of extensionism programs.	- Government - Producers	Enhance knowledge through BPPA and other requirements. Train-the-trainers approach where possible.
	Lack of certified testing laboratories.	Testing laboratories	Provide technical advice to improve their processes and advance in achieving certification.
	Low level of linkages along the VC and low culture of associativeness.	- Producers - Processors - Other VC actors	Promote linkages/associativeness along the VC and provide technical assistance to implement them.
	Existing associations lack management capacity.	Associations	Provide training and advice to enhance their administration and management capacity.

	• Insecurity and low levels of social services and difficulties for land tenure.	• Government agencies	• A systemic approach is needed. Integrated/holistic programs <i>ad-hoc</i> for the area.
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Source: UNIDO.

A.7.4.4. Actors along the VC and other projects

On the basis of the analysis of the institutional framework and actors carried out in section A.7.3.2., Table 8 lists the main actors of the shrimp chain in Tumaco and related cooperation projects.

Table 8. *Most relevant actors and projects in the shrimp aquaculture VC in Tumaco.*

Domain	Brief description
INSTITUTIONS	
MADR - DFA	Establishes the fisheries and aquaculture policy.
AUNAP	Executes the fisheries and aquaculture policy.
ICA	Carries out surveillance and control of shrimp health.
ADR	Implements plans and integral projects for rural development.
MADS	Establishes the environmental policy.
INVIMA	Carries out surveillance of food safety (surveillance and control to the processing and commercialization establishments and certification in good practices).
Other institutions	DIMAR, MINCIT and other institutions.
ASSOCIATIONS	
ACUANAL	National association for shrimp aquaculture. CENIACUA as its research center.
Chamber of Commerce and Industry-Tumaco	Trade association, private. Public services delegated by the State and socioeconomic development of the municipality.
MAR & SOL	Association of women in vulnerability dedicated to processing and commercialization of farmed shrimp. It has a revolving fund that supports them for the installation and maintenance of the production pools.
ASMUDEPAZ	Association of women in vulnerability dedicated to processing and commercialization of farmed shrimp. They have an alliance with ECOMAR TUMACO (former name: Tumako Fish) for processing.
PRODUCERS	
Small producers AREL	Usually farm shrimp under the form of family associations or other kind of associativeness scheme, despite the functioning has important weaknesses and bottlenecks.
Other producers AMyPE	A number of producers, including processing enterprises that have the production integrated in their business. Mariscal, Puerta del Pacífico, Proamar, Mar&Sol, ECOMAR TUMACO (former name: Tumako Fish), El Porvenir, Chapilar, Agromarina, Guajalito..., among others.
PROCESSORS	
Under the DIRENA project the four processing plants have been working in formalizing an alliance to be more competitive.	
ECOMAR TUMACO (former name: Tumako Fish)	It is in the process of being certified, but still face some bottlenecks.
Bahía Shrimp Company (former Gilmar)	It is in the process of building a processing plant, that should comply with requirements in order to be ready for certification.

Domain	Brief description
Mar&Sol	It does not have processing plant but is in the process of receiving installations and intend to build a processing plant.
Ammimar	It does not have certification, neither in the process for achieving it.
OTHER ACTORS	
Larviculture laboratories, testing laboratories (mostly in the processing plants, not certified).	
COOPERATION PROJECTS	
DIRENA	Funded by AECID, it included a component (<i>Strengthening of commercial processes and good manufacturing practices for the shrimp production chain in the Pacific region of Nariño</i>) to strengthen the commercial processes of farmed shrimp, which ended in December 2018. Three planned products: i) export guide, ii) marketing plan; iii) creation of a social brand, linked to denomination of origin. They worked with the four processing plants in Tumaco. Within the export guide product, and in the context of advancing in quality certification, they worked on trying to formalize an alliance
CODESPA	A new project for the strengthening of organizations in Tumaco has been carried out since the beginning of 2020, as a result of a call-agreement that AECID advanced in 2019. The execution of this project is in charge of the NGO CODESPA, who selected the Shrimp value chain for its accompaniment and intervention, with the purpose of continue and sustain the efforts already made by AECID, through DIRENA in the shrimp production chain. The intervention in Tumaco will last 3 years (2020 - 2022) and has among its purposes the strengthening of producers through associativity to achieve the commercial strategy, as well as the strengthening of organizations of small shrimp producers to increase and secure the supply of raw materials. The CODESPA work plan will be taken into account for the formulation of activities in the territory, including through a possible joint roadmap that promotes synergies between both initiatives (CODESPA - GMAP) to achieve the results.
Other projects	Previous project implemented by UNIDO also finalized, and potential projects by government agencies are under discussion. In addition, possible synergies will be assessed with the regional project "Promotion of regional coordination in aquaculture value chains for the generation of productive employment for Latin America and the Caribbean," of which Colombia is part through the Ministry of Trade, Industry and Tourism.

Note. Data from Diagnosis of the Aquaculture in Colombia (2013), official web pages and field mission.

The country project shall capitalize the results achieved by the previous projects and build on them, as well as shall identify and exploit synergies with potential future projects. The focus on the production side should be to increase quality (and productivity) in the existing active area, before extending production to other areas that should require investment to adequate the infrastructure. Work with a few groups/associations that ensure appropriate level of readiness, to ensure impact. In the processing side the focus should be on supporting the processing plants to enhance their compliance capacity and take benefit of an alliance among them. For CAB, the focus should be to help them to strengthen their technical capacity through improved processes and better trained professionals.

A.7.5. Analysis of the tilapia aquaculture VC in Huila

A.7.5.1. Overview

Huila is the largest tilapia producer and overall aquaculture center in the country, due to the contribution of AMYPE and AREL producers and the industrial production concentrated in the Betania reservoir. The main enterprises in the country – SME and large - dedicated to farmed tilapia are based in Huila.

Extensive culture methods (mostly by AREL) coexist with intensive and super-intensive (cages in the Betania reservoir, mainly). For many AREL and AMYPE, tilapia farming is the main source of income and the farms are family-owned, employing several members of the family. There are several producer

associations that, despite their weak capacity in management and negotiation, have a lot of potential to enhance quality compliance and productivity and to strengthen linkages and integration along the VC.

In 2017, the national production of farmed fish was 120,230 tons, of which 55,554 tons (46.24%) were produced in Huila. Of the total production, 73,641 tons corresponded to tilapia (61.25% of the total farmed fish), Huila being the largest contributor⁹¹. Tilapia is sold whole, in fillets (fresh or frozen) or transformed (sausages, hamburgers, loin). A minor percentage of production is exported (8.7% in 2017⁹², mostly to USA and opening the EU market). During 2017, 24% of national production of farmed fish had international certifications⁹³.

There are 975 UPA in Huila⁹⁴, of which 104 were assisted through FEDEACUA (Colombia Productiva - Agro Exporta project) to implement BPPA and 14 were certified at the end of the project⁹⁵. To date (March, 2020), there are 15 certified farms in Huila (12 for tilapia production/fattening and 3 for tilapia seed production), and 4 plants certified with HACCP and with authorization to export to the United States. Of those, two are authorized to export to the EU.

It is important to highlight the leadership that Colombia has had in terms of BAP certification, since it is the 2nd country in Latin America with most BAP certified facilities after Chile and 4th in the whole Americas, having products with the 4 stars: processing plant, hatcheries, fattening and meal plants.

Level of associativeness is medium-high, but medium and big enterprises are strongly integrated vertically, so linkages along the VC have a strong potential for socio-economic development of the area.

A.7.5.2. SWOT analysis

Table 9 summarizes the results of the SWOT analysis carried out for the tilapia aquaculture VC in Huila, as a basis for determining the project interventions. Based on the analysis, the challenges the tilapia aquaculture in Huila faces can be summarized as follows:

1. Improvement of competitiveness through quality and productivity.
2. Strengthening associativeness: linkages and clustering along the VC.
3. Strengthening conformity assessment services.

This country project will work on the three challenges, in the extent of its possibilities.

Table 9. SWOT analysis matrix for the Tilapia aquaculture VC in Huila.

STRENGTHS	WEAKNESSES
• The country has a national standard for BPPA and developed visual material to motivate and help in the process of implementation. • High to medium level of quality awareness along the VC and willingness to improve. • Good reputation of the farmed tilapia in the market – antibiotic free. • Previous programs and projects raised quality awareness and quality of production, increasing the readiness level to capitalize the results and build on them, to further advance in enhancing compliance capacity and overall competitiveness. • FEDEACUA is well positioned in the region and has been working with farmers and processors to implement BPPA, as part of Colombia Productiva – Agro Exporta.	• Medium to low level of compliance (producers and MSME) with market requirements, including food safety. • Lack of certified testing laboratories. • Low integration/linkages of actors along the VC (vertical integration by medium-big enterprises). • Financial limitations/investment capacity by small producers. • Majority of tilapia production by small to medium fish farmers is marketed through intermediaries, and practices are frequently unfair. Low management and negotiation skills by small and medium producers. • Lack of management capacity by producer associations.

⁹¹ DANE – 3er CNA 2014, Análisis Cadena Nacional Acuicultura – MADR. Cited in MAD (2018). *Cadena de Acuicultura*.

⁹² 6,917 tons in 20017 (value USD 56,468494), of which 99,84% were produced in Huila. Data from USDA, PTP, SICEX – Análisis FEDEACUA 2018.

⁹³ FEDEACUA (2018).

⁹⁴ MADR (2018). *Cadena de Acuicultura*.

⁹⁵ Information collected during the field mission.

• There are seed and food producers in the country and in the region. • There are tilapia farmer associations with willingness and potential for improvement, despite their financial limitations. • There are adequate environmental conditions for tilapia aquaculture.	• Lack of knowledge on EU regulations, market requirements and consumer trends (by MSME enterprises). • Limited investment capacity by small producers and MSME. • Lack of processing centers for small-medium producers. • For small and medium producers value added to the final product is still low or inexistent.
OPPORTUNITIES	THREATS
• The project interventions can build on the results of Agro Exporta project, thus leading for higher efficiency and impact. • Aquaculture in Huila is an activity prioritized by Colombia Productiva and by the NDP 2018-2022. NDP has established the vision "innovation center and logistic node of national and international productive integration". Improvements in logistics may contribute to the project impact. • Growing demand for farmed fish in national and international markets and high potential to increase demand in domestic markets. • Growing demand for antibiotic-free fish in international markets. • Potential to produce products with higher added value (processed). • Strong potential for quality improvement, and willingness of actors to improve. • Best practices implemented in Huila can be documented and systematized to be extended to other departments of the country. • Huila has, since 2019, the first IQF system in Colombia for fish; potential for creating productive linkages with small and medium producers. • As mentioned before Colombia is the 2nd country in Latin America with most BAP certified facilities. • Locally Colombia has a national quality standard (BPPA) which accounts for nearly 40% of equivalence with the BAP standard. • BAP certified has allowed some facilities export their products to the UE, even BAP is an American standard is well accepted in UE.	• Diseases and climate change can affect tilapia farming. • Increasing offer in international markets at more competitive prices and increasing imports of other fish products in Colombia. • New food safety regulations are foreseen in the domestic market, with higher food safety and quality requirements.

Note. Based on information collected through the field mission to Colombia (2018) and PTP-MINCIT, MADR, AUNAP, Governance of Huila (2015), *Sectoral Business Plan for Pisciculture*, and MDR (2018).

A.7.5.3. Quality demand and bottlenecks

Five stages were considered in the aquaculture VC (Figure 9): inputs, seed/larvae production laboratories, production (farming), processing and commercialization. These stages were summarized in section A.7.3.1. for the aquaculture VC and are briefly analyzed below, as per the quality demand and bottlenecks along the tilapia VC in Huila⁹⁶.

1. **Inputs - supplies.** The main inputs used in tilapia aquaculture are produced in the country and tilapia farmers take benefit of their associativeness to optimize price by purchasing high volumes. However, it's important to note that most of the raw materials required in the feed industry are imported hence the feed cost is susceptible to variations in the exchange rate, resulting in higher

⁹⁶ Information sourced from PTP (2014). *Hacia la Sostenibilidad y Competitividad de la Acuicultura Colombiana*; AUNAP, MADR, FAO (2013). *Diagnóstico de la Acuicultura en Colombia* and collected during the field mission.

prices. Quality requirements are clearly defined; no relevant bottlenecks have been identified in this stage more than the high cost feeding represents in tilapia aquaculture. Practices can be optimized through implementation of BPPA and thus optimizing the feed utilization.

2. **Seed and fingerling production.** There is good genetic material in the region and enough suppliers of larvae/fingerlings. In the case of tilapia farmer associations, there is an opportunity to strengthen linkages and associativeness process, so they use the same genetic material, in order to enhance quality and productivity.
3. **Production - farming.** Large producers integrated vertically, with weak or no linkage with small and medium producers. Three challenges should be faced at this stage:
 - **Quality and productivity.** Despite Huila is the largest tilapia production center and a number of farms (32) are already certified in BPA, more than 800 UPA lack compliance with quality requirements. Compliance capacity and productivity should be enhanced. Proper aquaculture practices should lead to increased quality and productivity, resulting in improved farm incomes and better quality of tilapia. While productivity is not the target of the country project, training on BAPP should be conducted to strengthen quality and competitiveness.
 - **Associativeness/linkages.** Linkages between producers and processors are almost inexistent, especially with the bigger enterprises. There is a strong potential to implement them and also to enhance management capacity of the producer associations.
 - **Environmental impact.** Environmental impact of tilapia aquaculture, especially in Betania reservoir, is being an issue in the country. A more sustainable aquaculture is an objective of the government. It's important to have in mind that producers must comply all the regulatory requirements regarding to environmental and legal permissions in order to certify their facilities under BAP or BAAP standards.
4. **Processing.** Most of the tilapia is sold in the domestic market with minor processing, but there are already some processed products such as hamburgers, sausages or loin. Two challenges should be addressed in this stage:
 - **Quality.** Two plants do still have low compliance capacity, and should be assisted to enhance it, in order to achieve HACCP certification. Also, during the field mission the Government suggested to assist a processing plant in Meta to achieve HACCP certification.
 - **Value addition.** Small and medium producers sell most of their production without any transformation. Poor linkages along the VC and financial constraints to invest in equipment constitute a bottleneck to process their products.
5. **Commercialization.** Production is oriented to the domestic market, and the few exporters send their products mostly to the USA. Processing plants habilitated to export to EU are willing to take benefit of the potentialities the European market offers but lack training on some market regulations and requirements (e.g. labelling) and on consumer trends. Small and medium producers, they mostly rely on intermediaries that are costly and some of them use unfair practices. Producer associations, being conscious of that, intend to market their products and give them more added value, but lack negotiation skills and management capacity. There is also strong potential to establish linkages between processing plants and small and medium producers.
6. **Transversal issues.** Conformity assessment, linkages among actors along the VC and strengthen associativeness (management capacity) are the three main transversal issues along the tilapia aquaculture VC. Regarding conformity assessment, Colombia Productiva through SICAL (INM) carried out a diagnosis in Huila to identify the needs for conformity assessments services⁹⁷. For the diagnosis of tilapia diseases, the only laboratory accredited as of December 2018 is the official laboratory of the ICA, and for residues there is no accredited laboratory in the country (processors send the samples to other countries, to be tested). A few laboratories are in the process of being accredited, but lack resources. INVIMA has three laboratories and a number of tests accredited,

⁹⁷ Report pending by date of formulation of this Project.

that do not cover all the testing needs for processed tilapia.

Based on the previous analysis, the main bottlenecks relevant to the country project are summarized in Table 10, together with potential interventions. The applicable standards and requirements related to quality, including safety, should be ensured along the tilapia VC through the country project. Also, along the VC, from producers to processors, the culture of quality and linkages among the actors should be strengthened so as well the conformity assessment services.

Table 10. Main bottlenecks along the tilapia aquaculture VC in Huila and potential interventions.

Stage	Bottlenecks	Actors	Potential interventions
Inputs/supplies	Despite no relevant bottlenecks were identified, there is an opportunity to enhance quality and productivity through more efficiency feeding.	- Producers and producer associations - Associations - Government agencies	Provide technical assistance for BPPA implementation, thus enhancing quality and productivity.
Seed/fingerling production	Despite no relevant bottlenecks were identified, there is an opportunity to enhance quality and productivity using the same genetic material and fingerling suppliers.	- Producers and producer associations - Associations - Suppliers	Provide technical assistance to enhance management capacity of producer associations, so they use the same genetic material, in order to enhance quality and productivity.
Production	Lack of compliance with quality requirements by small/medium tilapia farmers.	- Producers and producer associations - Associations - Government agencies	- Provide technical assistance (training, advice on BPPA) and other quality issues, to increase quality and compliance, thus leading to better access to market and to increased income. Train-the-trainers approach where possible. - Strengthen leadership and associativeness as a way of knowledge transfer (for sustainable impacts), within the existing associations.
	Low administration, management and negotiation skills.	- Producers and producer associations - Associations	- Provide training to improve administration, management and negotiation skills. - Provide technical assistance to strengthen and take benefit of synergies (e.g. better planning/coordination to ensure a constant production level along the year, with homogeneous quality).
	Promote associativeness/linkages between producers and processors and along the VC.	- Producers and producer associations - Industry - Associations - Government agencies	Provide technical assistance to promote and implement associativeness and linkages along the VC, thus strengthening the tilapia VC in Huila.
	High environmental impact	- Producers and producer associations - Industry - Associations - Government agencies	Promote a more sustainable tilapia aquaculture through BPPA and applied research and policies.

Processing	• Lack of compliance with quality requirements.	• Processors • Associations	• Provide technical assistance on the requirements of application, so enhancing compliance capacity of processors. Train-the-trainers approach where possible, for sustainability of knowledge transferred. • Provide training on consumers trends and market niches, to promote more value added products.
	• Poor value addition by small processors.	• Producer associations • Processors	• Provide technical assistance to producer associations on marketing intelligence and how to optimize their processes to enhance competitiveness.
Commercialization	• Low negotiation skills and commercial/business intelligence by producers and producer associations.	• Producer associations • Processors • Associations	• Provide technical assistance to enhance negotiation skills and commercial/business intelligence.
	• Poor/nonexistent linkages between producers and processors.	• Producer associations • Processors • Government agencies • Associations	• Promote linkages along the VC, and especially among the big processing plants and small and medium producers, as part of social responsibility programs.
	• Processing plants habilitated to export to EU lack training on some market regulations and requirements (e.g. labelling) and on consumer trends.	• Processors • Associations • Government agencies	• Provide training according to the needs, through training courses (e.g. labelling) and forums (e.g. consumer trends). If possible, knowledge transfer to other departments of the country (e.g. through streaming).
Transversal	• Lack of certified testing laboratories.	• Testing laboratories	• Provide technical advice to improve their processes and advance in achieving certification. Identify and exploit synergies with the project SICAL (INM) – Colombia Productiva.
	• Low level of linkages along the chain and low culture of associativeness.	• Producers • Processors • Other VC actors	• Promote linkages/associativeness along the VC and provide technical assistance to implement them.
	• Existing associations lack management capacity.	• Producer associations	• Provide training and advice to enhance their administration and management capacity.

Source: UNIDO.

A.7.5.4. Actors along VC and other projects

On the basis of the analysis of the institutional framework and actors carried out in section A.7.3.2, Table 11 lists the main actors of the tilapia chain in Huila and related cooperation projects.

Table 11. *Most relevant actors and projects in the tilapia aquaculture VC in Huila.*

Domain	Brief description
INSTITUTIONS	
MADR - DFA	Establishes the fisheries and aquaculture policy.
AUNAP	Executes the fisheries and aquaculture policy.
ICA	Carries out surveillance and control of tilapia health.

Domain	Brief description
ADR	Implements plans and integral projects for rural development.
MADS	Establishes the environmental policy.
INVIMA	Carries out surveillance and control of food safety (surveillance and control to the processing and commercialization establishments and certification in good practices).
Other institutions	Government of Huila (productive secretariat), MINCIT and other institutions.
ASSOCIATIONS	
FEDEACUA	National association for (fish) aquaculture.
Producer associations	There are several producer associations in Huila (e.g. Asopesjum, Asotilapia).
PRODUCERS	
AMyPE and big producers	There area about 975 UPA; medium to big enterprises have the production integrated in their business.
PROCESSORS	
Four processing plants and other small processors for minor processing (e.g. eviscerating).	
OTHER ACTORS	
Suppliers, research centers, testing laboratories; certification bodies (at the national level).	
COOPERATION PROJECTS	
Colombia Productiva – Agro Exporta	The "Agro Exporta" alliance aimed to improve the competitiveness of fresh trout and tilapia production, with the aim of increasing the exportable supply of these products. The project was articulated through three axes: productivity, quality and international promotion. Fedecua's intervention meant for producers were able to improve their systems through the implementation of BPPA, from the first audit when they got 23% to the last when the average was over 80% BPPA implemented.
MINCIT "Colombia exporta agro"	MINCIT is developing this initiative in the framework of a work plan with the EU and the UK. They are identifying in the work plan some cross-cutting tools to strengthen the fulfillment of requirements. Particularly, MINCIT with the UK are agreeing to support the Certification cofinancing Program with special conditions for exporting to the UK, with a focus on their products of interest where Tilapia is one of those products due to the potential for prioritization.
MOU COLOMBIA-NORWAY	The MADR signed an MOU with Norway in late 2018 to collaborate under the Fish for Development programme. MADR has delegated leadership to AUNAP and the private sector has participated in the definition of the technical assistance work plan, where it was proposed, under outcome 3 of the MOU, the "exchange of experiences and good practices developed with the aquaculture sector ", with a focus on matters of improvement / streamlining of procedures, regulatory issues for production and the efficient use of water resources. Synergies with this MOU will be analyzed once the work plan is approved and its execution begins.
Other projects	Potential projects by government agencies are under discussion. Additionally, possible synergies with the regional project "Promotion of regional coordination in aquaculture value chains for the generation of productive employment for Latin America and the Caribbean", of which Colombia is part through the Ministry of Commerce, Industry and Tourism, will be assessed.

Note. Data from the Diagnosis of the Aquaculture in Colombia (2013), official web pages and field mission.

The country project shall capitalize the results achieved by the previous projects and build on them, as well as shall identify and exploit synergies with potential future projects. The focus in the production side should be to increase quality, providing assistance to a number of producers, taking the results of Agro Exporta as the baseline. In the processing side, the focus should be on supporting the processing plants to enhance their compliance capacity to access to current and new markets, also considering the results of Agro Exporta as the baseline. For CAB the focus should be to help them to strengthen

their technical capacity through improved processes and better trained professionals to achieve accreditation, or at least to advance in the process. And as a transversal issue, promote linkages/associativeness along the VC and provide technical assistance to implement them, and assist producer organizations to enhance their administration and management capacity. As a result, through enhanced quality and productivity, producers and other actors will increase incomes, more employment will be generated and overall competitiveness will be enhanced for a more inclusive and sustainable development.

Technical assistance to producers could be provided with the support of FEDEACUA, thus giving continuity to the Agro Exporta project. Specific terms of reference will be elaborated to specify the objectives, the results to be achieved, and the activities to be carried out to achieve the expected results.

B. REASONS FOR UNIDO ASSISTANCE

B.1. Extensive and specialized experience

UNIDO is the specialized agency of the United Nations that promotes industrial development for poverty reduction, inclusive globalization and environmental sustainability. The mandate of the UNIDO is to promote and accelerate inclusive and sustainable industrial development in developing countries and economies in transition. With this mandate, the Organization carries out two core functions: i) as a global forum, it generates and disseminates industry-related knowledge; ii) as a technical cooperation agency, it implements projects through providing technical support and policy advice.

UNIDO has an extensive and proven track record in working with governments, industry and other major stakeholders in trade facilitation and trade capacity building through quality and standards compliance, with many projects implemented around the world. UNIDO strengthens national and regional QI systems by defining quality-related policies and good governance strategies, strengthening metrology, standardization and accreditation services, enhancing the competitiveness of the private sector and promoting quality awareness. UNIDO has unique global expertise, being the largest multilateral player in QI development and a preferred partner of many developing countries and development partners, and “is widely recognized to be a center of excellence in this area”⁹⁸. Building up on the achievements and lessons learned from previous projects allows for exponential results.

The Directorate of Digitalization, Technology and Agri-Business (DTA) coordinates and mainstreams the Fourth Industrial Revolution (4IR) in its technical cooperation, strategic, normative activities aiming at fostering the inclusive and sustainable development in the era of 4IR. The Directorate creates new and innovative technical cooperation deliverables in the areas of trade, investment, technology innovation and agro-industry and agri-business. The Directorate comprises the Department of the Digitalization, Technology and Innovation (DTI) and the Department of Agri-Business (AGR).

Responding to the growing demand for supporting inclusive and sustainable industrial development (SID) in the era of the new industrial revolution, the Department of Digitalization, Technology and Innovation (DTA/DTI) leads the way in addressing opportunities, challenges and risks stemming from the fourth industrial revolution (4IR) and its contribution to sustainable socio-economic progress. In consultation with public and private partners, DTI designs and implements holistic interventions that are tailored to specific country needs. The Department's interventions actively identify and combine complementary services from across three Divisions, namely:

- Innovation and Digitalization Division (DTA/DTI/IDD)
- Investment and Technology Promotion Division (DTA/DTI/ITP)
- Quality Infrastructure and Smart Production Division (DTA/DTI/QIS)

The Quality Infrastructure and Smart Production Division (DTA/DTI/QIS) seeks to build national and regional quality infrastructure systems needed to provide internationally recognized services, including

⁹⁸ Saana Consulting (2015). *Review of Norad's support to UNIDO's Trade Capacity Building Programme, 2005-2013*, p.24.

strengthening institutional capacities (i.e. metrology, standardization and accreditation); building conformity assessment capacities (testing, inspection, certification, calibration, etc.); supporting small and medium enterprises (SMEs) to take advantage of new technologies and standards for smart production and thus participate in global value chains; trade facilitation and promoting quality awareness with the public sector, economic operators and consumers.

The project formulated in this document, “*Strengthening quality and standards compliance capacity of shrimp and tilapia VC in Colombia to facilitate market access – GMAP Colombia*” will be implemented by the DTI, led by the Division of Quality Infrastructure and Smart Production (DTA/DTI/QIS).

B.2. How we work

The purpose of UNIDO’s technical cooperation function is to build capacity of Member States to initiate and carry out their own programmes in the field of industrial development. Thus, tailored assistance is provided to developing countries under the following principles, that emphasize hand-in-hand and hands-on cooperation with stakeholders on collective actions based on shared objectives:

- *Coordination with other initiatives, where possible, to take benefit of synergies.* Identification of other cooperation projects and initiatives in the same field is critical to avoid overlaps and exploit synergies. A detail mapping exercise is undertaken at project development phase to identify and analyze the planned or ongoing development cooperation projects and related development agencies (multilateral, bilateral and non-governmental organizations) active in the specific area, to determine linkages and synergies. UNIDO promotes these synergies where possible.
- *Know-how transfer to local staff.* For project execution UNIDO uses a blend of national and very renowned international experts, as required for each specific project. Through the blending with local experts and local institutions, know-how is transferred, while enhancing awareness, commitment and involvement of local stakeholders, laying the foundation for sustainability.
- *International experience exchange:* through UNIDO’s international network of enterprises, experts and institutions, the organization strives to promote experience exchanges relevant to the beneficiary countries.
- *Holistic approach to upgrading, including sustainability aspects.* When working with firms directly, UNIDO applies a holistic approach which does not only focus on compliance and delivery parameters, but also includes good governance and sustainability considerations.

UNIDO has both technically skilled and highly motivated staff who demonstrate a strong commitment to their projects⁹⁹.

C. THE PROJECT

C.1. Objective of the project

The overall objective of the country project for Colombia is to facilitate market access for producers and MSME through strengthening their quality and standards compliance capacity, thus contributing to fostering Colombia’s inclusive and sustainable development for enhanced competitiveness.

As such, the project is aligned and supports the implementation of the NDP 2018-2022, the PlANDAS and Colombia Productiva.

C.2. The UNIDO approach

UNIDO has more than 50 years of experience in technical cooperation applying an approach to TCB that has evolved over time. The so called “third generation” approach is holistic and systemic and comprises of five components (Figure 6, section A.4.1.): governance, QI institutions, QI services, enterprises and consumers. The GMAP will apply this approach, driven by the private sector and market needs for the selected VC per country, in order to achieve greater impact.

⁹⁹ Ibid, p.20.

As stated in section A, strengthening NQI is essential for enterprises to conform to the standards of application and market requirements, so as to access and compete in the global market. It contributes to increasing consumer confidence in product safety and quality, including respect for the environment. Furthermore, having policies in place to promote a culture for quality is crucial to ensure an environment where enterprises, institutions and consumers consistently follow and apply quality guidelines and promote quality-focused actions. The value-added impact of standards compliance includes increased market access, increased speed at which goods cross the borders, acceptance of conformity assessment certificates at both sides of the borders, reduced rejections of goods, and reduced trading costs for private sector, thus making SME and enterprises in general more competitive and sustainable.

C.3. RBM code and thematic area code

RBM code: HC2 Advancing Economic Competitiveness

Thematic area code: HC22 Competitive Trade & Corporate Social Responsibility

C.4. Expected outcomes

The project entails the three following coordinated outcomes, as components, over a project life span of four years, targeted for the selected VC – shrimp and tilapia aquaculture VC in Tumaco (shrimp) and in Huila (tilapia) primarily:

- **Outcome 1: Enhanced technical competence and sustainability of the NQIS, for services supporting the shrimp and tilapia aquaculture VC.** This outcome aims at the strengthening of the NQIS, through providing advisory support for policy development/informed policy decisions on standards compliance, and through capacity building in key institutions of the NQIS and relevant public-private support institutions (use of best practices, skills development, implementation of management systems and equipment purchase). As a result, sustainable capacity of NQIS to provide quality and internationally recognized services targeted to the aquaculture (shrimp, tilapia) VC in the selected geographical areas will be enhanced.
- **Outcome 2: Enhanced MSME compliance with international standards and technical regulations relevant to the shrimp and tilapia aquaculture VC.** It aims at improving the capacity of the private sector (actors along the shrimp and tilapia aquaculture VC) to comply with standards and market requirements, through capacity building (including specialized training and advisory) and preparation for certification. Also, strengthening associativity among VC actors and capacity of Business Service Organizations (BSO).
- **Outcome 3: Strengthened culture for quality along the shrimp and tilapia aquaculture VC.** It aims at advocating and scaling up of knowledge dissemination and awareness activities to promote a culture for quality at all levels.

C.5. Outputs and activities

Table 12 summarizes the main indicative activities¹⁰⁰ per outcomes and outputs of the project. All activities/project interventions will be targeted to the shrimp and tilapia aquaculture VC, considering their needs in the selected geographical areas (Tumaco and Huila, respectively).

Table 12. *Main indicative activities, per outcomes and outputs of the project.*

¹⁰⁰ Activities as summarized in Table 12 are indicative, not prescriptive, and are defined at the macro-level. During the inception phase an operational action plan will be prepared, based on the results of the diagnostics/in-depth analysis that will be carried out as deemed necessary.

Outcomes, outputs and main indicative activities		Counterparts
OUTCOME 1. Enhanced technical competence and sustainability of the NQIS		
Output 1.1. In-depth analysis of the capacity of the NQI institutions and service providers is conducted, action plan prepared, and baseline identified.		
MAIN INDICATIVE ACTIVITIES:		
- During the inception phase conduct an in-depth analysis to identify the current capacity of the SICAL institutions and service providers to provide QI services for the aquaculture VC (shrimp, tilapia) in the targeted geographical areas (Tumaco and Huila, respectively). It will also include the need for policy development/informed policy decisions on standards compliance. A VC approach will be adopted for the assessment, to identify bottlenecks along the VC. - Based on the results of the analysis, prepare an action plan and identify the baseline for the key performance indicators (KPI).	- SICAL - MINCIT – Colombia Productiva - UNIDO	
Output 1.2. Advice for informed policy decision making on quality/standards compliance and support for policy development provided.		
MAIN INDICATIVE ACTIVITIES:		
Provide advice for policy development and policy decision making in the scope related to quality and standards compliance, as necessary for the shrimp/tilapia VC in the targeted geographical areas.	- SICAL - MINCIT – Colombia Productiva - UNIDO - Other institutions as appropriate	
Output 1.3. Technical competence of the NQI at the institutional level is strengthened.		
MAIN INDICATIVE ACTIVITIES:		
Provide technical assistance to the SICAL institutions, according to the action plan, to strengthen their capacity to serve the shrimp and tilapia aquaculture VC in the geographical targeted areas. Technical assistance may include training, advice to improve processes or to implement management systems, or other activities, as necessary.	- SICAL - UNIDO - Other institutions as appropriate	
Output 1.4 Technical competence of the NQIS at the service providers level is strengthened.		
MAIN INDICATIVE ACTIVITIES:		
On Inspection: - Provide training to official inspectors (shrimp/tilapia health protection specialists; food safety specialists) to strengthen their capacity to conduct risk analysis and other topics, as necessary, for shrimp and tilapia aquaculture VC in the targeted geographical areas. - Assist the animal health protection department to provide technical advice to rural producers in Tumaco to protect farms from virus and other diseases.	- ICA - INVIMA - MINCIT – Colombia Productiva - UNIDO	
On Testing: Support laboratories to receive accreditation for the tests conducted for the shrimp and tilapia VC in the targeted geographical areas (training, technical advice).	- Testing laboratories (public, private, including industry, as necessary) - INM - ONAC - UNIDO	
Note: Other interventions in certification and/or calibration could be necessary and may be identified in the in-depth analysis during the inception phase.		
OUTCOME 2. Enhanced MSME compliance with international standards and technical regulations		
Output 2.1. In-depth analysis of the relevant market requirements is conducted, action plan prepared and baseline identified.		

MAIN INDICATIVE ACTIVITIES:		
- During the inception phase conduct an in-depth analysis to identify the relevant market requirements, VC driven for the target markets. - Based on the results of the analysis, prepare an action plan and identify the baseline for the KPI.		• MINCIT – Colombia Productiva • FEDEACUA • ACUANAL • UNIDO • Other institutions as appropriate
Output 2.2. Compliance capacity of MSME and other actors along the VC is strengthened.		
MAIN ACTIVITIES:		
Provide technical assistance to MSME and other actors along the shrimp and tilapia aquaculture VC (Tumaco, Huila) to strengthen their capacity to comply with standards and enhance quality level of their products and services. Note: A system perspective will be adopted, in order to ensure organizational efficiency and competitiveness, thus leading to increase SME and other actors' capacity to compete in the market. Emphasis will be given to the implementation of management systems to comply with the relevant standards. Specific criteria for selecting the targeted SME and other actors along the VC (e.g. producers) will be established in coordination with key stakeholders.		• MINCIT – Colombia Productiva • MINCIT-Colombia Productiva • MSME • FEDEACUA • ACUANAL • Other institutions as appropriate
Output 2.3. BSO are strengthened and associativity/linkages among VC actors are promoted.		
MAIN ACTIVITIES:		
- Promote and assist linkages/associativity among actors along the VC, and specifically MSME clusters and business networks, as appropriate. - Provide technical assistance to producer associations to strengthen their administration, management and negotiation skills. Note: BSO will be actively implied in the implementation of standards/management systems.		• MSME • FEDEACUA • ACUANAL • Other institutions as appropriate
OUTCOME 3. Strengthened culture for quality.		
Output 3.1. Materials for raising quality awareness developed.		
MAIN ACTIVITIES:		
Develop promotional material (equal representation in visual materials and/or case studies and gender-sensitive language where applicable will be taken into consideration) to raise quality awareness, as appropriate (printed or electronic versions). Note: awareness activities will be organized through local private sector associations, BSO, institutions from the NQI and other local partners. Relevant stakeholders (from public sector, private sector, academia and consumers, among others) will be implied in these activities.		• SICAL • MINCIT – Colombia Productiva • Other actors along the VC
Output 3.2. Quality awareness and other activities to promote quality culture are carried out.		
MAIN ACTIVITIES:		
Develop activities to raise quality awareness and others to promote a quality culture (knowledge dissemination, training, awareness activities and/or promotion of quality awards, as appropriate). Note: awareness activities will be organized through local private sector associations, BSO, institutions from the NQI and other local partners. Relevant stakeholders (from public sector, private sector, academia and consumers, among others) will be implied in these activities.		• SICAL • UNIDO • Other actors along the VC

C.6 Timeline of the activities

The project has a duration of four years, running from 1QTR 2021 to 4QTR 2024. Timeline of activities is included in Annex 3.

The project envisages an inception phase of 6 months starting from the signature of the present project document. During the inception phase UNIDO will:

- Recruit the experts and set up the Project Management Unit (PMU).
- Elaborate a global operational plan as a framework, and the first annual detailed work plan.
- Conduct in-depth assessments, where necessary, and establish baselines for the KPI.
- Validate the budget and adjustment to the same as necessary (e.g. transfer of funds among outcomes/outputs), prepare specific budget for interventions in shrimp aquaculture VC and in tilapia aquaculture VC and specific for monitoring, reporting and evaluation plan.
- Establish the Steering Committee (SC) and *modus operandi* (Terms of Reference, ToR).
- Prepare the ToR for subcontracting of technical assistance to tilapia producers in Huila.
- Validate the approaches, concepts and logical framework (log-frame) proposed in the country project document, taking into consideration the latest developments in the country and the information collected through the in-depth assessments. The log-frame will include, as a minimum, the KPI detailed in Annex 4, if applicable to project interventions, in order to contribute to reporting at the Programme level.
- Design tools for planning, implementation, coordination, monitoring and evaluation of the project.
- Define the project's strategies to develop for scaling-up of results and knowledge management.
- Define, the project identity manual and the communication strategy, according to description in C.16. Visibility and communication.
- Awareness building to stakeholders and partners, to secure their active involvement.

The results of the inception phase will be documented in an inception report and will include the following key deliverables: i) PMU and SC set up; ii) action plans with detailed activities and a global operational plan/roadmap; iii) baselines for the KPI; iv) log-frame and budget adjustments, as necessary; v) involvement of key stakeholders and vi) Approach to project strategies (in aspects such as: visibility and communication, expansion of results and knowledge management, as well as the sustainability of the results, including the exit strategy with a view to continuation, beyond project duration).

The inception report will be presented and discussed at the first SC meeting, for approval and endorsement.

C.7 Risks

Risks that could jeopardize the implementation of the project have been identified and are detailed in Annex 2 (listed by type and relevance), together with the proposed actions to mitigate them. Based on the assessment of those risks, the global risk-level for the project is estimated at low.

C.8 Theory of Change

The Theory of Change for the GMAP, applicable to this project, is summarized below and described in the GMAP formulation document.

Three basic assumptions were adopted, based in UNIDO's extensive experience in technical cooperation in TCB: a) Trade access and trade facilitation requires a systemic approach; b) an effective business environment is necessary, that help MSME and other actors to face market requirements and overall standards and quality issues; c) it is required to enhance awareness for quality and overall quality culture, to create an appropriate environment to improve quality, so supporting a dynamic of change at all levels for better competitiveness.

Based on these assumptions, two levels of interventions are needed for improving market access through quality and standards compliance: i) *National-institutional level*, for developing sustainable and targeted NQI, so that MSME and other organizations can verify the conformity and compliance of their products with the relevant standards and other market requirements; ii) *organizational level*, to help

enterprises, especially MSME, to comply with the standards and to create awareness of the importance of product quality and safety.

Considering the assumptions detailed above and the overall objective and outcomes of the GMAP, Figure 10 illustrates the Theory of Change. For any change process to be implemented and impact be sustainable, it requires a 1) "want-to-do ability", a 2) "do-ability" and a 3) "should-do-ability". The first one is related to the environment that should promote and recognize compliance and overall quality, so it is linked with quality culture. The second one refers to the capacity of enterprises/MSME to comply ("be able" to do), by itself or through access to QI services (e.g. Conformity assessment). The third one is related to corporate social responsibility (the "should improve"), as one of the best contributions that institutions and private sector organizations can provide to the society and to the country is to manage their resource with high effectiveness and good corporate governance. Thus, three preconditions linked to these requirements are necessary to achieve the overall objective:

- Raise awareness and enhance quality culture.
- Enhance NQI capacity and services, in order to help MSME to comply with international standards and raise quality awareness.
- Enhance MSME capacity to comply with those standards.

Activities addressed to improve processes and systems, to enhance technical and management skills, as well as policy advice, awareness rising, quality promotion and network/clusters are needed, as illustrated in Figure 10. They will lead to the achievement of the three outcomes of the GMAP and the overall objective, as final expected impact.

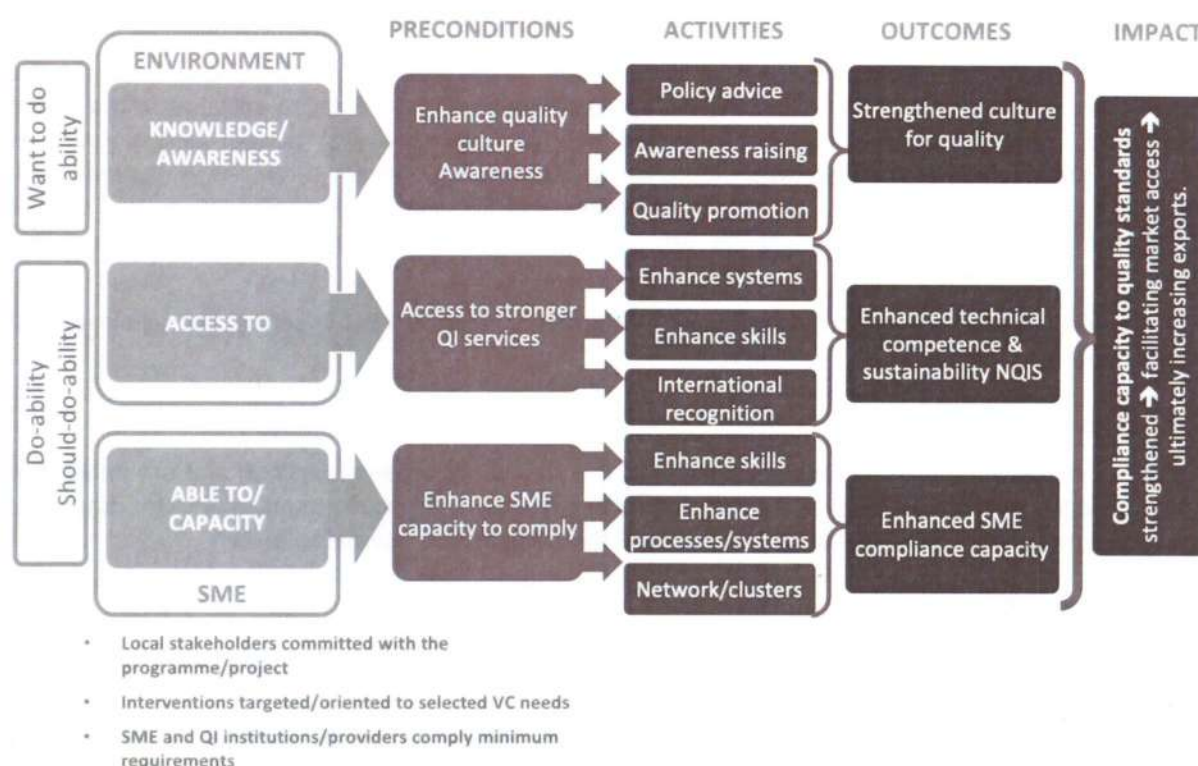


Figure 10. Theory of Change for the GMAP and country project for Colombia. Reprinted from GMAP.

C.9 Beneficiaries

The project will cover a wide range of beneficiaries, both in the private and the public sector. The direct beneficiary is the private sector, in particular export-oriented MSME (Huila) and other actors along the shrimp and tilapia VC in the targeted geographical areas (producers, producer associations, BSO). At the government level, the project will directly benefit the institutions forming part of the NQIS (e.g. SICAL, ICA, INVIMA, as necessary) and those performing conformity assessment services.

Government and main counterparts will commit to ensuring full counterpart capacity, as required to achieve the objectives of the project.

The selection criteria for the beneficiaries will be defined during the inception phase, ensuring transparency and no-discrimination. The process will take into consideration, but is not limited to, the criteria summarized in Table 13.

Table 13. *Criteria considered for selection of direct beneficiaries in the private sector.*

Selection criteria
• Production volume and willingness to enter into or expand export activities. • Willingness to follow/implement quality standards. • Degree of compliance with market demands (quantity, quality). • Openness for change/improvement and willing to participate actively in project implementation. • Availability of financial resources to upgrade facilities as necessary to comply with standards or to include/upgrade processing for value adding.

Indirectly, the local/regional economy is expected to benefit through improved earnings from better access to market, which feed back into the economy and can accelerate inclusive economic growth.

Further indirect beneficiaries are the Colombian consumers through a strengthened NQIS and better-quality products.

C.10 Link with the GMAP and cooperation with other ongoing programmes and projects

The country project for Colombia is part of the GMAP. Overall objective, outcomes, activities and outputs of the country project are in line with those of the GMAP and were adapted to the scope of the country project.

Monitoring and evaluation of the project will feed into the monitoring of the GMAP. Best practices and learning lessons from other GMAP country projects feed the country project, and vice versa in double loop, leading higher effectiveness.

The successful achievement of the expected outcomes and outputs of the project will require a concerted effort and full commitment from all the stakeholders in the public and private sector and taking benefit of synergies with other cooperation projects in the country (see Tables 8 and 11) and at UNIDO side. A continuous follow-up of cooperation projects and Government initiatives will be carried out. At UNIDO side, synergies with other projects within GMAP, Global Quality and Standards Programme (GQSP) and other projects in the country will be identified and exploited. UNIDO is currently implementing four projects in Colombia¹⁰¹, and synergies both in the technical and management side will be exploited.

C.11 Sustainability and exit strategy

Sustainability will be considered along the project life cycle and built on five axes of intervention:

- *Ensure that the project respond to the private sector needs.* As analyzed in sections A.7.4. and A.7.5, the project has clear traceability to the needs of the private sector.
- *Coordination with "and between" local experts and local institutions.* It will lead to knowledge and capacity transfer from the beginning of the project and will enhance awareness, commitment and involvement from local stakeholders, laying the foundation for sustainability.
- *Train-the-trainers approach.* Where possible, it will mitigate the impact of employee rotation, thus contributing to sustainability of outcomes.

¹⁰¹ GQSP Colombia; PRO-Motion; Eficiencia energética; Ecoparques industriales.

- *Agreements and linkages with MSME and other VC members and institutions.* It will lead to overall effectiveness, enhancing competitiveness and more sustainable impact.

The absorption capacity of the counterparts will be periodically evaluated. In case of significant delay, strategic decisions should be taken to evaluate the continuity of activities. Sustainability issues will be considered in the agenda of the SC meetings.

An appropriate exit strategy is linked to sustainability, so the assisted organizations will be able to maintain and to improve their compliance capacity and performance when the projects will come to their end. An exit strategy will be considered right from the design phase in each action plan per country.

C.12 Gender mainstreaming and other cross-cutting themes

The project will consider and contribute to Norad's cross-cutting themes, such as gender, good governance and resource management.

Gender equality is a goal in its own right, but it is also vital to the achievement of other development goals, such as poverty reduction, economic growth and environmental sustainability¹⁰². Women are key agents of change. This is also stated in the white paper of Norwegian Government, where a greater emphasis on women's rights and gender equality is urged: "The Government will ensure that women's rights and the gender perspective are integrated into its work to advance private sector development. Norway will also support targeted efforts to reduce political, economic, legal and other structural obstacles to women's participation in the private sector".¹⁰³ Norway has also committed to support measures that strengthen women's control of productive resources and their own through UNIDO.¹⁰⁴

To ensure that women and men can access, participate and benefit from development projects on an equal footing, and that gender inequalities in activities and outcomes are not perpetuated, gender issues are considered throughout the entire project cycle, from design and implementation to monitoring and evaluation¹⁰⁵. UNIDO's policy on gender equality and the empowerment of women provides the overall guidelines for establishing a gender mainstreaming strategy. The project will also consider gender when setting up the criteria for selecting the private sector actors (e.g. MSME, producers) to receive technical assistance. Where possible, women entrepreneurs and professionals will be prioritized. Also, all required efforts will be made to enroll as much as possible women and to give equal opportunity and encourage them to participate in all relevant Programme and country projects activities, both at management and technical levels, including decision-making activities. Indicators will be disaggregated by sex whenever possible.

All project personnel will undertake the mandatory course I know gender 1-2-3 and they will be encouraged to undertake the optional UNIDO training I Know Gender 15: Gender and Sustainable Industrial Development. The use of a gender-sensitive language will be promoted in any material that will be produced during the project.

Good governance will be pursued by promoting participatory governance structures for NQI framework and at the firm level, and also through policy dialogue at the global and country-level¹⁰⁶. Efficiency in Resource management will be optimized under the focus of Results Based Management (RBM).

During the inception phase of the project, a gender analysis of the tilapia and shrimp value chains will be conducted and the related baseline data will be collected. Additionally, the project will try to liaise with ASMUDEPAZ, this is an association of women in vulnerability dedicated to processing and commercialization of farmed shrimp that in 2017 had nearly 145 women as members. This active liaison could help to better integrate gender considerations into specific project activities.

¹⁰² UNIDO (2015). *Guide on gender mainstreaming, TCB projects.*

¹⁰³ Working together: Private sector development in Norwegian development cooperation. Meld. St. 35 (2014–2015) Report to the Storting (white paper) Summary.

¹⁰⁴ Action Plan for Women's Rights and Gender Equality in Foreign and Development Policy 2016-2020

¹⁰⁵ Ibid.

¹⁰⁶ UNIDO as a recognized international organization will be well positioned to lead a policy dialogue in the framework of project implementation and with the government more broadly.

Under Output 3.2 Quality awareness and other activities to promote quality culture are carried out, all the awareness sessions and trainings will be carried out taking into account considerations over women's access such as but not limited to transport, venue, safety and timing among others. Under this same output, the option of establishing quality award(s) for women specifically will be explored, as this could be an inspiration and role model to others.

C.13 Environmental and Social Assessment

As per UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP), the Environmental and Social screening template has been completed and this project has been categorized as Category "C". Category "C" projects are likely to have minimal or no adverse social and/or environmental impacts and as such, no mitigation measure needs to be implemented. However, advisory services and capacity building activities provided to promote QI shall consider environmental and social safeguards.

C.14. Project coordination and governance

C.14.1. Project structure and coordination

As illustrated in Figure 11, the project will have a PMU, based in Cali, that will be in charge of project implementation. The PMU will be led by a Technical Coordinator (TC) and will include a Project Assistant for management and operations, as well as national and international technical specialists, on long- and short-term basis, as necessary. At UNIDO Headquarters (HQ), a Project Manager (PM) will provide support to PMU and continuous follow-up the project, assisted by a Project Associate. The PMU will properly coordinate with UNIDO field office in Bogota and UNIDO HQ.

A proper structure for project management and governance will be implemented. The structure will include the necessary links and coordination with the GMAP, at field and HQ levels.

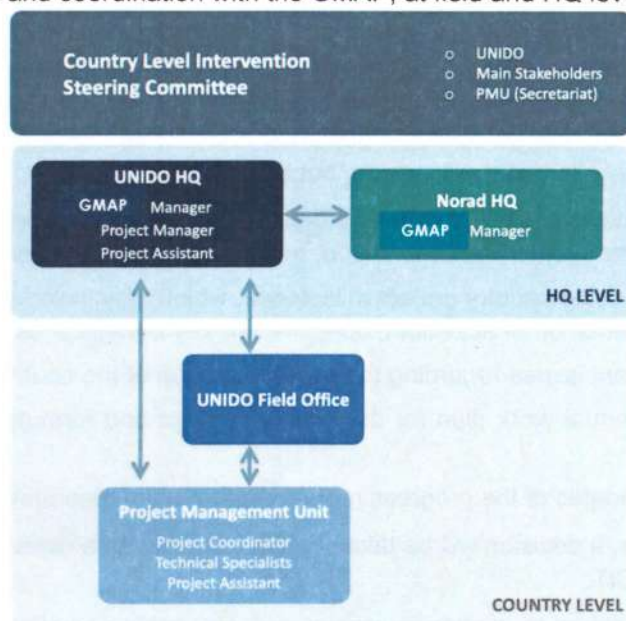


Figure 11. Project structure and coordination.

C.14.2. Project management

UNIDO will be responsible for the overall management, execution and coordination of the project through the PM-QIS, who will supervise the PMU in Colombia in close coordination with the GMAP

Manager, working close together to ensure the results-orientation and efficiency of the project. The PM-QIS will represent UNIDO in the SC of the project.

The TC will have the following main functions:

- Manage the project at national level, including financial management, in conjunction with the PM - QIS at the HQ.
- Prepare global planning (action plan/roadmap) of the project and its deployment in operational plans (annual, semi-annual and quarterly). Ensure their implementation and periodical follow-up.
- Coordinate the activities of the project with the appropriate implication of the private sector, the ministries and the relevant institutions, as well as the adequate links with the GQSP and other projects, where applicable.
- Manage the secretariat of the SC meetings that includes coordination of the periodical meetings, among other functions.
- Ensure commitment and involvement of the counterparts and beneficiaries, and synergy between the relevant organizations and institutions at the national level.
- Design, coordinate and facilitate the missions of national and international experts and subcontracts at the national level.
- Carry out continuous monitoring, results oriented (ROM) and evaluation of the project, to ensure the expected outcomes and outputs, translated into the respective KPI, are met. When necessary, ensure prompt reaction.
- Prepare intermediate and final reports for the project.
- Ensure good communication flow and coordination with the PM-QIS and with UNIDO field office in Bogota.
- Provide technical assistance in the areas of his/her expertise.

C.14.3. Project governance

A SC comprising UNIDO, MINCIT, as main counterparts, and other relevant stakeholders as appropriate, like Colombia Productiva and the Norwegian Embassy in Colombia, shall be established. The main role of the SC will be strategic guidance and monitoring of progress towards established objective and outcomes. Its tasks will include, but be not limited to:

- Taking strategic decisions of the country project, which may include approval of the inception report as the basis for the project implementation, monitoring and evaluation.
- Setting and assessing country project milestones, which may include changes or amendments to timeline (implementation of activities), objectives or key beneficiaries.
- Discussing relevant issues regarding the implementation of the country project.
- Approving the annual work plan for the country project and formulate recommendations where necessary¹⁰⁷.
- Approving the updates of the progress report and formulate recommendations where necessary.

In case of any dispute, a decision will be taken by the following core members: UNIDO, in consultation with Norad, and MINCIT.

The SC will act as a forum to exchange problems during implementation, including involvement and relationship among the stakeholders. To this end, the SC may invite experts as reference persons and/or observers as deemed appropriate (i.e. beneficiaries, implementing agencies). In addition, *ad-hoc* sub-committees to the SC can be formed to assess thematic/output results and take adequate corrective actions. Such sub-committees will report to the SC.

¹⁰⁷ Country progress reports and subsequent work plans at country level must be endorsed by the GPMA SC.

The SC will meet twice a year in Colombia (either Cali or Bogota or even virtually, as agreed between the parties for each session). The TC will act as Secretariat, and an agenda shall be sent to all relevant stakeholders at least two weeks prior to the SC meeting.

C.15. Opportunities

The country project for Colombia represents several opportunities to be capitalized, as follows:

- *It is well aligned with the country's priorities*, stated in the NDP 2018-2022, Colombia Productiva and the Sectoral Business Plans for Shrimp and Fish Aquaculture. It complements and enhances the Government's efforts to develop the MSME and aquaculture sector, and support the NQIS, in order to provide internationally-recognized conformity assessment services to other export sectors.
- *Responds to a current need to improve market access opportunities of the targeted VC*, in particular for MSME, by strengthening their capacity to comply with market requirements.

Thus, the country project will:

- Raise awareness regarding voluntary sustainable standards as additional incentives to improve quality, innovation and export competitiveness, showcasing their benefits in the selected VC.
- Strengthen the compliance capacity of the country, so as to contribute to increasing its competitiveness.
- Reinforce UNIDO and Norad's position as core providers of assistance in this area, and it will provide high visibility for both organizations.
- Benefit from synergies in the management and implementation side, as part of the GMAP, and from other synergies with other UNIDO projects and activities in the country.

C.16. Visibility and communication

Communication and visibility will follow the guidelines established by the GMAP communication and visibility framework, that will be properly developed for the country project. They will include: clear functions and communication objectives; identification of relevant target audiences; identification of suitable channels to reach them and visual guidelines (logo, graphical elements and key messages).

The project will produce and disseminate promotional material, that will be developed in a consultative process and will be in line with the Programme visual identity. Equal representation in visual materials and/or case studies and gender-sensitive language where applicable will be taken into consideration.

D. INPUTS

D.1. Counterpart inputs

The main counterpart - MINCIT – and other counterparts will contribute in kind, covering the following specific items:

- Ensure that sufficient staff of an appropriate professional level within their organizations is made available for country project activities and consultation, as appropriate.
- Any change in the staff assigned to the project should be prompt notified to UNIDO.
- Nominate participants to meetings, workshops and other events to be held inside the country, as part of the normal functioning of their organizations.
- Provide local administrative support for organizing meetings, conferences and training activities, as necessary.
- Provide support and facilitate the processing of any legal documents or decrees relevant to the sector to be produced under the project's objectives.
- Solve any institutional difficulties or obstacles that may hinder the implementation of project-related activities and/or has direct impact on project objectives.

- In-kind contributions if relevant.

D.2. UNIDO inputs

UNIDO, as the implementing agency, will provide inputs in terms of UNIDO expertise, know-how, facilities and staff time. In general terms, UNIDO will provide:

- Identification and recruitment of the project management team.
- Identification and preparation of job descriptions and recruitment of all the international and/or national experts and consultants required for the project implementation.
- Identification of suppliers (national/international), preparation of ToR and technical specifications, and procurement of services and equipment (e.g. test equipment), as envisaged.
- Remuneration of project staff, experts and consultants recruited by UNIDO, as well as payment of suppliers.
- Remuneration of the experts appointed for the evaluation of the project.
- Preparation and arrangement of project activities and payment for them.
- Periodical project monitoring, reporting and evaluation.
- UNIDO methodologies, resource materials and platforms, as required.

E. BUDGET

The budget per outcome, output and budget line is presented in the next page:

Budget Lines	Description	2021	2022	2023	2024	Total
Outcome 1: Enhanced technical competence and sustainability of the NQIS.						
Output 1.1: In-depth analysis of the capacity of the NQI institutions and service providers...						
1500	In-country travel	5,000	-	-	-	5,000
1700	Nat.Consult./Staff	17,500	-	-	-	17,500
5100	Other Direct Costs	2,500	-	-	-	2,500
Sub-Total Output 1.1		25,000	-	-	-	25,000
Output 1.2: Advice for informed policy decision making on quality/standards compliance...						
1100	Staff & Intern Consultants	10,000	10,000	-	-	20,000
1500	In-country travel	2,500	2,500	-	-	5,000
1700	Nat.Consult./Staff	10,000	10,000	-	-	20,000
3000	Trainings/Fellowships/Study Tours	2,500	2,500	-	-	5,000
5100	Other Direct Costs	1,000	1,000	-	-	2,000
Sub-Total Output 1.2		26,000	26,000	-	-	52,000
Output 1.3: Technical competence of the NQI at the institutional level is strengthened.						
1100	Staff & Intern Consultants	20,000	20,000	20,000	-	60,000
1500	In-country travel	1,500	1,500	1,500	1,500	6,000
1700	Nat.Consult./Staff	30,000	20,000	20,000	10,000	80,000
2100	Contractual Services	5,000	5,000	5,000	5,000	20,000
3000	Trainings/Fellowships/Study Tours	10,000	10,000	10,000	5,000	35,000
4500	Equipment	-	40,000	40,000	-	80,000
5100	Other Direct Costs	3,000	1,500	1,500	1,500	7,500
Sub-Total Output 1.3		69,500	98,000	98,000	23,000	288,500
Output 1.4: Technical competence of the NQI at the service providers level is strengthened.						
1100	Staff & Intern Consultants	5,000	5,000	5,000	-	15,000
1500	In-country travel	2,500	2,500	2,500	2,500	10,000
1700	Nat.Consult./Staff	60,000	50,000	50,000	20,000	180,000
2100	Contractual Services	5,000	5,000	5,000	5,000	20,000
3000	Trainings/Fellowships/Study Tours	10,000	10,000	10,000	5,000	35,000
4500	Equipment	-	40,000	40,000	-	80,000
5100	Other Direct Costs	3,000	1,500	1,500	1,500	7,500
Sub-Total Output 1.4		85,500	114,000	114,000	34,000	347,500
Sub-Total Outcome 1		206,000	238,000	212,000	57,000	713,000
Outcome 2: Enhanced SME compliance with international standards and technical regulations.						
Output 2.1: In-depth analysis of the relevant market requirements is conducted...						
1500	In-country travel	5,000	-	-	-	5,000
1700	Nat.Consult./Staff	17,500	-	-	-	17,500
5100	Other Direct Costs	2,500	-	-	-	2,500
Sub-Total Output 2.1		25,000	-	-	-	25,000
Output 2.2: Compliance capacity of SME and other actors along the VC is strengthened.						
1500	In-country travel	7,500	7,500	7,500	5,000	27,500
1700	Nat.Consult./Staff	70,000	70,000	70,000	60,000	270,000
2100	Contractual Services	15,000	15,000	15,000	10,000	55,000
3000	Trainings/Fellowships/Study Tours	10,000	10,000	10,000	10,000	40,000
4500	Equipment	20,000	40,000	40,000	30,000	130,000
5100	Other Direct Costs	5,000	2,500	2,500	2,500	12,500
Sub-Total Output 2.2		127,500	145,000	145,000	117,500	535,000
Output 2.3: BSO are strengthened and associativity/linkages among the VC actors are promoted.						
1500	In-country travel	5,000	5,000	5,000	5,000	20,000
1700	Nat.Consult./Staff	10,000	10,000	10,000	5,000	35,000
3000	Trainings/Fellowships/Study Tours	5,000	5,000	5,000	5,000	20,000
5100	Other Direct Costs	1,500	1,500	1,500	1,500	6,000
Sub-Total Output 2.3		21,500	21,500	21,500	16,500	81,000
Sub-Total Outcome 2		174,000	166,500	166,500	134,000	641,000
Outcome 3: Strengthened culture for quality.						
Output 3.1: Materials for raising quality awareness developed.						
1700	Nat.Consult./Staff	5,000	5,000	5,000	-	15,000
5100	Other Direct Costs	5,000	5,000	5,000	2,500	17,500
Sub-Total Output 3.1		10,000	10,000	10,000	2,500	32,500
Output 3.2: Activities for raising quality awareness carried out.						
1700	Nat.Consult./Staff	5,000	5,000	5,000	-	15,000
3000	Trainings/Fellowships/Study Tours	5,000	5,000	5,000	-	15,000
5100	Other Direct Costs	2,500	2,500	2,500	-	7,500
Sub-Total Output 3.2		-	12,500	12,500	-	37,500
Sub-Total Outcome 3		10,000	22,500	22,500	2,500	70,000
Outcome 4: Management, monitoring and visibility						
1100	Staff & Intern Consultants	42,000	42,000	42,000	20,000	146,000
1600	Staff Travel	5,000	5,000	5,000	5,000	20,000
1700	Nat.Consult./Staff	18,000	18,000	18,000	18,000	72,000
2100	Contractual Services	10,000	10,000	10,000	10,000	40,000
4300	Premises	10,000	10,000	10,000	10,000	40,000
4500	Equipment	15,000	5,000	-	-	20,000
5100	Other Direct Costs	3,000	2,000	1,500	1,500	8,000
Sub-Total Outcome 4		103,000	92,000	86,500	64,500	346,000
TOTAL		493,000	519,000	487,500	258,000	1,770,000
Programme Support Cost (%)		13%	64,090	67,470	63,375	230,100
GRAND TOTAL		557,090	586,470	550,875	291,540	2,000,100

Notes:

- BL 11-00 (International staff): it covers international experts' fees and travel related costs (e.g. per diem, local transportation, terminals and miscellaneous). UNIDO will select and provide international expertise, when required in the absence of local expertise, to conduct activities. The main focus of using international experts is to transfer knowledge and build capacity at national level.
- BL 16 (Staff travel): it covers travel costs of UNIDO staff, to follow-up.
- BL 17-00 (Local experts): it covers national experts' fees and travel related costs. UNIDO will prioritize the selection and engagement/recruitment of national experts, consultants and administrative support staff, where the technical expertise, competences and skills are available.
- BL 21-00 (Subcontracts): it covers costs of suppliers. UNIDO will subcontract the provision of services to national and/or international entities (public or private) where it deems necessary. The procurement of services will be conducted following strict adherence to UNIDO's procurement rules and regulations.
- BL 30-00 & 35-00 (Trainings/Fellowships/Study Tours, and International meetings): it covers the costs of the related activities. UNIDO will subcontract the provision of trainings, fellowships, workshops and other activities (e.g. study tours) as defined by the project.
- BL 43 (Facilities): It covers the costs of services related to facilities (e.g. renting, office cleaning, etc.).
- BL 45-00 (Equipment): it covers the cost of purchasing equipment. UNIDO will procure equipment where deemed necessary for the overall success of the expected results. The purchasing of equipment will be conducted following strict adherence to UNIDO's procurement rules and regulations.
- BL 51 (Other Direct Costs): it covers printing, communications, courier, and other similar costs.
- Other budget lines: they include BL 15-00 (local travel), BL 82-00 (evaluation mid-term/final), among others.

F. MONITORING, REPORTING AND EVALUATION

F.1. Monitoring

The project will establish a Result-Based Monitoring (RBM) mechanism and will also consider implementation monitoring, to ensure timely identification of implementation challenges and provide support in addressing them. Thus, monitoring will assess progress towards timely achieving expected results, both in terms of quality and quantity, throughout the programme and project cycle. It will provide the main stakeholders with early indications of progress towards the achievement of project outcomes and outputs and/or problem areas that need to be addressed.

A logical framework with the indicators considered at the Programme level is included in Annex 4. The project log-frame will include those indicators, if applicable to project interventions, in order to ensure fitness with the logical framework at the Programme level, thus contributing to reporting for GMAP.

The TC, in coordination with the PM-QIS, will monitor the project activities on a continuous basis, in order to ensure that activities occur as planned and remedial steps are taken as deemed necessary.

F.2. Reporting

On the basis of the project monitoring, two progress reports in Spanish language, including narrative and updated timelines of implementation, and a financial report will be prepared yearly and presented to the country SC. The reports will be prepared in the standardized template designed by UNIDO and approved by Norad for the projects under the GMAP. Sufficient focus should be made on the change that the project (and overall programme) is intended to bring, so as to include systematic quantitative information on the progress towards outcomes.

Progress reports are under the responsibility of the PM-QIS.

F.3. Evaluation

Considering that strategic monitoring at country level will serve as a tool to identify bottlenecks and provide strategic advice, evaluation (mid-term and final independent evaluation) will be focused at the Programme level and at least a final evaluation at the country project level, in accordance with UNIDO rules and regulations.

G. PRIOR OBLIGATIONS AND PREREQUISITES

N/A

H. LEGAL CONTEXT

The Government of the Republic of Colombia agrees to apply to the present project, *mutatis mutandis*, the provisions of the Standard Basic Assistance Agreement between the United Nations Development Programme and the Government, signed on 29 May 1974 and entered into force on 23 January 1975.

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J. ANNEXES

Annex.1. SWOT analysis matrix for the Aquaculture VC in Colombia

STRENGTHS	WEAKNESSES
• The "National Aquaculture VC" is formalized (MADR and AUNAP). • Accumulated know-how (governmental officials, academia, associations and other institutions) allowed to increase production and improve quality. • Existence of several private associations with willingness and potential for improvement. There are two institutionally strong associations/federations of aquaculture (ACUANAL and FEDEACUA). FEDEACUA has technical capacity to help producers to implement BPPA and other technological packages. • Existence of support and promotion government programs with a preferential approach to AREL. • Colombia Productiva interventions with FEDEACUA through Agro Exporta project raised quality awareness and quality of production. • Existence of producers of seeds and feed inputs in the country and genetic improvement programs¹⁰⁸. Some constraints in the case of shrimp. • Existence of a national standard for BPPA. • Existence of some certified processors with good capacity and export experience. • Readiness of some regions (e.g. Huila for tilapia) to consolidate clusters, thus improving business integration. • Colombian farmed fish has good reputation in international markets. • High participation of women in the aquaculture VC.	• Low level of formality/registration along the VC¹⁰⁹ impede access to economies of scale, support programs and financing. This is especially applicable to very small producers (AREL) who have low/none level of association/integration and low level of knowledge on farming technologies. Informality also leads to informality in hiring of labor and to low wages. • Lack of compliance by small producers and MSME (market requirements and quality, including traceability and food safety). • Low level of certified products and processes/systems. • Lack of enough processing centers for small-medium producers. • Limited investment capacity by small producers and MSME and difficulties in accessing finance. • Small and medium producers depend on intermediaries to market their products and lack negotiation skills. Practices by intermediaries are frequently unfair. • Poor administration/management skills by small and medium producers. • High costs of feed and other inputs constitute a burden for small producers. Inexistence of alternative feed inputs. • Low productivity by small and medium producers contribute to increase costs and vulnerability. • Lack of training by medium to big enterprises (e.g. on EU market requirements and consumer trends), prevents them from exploiting their full export potential. • Low market intelligence/market coordination and information systems. • Contraband culture in some regions (e.g. Nariño) for seeds, feed and other inputs. • Poor transport infrastructure increases costs of inputs and products.

OPPORTUNITIES	THREATS
• Climate conditions allow production along the year. • Strategic geographical location in relation to the most important global markets. • Aquaculture has potential to become in an important driver of the regional economy for a more inclusive and sustainable development.	• Diseases and natural disasters can affect aquaculture production. • Potential for higher imports of foreign products, taking benefit of new international trade agreements. Macroeconomic variables and increased offer by Asian countries make Colombian aquaculture products less competitive.

¹⁰⁸ Shrimp seeds produced by CENIACUA are more adapted to the Caribbean Sea and laboratories are in Cartagena, thus price of seeds increases considerably with cost of transport. Feed inputs are imported from Ecuador.

¹⁰⁹ Low awareness, complex and costly processes, geographical dispersion of producers and lack of institutional inspection capacity are the main reasons that lead to low level of formality. Moreover, Resolution 20186/2016 on biosecurity came into force in July 2018 but few actors along the VC comply with the requirements.

• Support to aquaculture continues to be a priority objective for the Government. Colombia Productiva includes shrimp farming and fish farming as world-class sectors. • Strong potential for quality improvement and value added along the VC. Willingness of actors to improve. • Possibility to make international alliances with local producers that may allow the application of new and better technologies. • Possibility of taking advantage of credits of Finagro and public investment programs. • Possibility of attracting foreign investment. • Interest of International Cooperation entities to finance the reactivation of shrimp farming and other species. • Potential for linkages along the VC, that can ensure continued supply of inputs and outputs/products. • New international trade agreements (FTA) allow the import of inputs at more competitive prices and the export of fish to high volume markets. • Proximity to seaports and airports in areas with the highest potential for aquaculture production, which makes it easier to reach international markets. • Potential of aquaculture products to take advantage of new market trends (e.g. heat and serve). • Increased demand for farmed fish in international markets and for antibiotic free fish. • Growing acceptance (national and international markets) of products from low-income rural communities. • Increased demand by national consumers for products that were previously destined for export (e.g. shrimp). High potential to increase demand (e.g. growing awareness about the need to consume more healthy sources of protein). • Low quality of imported aquaculture products compared to that of national aquaculture products.	• Severe and progressive deterioration of the Betania reservoir, that provides over 30% of production. • Weakening of the genetic vigor of farmed tilapia. • Distrust and lack of awareness of the quality and safety of aquaculture products by national consumers. Permanent campaigns of consumption of meat products overshadow aquaculture products in the spectrum of consumer alternatives. • Volatility of prices of inputs for production. • Low profitability of the productive units leads to the abandonment of activity, specially by AREL producers. • Insecurity and armed conflict in some areas affect the production and commercialization of aquaculture products.
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Source: UNIDO, based on information collected during the field mission and PlaNDAS (2014).

Annex.2. Risk matrix

Type	Description	Level	Mitigation measures
Development	Poor security and infrastructure in areas where selected VC interventions will be undertaken.	Medium-high	Coordinate with UNIDO's office in Tumaco for security procedures.
	Infrastructure limitations.	Medium	Careful selection of beneficiaries targeted during the inception phase (comply with minimum requirements in terms of infrastructure). Continuous monitoring and evaluation to identify risks and promptly identifying alternative solutions. Assess cost-effective and affordable solutions. Tumaco high; Huila medium-low.
	Lack of commitment for application of quality and sustainability standards by beneficiaries (to implement the standards and to maintain and improve the implemented systems and processes).	Medium	Careful selection of beneficiaries targeted during the inception phase (comply with minimum requirements in terms of commitment and infrastructure). Sensitization activities, workshops and trainings provided to the selected beneficiaries to ensure their commitment.
	Limited absorption capacity of some of the secondary stakeholders.	Medium-low	Consider absorption capacity when preparing the action plans. Regular monitoring through the PMU and results shared with the SC members in order to take corrective action.
	Lack of internet access (to consult or to download information made available in the net).	Medium-low	Continuous monitoring to identify risks; if necessary, assess and reinforce other means to disseminate information (i.e. printing material). Tumaco medium-high; Huila low.
	Changes in governmental administrations, policies and regulations affecting the NQI and the selected sectors.	Medium-Low	Maintain good dialogue and strong coordination with the respective Government entities at national and regional levels. Consider changes in the activity plan, to reduce the number of critical activities during electoral/government change periods, and implement the most critical ones during periods of stability.
	Lack of commitment and/or acceptance from Governments and other stakeholders regarding the importance of strengthening the QI.	Low	Thorough baseline studies and detailed needs assessments in the inception phase. Build a bridge of trust and collaboration with stakeholders since the beginning of the project. Analyze the causes of lack of commitment or non-acceptance and identifying viable alternatives to face them.
	Low retention (or turn-over) of skilled and competent staff trained by the project. Competent and skilled staff may leave the supported institution.	Low	Train-the-trainers focus, to ensure training to newcomers when necessary. Awareness to MSME and institutions on the importance of know-how and intellectual capital through training and retaining staff.
Reputation	Project activities will not achieve set targets.	Medium-low	Thorough baseline studies and detailed needs assessments. Detailed action plans with monitoring and evaluation systems in place, including monitoring of Key Performance Indicators (KPI). Careful selection of project staff and consultants, based on detailed terms of reference. Well defined deliverables and conduction of regular performance monitoring and evaluations.

Type	Description	Level	Mitigation measures
			Adjust project activities as necessary during implementation, with prompt reaction, assessing the consequences and impact.
	Non-acceptance from stakeholders.	Low	Build a bridge of trust with stakeholders since the start of the project. Analysis of the causes of non-acceptance and identification of viable alternatives to solve them, including exposing different success stories to stakeholders.
Fiduciary	Financial and in-kind contributions delayed.	Medium-low	Clear and timely identification of roles and (financial) responsibilities conducted at the inception phase (first 6 months) and revised at the SC meetings.
	Misuse of financial resources	Low	Transparent financial and administrative procedures in place. Keep financial books based on UNIDO financial rules and regulations.
Financial	Resources may not be used as foreseen, are not properly accounted for and do not achieve value for money.	Low	Funds channeled through the UNIDO system. UNIDO will keep the overall responsibility for financial management – it follows its financial rules and regulations.
Environmental	Mismanagement of chemicals and waste derived from manufacturing and testing processes.	Low	Include in manufacturing and testing activities best practices related to environmental protection.
Social	Social impact is not properly assessed.	Medium-low	Continuous monitoring and assessment to identify risk of lacking social impact. The project explicitly advocates for the compliance with standards, including those related to quality and sustainability, which promote social responsibility along the VC. In particular at producers and processors level. The project intervention aims at reducing poverty through better access to global markets.

Source: UNIDO, adapted from the risks identified for the GMAP.

Annex.3. Timeline of the activities

All interventions are related to the needs of the shrimp and tilapia aquaculture VC in Tumaco and Huila.

Outcomes/ components		IMPLEMENTATION TIMELINE															
		2021				2022				2023				2024			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Outcome 1. Enhanced technical competence and sustainability of the NQIS.																	
Output 1.1. In-depth analysis of the capacity of the NQI institutions and service providers conducted, action plan prepared and baseline identified.																	
1.1.1. Conduct an in-depth analysis.																	
1.1.2. Prepare action plan and identify baselines for KPI.																	
Output 1.2. Advice for informed policy decision making on quality/standards compliance and support for policy development provided.																	
1.2.1. Provide advice for policy development and policy decision making.																	
Output 1.3. Technical competence of the NQI at the institutional level is strengthened.																	
1.3.1. Provide technical assistance to the SICAL institutions to strengthen their capacity to serve the selected VC.																	
Output 1.4. Technical competence of the NQI at the service providers level is strengthened.																	
1.4.1. Provide training to official inspectors (animal health, food safety) to strengthen their technical capacity.																	
1.4.2. Assist the animal health protection department to provide technical advice to rural producers in Tumaco.																	
1.4.3. Support laboratories to receive/maintain accreditation for the tests conducted for the selected VC and areas.																	
Outcome 2. Enhanced MSME compliance with international standards and technical regulations.																	
Output 2.1. In-depth analysis of the relevant market requirements is conducted, action plan prepared and baseline identified.																	
2.1.1. Conduct an in-depth analysis.																	
2.1.2. Prepare action plan and identify baselines for KPI.																	
Output 2.2. Compliance capacity of MSME and other actors along the VC is strengthened.																	
2.2.1. Provide technical assistance to SME and other actors along the selected VC to strengthen their compliance capacity and quality.																	
Output 2.3. BSO are strengthened and associativity/linkages among the VC actors are promoted.																	
2.3.1. Promote and assist linkages/associativity along the VC.																	
2.3.2. Provide technical assistance to producer associations to strengthen their capacity.																	
Outcome 3. Strengthened culture for quality.																	
Output 3.1. Materials for raising quality awareness developed.																	
3.1.1. Develop materials to raise quality awareness.																	
3.1.2. Develop activities to raise quality awareness and others to promote quality culture.																	

Annex.4. Logical framework

Indicators highlighted in bold are those considered in the GMAP. The project log-frame should include them, if applicable to project interventions, in order ensure fitness with the logical framework at the Programme level, thus contributing to reporting at both project and programme level. Other indicators included in the log-frame are indicative. Indicators refer to the **interventions related to serve the needs of the selected VC (shrimp and tilapia aquaculture) in the areas of Tumaco and Huila.**

Intervention logic	Objectively verifiable indicators ¹¹⁰	Sources of verification	Assumptions
Development /goal impact: Facilitate market access in developing countries, mainly for MSME, through strengthening their quality and compliance capacity, in prioritized value chains. <i>Compliance capacity in the targeted developing countries with regard to quality and standards is strengthened, thus facilitating market access, mainly for MSME, and ultimately increasing exports.</i>	- # stakeholders QMS certified by institutions that received support under the project. - # stakeholders that apply key SOP of management systems that are relevant to comply with standards/market requirements. - Increased market access as perceived by VC actors (beneficiaries to the project).¹¹¹	- Export reports and statistics. - Project reports. - Survey.	- Government and beneficiaries are committed to improvement and will make available the required resources to maintain the improved operational practices and processes/management systems.
Outcome 1: Enhanced technical competence and sustainability of the National Quality Infrastructure System.	- # of international recognitions or accreditations (or readiness for accreditation). - # of staff whose competence has increased as a result of the project activities.¹¹²	- Report from the NQI (NSB, NAB, NMI). - Lists of participants certificates awarded.	- Government is committed to providing necessary resources (human and financial) for achieving objectives and sustainability of the beneficiary institutions. - Responsible political authorities accept the cooperation and integrate the findings and policy recommendations into their respective strategic and operational plans. - Effective participation by the target beneficiaries in the planned project activities and in accordance to the set timeline.
Output 1.1. In-depth analysis of the capacity of the NQI institutions and service providers is conducted, action plan/roadmap prepared and baseline identified.	- # of action plans developed, per VC/sector. - # of baselines identified for KPI.	- Project reports.	- Responsible authorities accept the cooperation, collaborate to carry out the analysis. - Responsible authorities commit to accept the findings and integrate them into their respective strategic and operational plans.

¹¹⁰ Targets to be set upon baseline. Training and awareness activities indicators will be disaggregated by gender.

¹¹¹ This indicator is aligned with the ISID impact indicators of the Strategic Priority Advancing economic competitiveness, specifically to ECO.1 Number of firms with economic gains (additional sales, savings) and ECO.3 Number of firms with an increase in exports.

¹¹² This indicator is aligned with the outcome indicator KASA.2 Number of actors gaining skills on UNIDO knowledge areas.

Intervention logic	Objectively verifiable indicators ¹¹⁰	Sources of verification	Assumptions
Output 1.2. Advice for informed policy decision making on quality/standards compliance and support for policy development provided.	- # of policy drafts.¹¹³	- Project reports.	Responsible political authorities accept the cooperation/advice.
Output 1.3. Technical competence of the NQI at the institutional level is strengthened.	- # of international TC in which the NSB participates¹¹⁴ - # of accreditation schemes with international recognition, or prepared (ready) to receive the international recognition. - # of measurement capacities strengthened.¹¹⁵ - # of internationally traceable calibration and verification services available.	- Report from the NQI institutions. - Project reports.	- Government is committed to providing necessary resources (human and financial) for achieving objectives and sustainability of the beneficiary institutions. - Effective participation by the target beneficiaries in the planned project activities and in accordance to the set timeline.
Output 1.3.1. Technical competence of the NSB is strengthened.	- # of Technical Committees (TC) established per VC/sector.	- Report from the NSB or other standardization bodies (ex. CODEX, OIE, IPPC – mirror TC).	- NSB and responsible political authorities accept the cooperation and integrate the findings and policy recommendations into their respective strategic and operational plans.
	- # of members of the TC, per VC/sector and stakeholder group.	- Report from the NSB or other standardization bodies (ex. CODEX, OIE, IPPC – mirror TC).	- NSB has adequate infrastructure and sufficient human and financial resources to carry out the activities.
	- # of international TC in which the NSB participates ^{116, 117}	- Report from the NSB.	- Responsible authorities and institutions support international participation.
	- # of national standards for selected VC reviewed, adopted or developed and made available. ¹¹⁸	- Project reports. - Reports from the NSB.	
	- # of NSB staff trained. - # of training hours delivered to NSB staff.	- List of participants and certificates awarded.	

¹¹³ This indicator is aligned with the output indicator PAO.1 Number of industrial strategies and industrial policy documents drafted/prepared.

¹¹⁴ This indicator is aligned with the output indicator NOO.1 Number of standard-setting processes with UNIDO participation.

¹¹⁵ This indicator is aligned with the output indicator TCO.1 Number of capacity building activities provided.

¹¹⁶ It could be as observer.

¹¹⁷ This indicator is aligned to the output indicator NOO.1 Number of standard-setting processes with UNIDO participation.

¹¹⁸ This indicator is aligned to the output indicator NOO.1 Number of standard-setting processes with UNIDO participation.

Intervention logic	Objectively verifiable indicators ¹¹⁹	Sources of verification	Assumptions
Output 1.3.2. Technical competence of the NAB is strengthened.	- # of training courses dictated for NSB staff. ¹¹⁹	- Project monitoring and evaluation reports	- NAB and responsible political authorities accept the cooperation and integrate the findings and policy recommendations into their respective strategic and operational plans.
	- National Accreditation Body complying with ISO/IEC 17011.	- Peer evaluation reports, mutual recognition agreements, or final audit reports.	- NAB have adequate infrastructure and sufficient human and financial resources to carry out the activities.
	- # of accreditation schemes with international recognition, or prepared (ready) to receive the international recognition.	- Applications submitted to IAF/ILAC or to the regional accreditation network (if any), or recognitions received, or final audit reports.	- Responsible authorities and institutions support international recognition.
	- # of accreditation evaluators available and part of the NAB (with collaboration agreement) to perform accreditation evaluations/audits.	- Report from the NAB.	- Target beneficiaries participate in the planned project activities and in accordance to the set timeline.
Output 1.3.3. Technical competence of the NMI is strengthened.	- # of NSB staff and evaluators trained.	- List of participants and certificates awarded.	- NMI and responsible political authorities accept the cooperation and integrate the findings and policy recommendations into their respective strategic and operational plans.
	- # of training hours delivered to NAB staff and evaluators.	- Project monitoring and evaluation reports.	- NMI have adequate infrastructure and sufficient human and financial resources to carry out the activities.
	- # of training courses dictated for NAB staff and evaluators. ¹²⁰	- NMI or audit reports.	- Responsible authorities and institutions support international recognition.
	- # of measurement capacities strengthened.	- Project reports. - In case of accreditation/international recognition, applications submitted to the accreditation body, or recognition received, or final audit report.	

¹¹⁹ This indicator is aligned to the output indicator TCO.1 Number of capacity building activities provided.

¹²⁰ This indicator is aligned to the output indicator TCO.1 Number of capacity building activities provided.

Intervention logic	Objectively verifiable indicators ¹¹⁰	Sources of verification	Assumptions
	- # of NMN staff and trained. - # of training hours delivered to NMI staff. - # of training courses dictated for NMI staff.¹²¹	- List of participants and certificates awarded. - Project monitoring and evaluation reports.	
Output 1.3.4. The information function of the NQI is strengthened.	- # of active information points providing information on NQI, QI services and quality in general. - # of new information products made available through the web or other means.	- Report from the corresponding national authorities.	- QI institutions accept the cooperation and integrate the findings and policy recommendations into their respective strategic and operational plans. - QI institutions have adequate infrastructure and sufficient human and financial resources to carry out the information activities.
Output 1.4. Technical competence of the NQI at the service providers level is strengthened.	- # of accredited laboratory tests or prepared (ready) for accreditation.	- Applications submitted to the NAB, or accreditation received, or final audit reports.	- Responsible political authorities accept the cooperation and provide adequate infrastructure and sufficient human and financial resources to carry out the activities (for public laboratories).
	- # of accredited calibration services, or prepared (ready) for accreditation.	- Applications submitted to the NAB, or accreditation received, or final audit reports.	- Target beneficiaries commit and participate in the planned project activities and in accordance to the set timeline.
	- # of accredited certification services for relevant standards, or prepared (ready) for accreditation.	- Report from the NAB.	- Responsible political authorities accept the cooperation and provide adequate infrastructure and sufficient human and financial resources to carry out the activities (for public certifying bodies).
	- # of staff and auditors from certification bodies trained. - # of training hours delivered to certification bodies staff and auditors. - # of training courses dictated for certification bodies staff and auditors.¹²²	- List of participants and certificates awarded. - Project monitoring and evaluation reports.	- Private certifying bodies accept to provide services in the targeted countries.

¹²¹ This indicator is aligned to the output indicator TCO.1 Number of capacity building activities provided.

¹²² This indicator is aligned with the output indicator TCO.1 Number of capacity building activities provided.

Intervention logic	Objectively verifiable indicators ¹¹⁰	Sources of verification	Assumptions
	- # of staff from inspection and surveillance state bodies trained on inspection services.	- Lists of participants and certificates awarded.	- Responsible political authorities accept the cooperation and target beneficiaries commit and participate in the planned project activities, and in accordance to the set timeline.
	- # of training courses dictated for inspection/surveillance state bodies.¹²³ - # of training hours delivered to inspection/surveillance state bodies. - # of rural producers informed/trained by plant protection staff.	- List of participants and certificates awarded. - Project monitoring and evaluation reports. - Project reports. - Report from state bodies.	
	- # stakeholders QMS certified. - # stakeholders that apply key SOP of management systems that are relevant to comply with standards/market requirements.¹²⁴ - # of BSO that provide a better service to their stakeholders.	- Project reports. - Agreements with MSME and other VC members to receive technical support.	- Beneficiaries from targeted VC are keen to comply with standards and to implement and maintain processes/management systems to comply with them, so enhancing quality.
	- # of action plans developed, per VC/sector.¹²⁵ - # of baselines identified for KPI.	- Project reports.	- Actors along the targeted VC are committed to comply with standards and collaborate to conduct the assessment and to agree on an action plan.
Outcome 2: Enhanced MSME compliance with international standards and technical regulations.			
Output 2.1. In-depth analysis of the relevant market requirements is conducted, action plan/roadmap prepared and baseline identified.	- # of businesses receiving technical support in the improvement of their management systems to comply with international standards (per VC/sector).	- Agreements with MSME and other VC members to receive technical support. - Project reports.	- Effective participation by the target beneficiaries in the planned project activities and in accordance to the set timeline.
Output 2.2. Compliance capacity of MSME and other actors along the VC is strengthened.			

¹²³ This indicator is aligned with the output indicator TCO.1 Number of capacity building activities provided.

¹²⁴ This indicator is aligned with the outcome indicator POL.3 Number of guidelines adopted by relevant actors.

¹²⁵ This indicator is aligned with the outcome indicator TCO.4 Number of business plans developed.

Intervention logic	Objectively verifiable indicators ¹¹⁰	Sources of verification	Assumptions
	- # of trainings conducted.¹²⁶ - # of staff trained. - # of organizations that participated in the training: - In total/per content/ per VC.	- Lists of participants and certificates awarded. - Training material.	- Effective participation by the target beneficiaries in the planned project activities and in accordance to the set timeline.
Output 2.3. BSO are strengthened and associativity/linkages among VC actors are promoted.	- # of clusters/linkages established. - # of group meetings held/per cluster.	- Project reports. - Constitution agreements (linkages/clusters). - Minutes of the meetings.	- Beneficiaries are committed to collaborate through clusters. - Effective participation by the target beneficiaries in the planned project activities and in accordance to the set timeline.
	- # of training courses dictated for producer or business associations.¹²⁷ - # of staff trained. - # training hours delivered.	- Lists of participants and certificates awarded.	
Outcome 3: Strengthened culture for quality.	- # of people reached through the awareness activities.¹²⁸	- Lists of participants. - Project reports.	- Local institutions are committed to support the project activities.
Output 3.1. Materials for raising quality awareness developed.	- # of materials for quality awareness available to the public (in printing/web).	- Project reports.	- Local institutions are committed to enhance quality and support the project activities.
Output 3.2. Quality awareness and other activities to promote quality culture are carried out.	- # of awareness raising activities organized, in coordination with local beneficiaries. - # of people attending awareness activities.	- Agendas of the activities. - Lists of participants.	
	In total/Per geographical area.		

NOTE: KPI will be disaggregated per VC/theme/sex or another parameter, when appropriate.

¹²⁶ This indicator is aligned with the outcome indicator TCO.1 Number of capacity building activities provided.

¹²⁷ This indicator is aligned with the outcome indicator TCO.1 Number of capacity building activities provided.

¹²⁸ This indicator is aligned with the outcome indicators KASA.1 Number of actors gaining awareness/knowledge on UNIDO knowledge areas and REA.1 Number of actors reached (by kind of actor).