



# BIOFIN

The Biodiversity Finance Initiative

## **Incentives Harmful to Biodiversity in Ecuador**

Prioritization and proposal for redesigning existing harmful subsidies

(Excerpt from the Original Document in Spanish for Translation)

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## List of acronyms and abbreviations

BCE	Central Bank of Ecuador (Banco Central del Ecuador)
BDE	Development Bank of Ecuador (Banco de Desarrollo del Ecuador)
BIOFIN	Biodiversity Finance Initiative
CBD	Convention on Biological Diversity
COA	Organic Environmental Code (Código Orgánico Ambiental)
CONAFIPS	National Corporation of Popular and Solidarity Finance (Corporación Nacional de Finanzas Populares y Solidarias)
COMF	Organic Monetary and Financial Code (Código Orgánico Monetario y Financiero)
COSEDE	Deposit Insurance Corporation, Liquidity Fund and Private Insurance Fund (Corporación del Seguro de Depósitos, Fondo de Liquidez y Fondo de Seguros Privados)
CPEIR	The Climate Public Expenditure and Institutional Review
ENCORE	Exploring Natural Capital Opportunities, Risks and Exposure
EPS	Popular and Solidarity Economy (Economía Popular y Solidaria)
ESPOL	Polytechnic School of the Coast (Escuela Politécnica del Litoral)
EU	European Union
IDB	Inter-American Development Bank
ICE	Excise Tax (Impuesto a los Consumos Especiales)
ISIC	International Standard Industrial Classification
NBS	National Biodiversity Strategy
NCCS	National Climate Change Strategy
INAMHI	National Meteorology and Hydrology Institute (Instituto Nacional de Meteorología e Hidrología)
IPBES	Intergovernmental Platform on Biodiversity and Ecosystem Services
MAATE	Ministry of Environment, Water and Ecological Transition
MAG	Ministry of Agriculture and Livestock (Ministerio de Agricultura y Ganadería)
MEF	Ministry of Economy and Finance (Ministerio de Economía y Finanzas)
MIPRO	Ministry of Industries and Productivity (Ministerio de Industrias y Productividad)
MSMEs	Micro, small and medium-sized companies
NCAVES	Natural Capital Accounting and Valuation of Ecosystem Services

OECD	Organization for Economic Co-operation and Development
PFF	Peasant Family Farming
PGE	General State Budget (Presupuesto General del Estado)
SEEA	System of Environmental-Economic Accounting
SENAE	National Customs Service of Ecuador (Servicio Nacional de Aduanas de Ecuador)
SENESCYT	National Secretariat of Science, Technology and Innovation (Secretaría Nacional de Ciencia, Tecnología e Innovación)
SENPLADES	National Secretariat for Planning and Development (Secretaría Nacional de Planificación y Desarrollo)
SEPS	Superintendency of Popular and Solidarity Economy (Superintendencia de la Economía Popular y Solidaria)
SNA	System of National Accounts
SNGRE	National Secretariat of Risk and Emergency Management (Secretaría Nacional de Gestión de Riesgos y Emergencias)
SNIA	National System of Environmental Indicators (Sistema Nacional de Indicadores Ambientales)
SNPA	National System of Protected Areas (Sistema Nacional de Áreas Protegidas)
SRI	Internal Revenue Service (Servicio de Rentas Internas)
STAR	Species Threat Abatement and Recovery
SUIA	Unified Environmental Information System (Sistema Único de Información Ambiental)
20AT	20 Aichi Targets
UNDP	United Nations Development Programme
WTO	World Trade Organization

## 1. Scope of this document

This report is the third and final product of the consultancy project on **identifying, quantifying, and proposal of redesigning** subsidies harmful to Ecuador's biodiversity. The main objective of this third product is to present a pathway for reviewing and redesigning subsidies harmful to biodiversity for the country to meet target number 18 of the Kunming-Montreal Global Biodiversity Framework. This goal determines the identification of harmful subsidies by 2025 and their reform and/or elimination by 2030.

In turn, this third product is definitive because it gathers the results of the two previous products, i.e., the conceptualization, identification, and quantification of these subsidies in Ecuador. In doing so, we ensure that this document incorporates all the necessary elements to be a helpful input when building the new National Biodiversity Strategy, which is currently being developed. In addition, this report includes all comments and recommendations made by officials of the Ministry of Environment, Water and Ecological Transition (MAATE) about the above products.

## 2. Introduction

Biodiversity loss is a fast-growing and persistent problem worldwide; Ecuador is no exception. According to the latest United Nations (UN) report on the agreements established between Ecuador and the UN for 2022-2026, the need for a more determined fight for biodiversity is highlighted (UN, 2022). The country faces a 13% loss of biodiversity and ecosystem services, exceeding the limit considered acceptable by the World Wildlife Fund (10%). It also ranks fourth on the red list of endangered species. In the last five years, it has seen an increase in illegal wildlife export cases, and wildlife crime is becoming increasingly profitable. By 2050, there is a projection of a 50% loss of species diversity in some protected areas (UN, 2022; UNEP, 2022).

In terms of economic activities, Ecuador still relies heavily on extractive industries, which need more environmental regulations. This situation is aggravated by the need for more institutional presence, which hinders the coordination of environmental policies and the appropriate use of urban and rural land (UN, 2022). On the other hand, the agricultural sector has increased its production intensity without an adequate technical foundation. Moreover, the area used for livestock and monocultures continues to expand. According to the UN report, 49% of Ecuador's territory is deteriorated, and an additional 22% is

susceptible to desertification. The national fishing industry processes more than 500,000 tons per year, while the catch capacity of the fishing fleet is only 260,000 tons per year. These issues are due, in part, to an outdated regulatory framework, weak penalties, and poor controls in fisheries (European Parliament, 2019).

Despite this urgent situation, efforts to address biodiversity loss are insufficient compared to the magnitude of the problem. Financial investment earmarked for the National Biodiversity Strategy (NBS) in 2021 shows significant gaps: at least 0.2% of GDP (Silva, 2017). It is worrying that the resources allocated by the States to protect biodiversity are considerably fewer than the incentives and subsidies granted to activities harmful to biodiversity. According to our estimates, for every dollar invested in the NBS, the Ecuadorian State spends at least 3 dollars on harmful or potentially harmful subsidies to biodiversity.

Paradoxically, harmful activities receive more financial support than beneficial activities. This reflects an implicit and outdated agreement between the economy, nature, and society, based on the idea that nature will provide endless resources to guarantee economic growth and development. However, it is clear that this long-standing agreement is broken and cannot be kept for much longer.

According to the latest World Economic Forum report, more than 50% of the world's Gross Domestic Product depends on nature. There will therefore come a point at which the financial costs of delaying the transition to a sustainable model will outweigh the costs of the transition itself. For example, stopping soil contamination implies additional costs to adapt to new clean production technologies. If this change is not made and soil deterioration continues, in the medium term, crop productivity will decline and, with it, corporate profits and wages. We are approaching the time when abandoning the old production model will be more profitable than maintaining it.

The environmental emergency is putting pressure on governments and politicians to transform the current institutional system, including how subsidies affecting the environment are granted. Despite the urgent situation, society and policymakers are delaying decisions to take crucial steps toward transition.

So how can we accelerate these changes? There is no easy answer, but best practices in subsidies show that the first step is to acknowledge the problem: identify, quantify, and propose new ways to redesign subsidies. Next, it is recommended that a continuous evaluation and updating of subsidy amounts be established, as well as the regular publication of the results. Over time, this constant exercise of monitoring harmful subsidies will lay the groundwork for society to debate the appropriateness of existing subsidies.

The purpose of this document is to contribute to that purpose. First, it seeks to support Ecuador in achieving Target 18, established at COP15, which refers to reformulating harmful incentives to biodiversity. It is also intended to be an input for the national follow-up and compliance reports the country has committed to. Last but not least, this report seeks to generate alerts and increase the coordination of public policies to redesign the subsidy policy until 2030.

This document will include the following sections: a brief definition of subsidies and the conditions for considering them harmful; successful examples of reforms to environmentally harmful subsidies; identification and quantification of the main subsidies harmful to biodiversity in Ecuador; and finally, a prioritization and redesign of these subsidies.

### **3. Definitions of harmful subsidies**

The Convention on Biological Diversity (CBD) defines harmful or "perverse" incentives as all policies or practices that induce harmful behavior towards biodiversity (CBD, 2011). The CBD definition of "perverse incentive" is comprehensive; it includes everything from government subsidies, laws, ancestral practices for using natural resources, or any other measure that fails to consider negative externalities on the environment.

#### *Subsidies or incentives?*

A subsidy seeks to encourage a behavior or guarantee a political, economic, or social right. For this purpose, a direct or indirect disbursement of resources from the State is granted. However, not every incentive is a subsidy. In other words, a subsidy is always an incentive but an incentive does not always entail a subsidy. An incentive can be something broader than a subsidy and, in addition, some incentives cause damage to biodiversity without the government spending a single dollar. As documented by the CBD, there have been cases in which declaring protected areas without sufficient control policies in Norway has incentivized adjacent (untitled) lands to be deforested. This harmful incentive was created without the State spending a single dollar.

In this document, we focus mainly on subsidies, understood as those explicit or implicit actions that imply a direct or indirect (explicit or implicit) expense by the State. All those incentives that may affect biodiversity but do not mean the State has an explicit or implicit disbursement are left out.

Definition of subsidy

It is essential to start from the premise that there is no single internationally accepted definition of subsidies (OECD, 2008). Macroeconomic statistics in Europe (Systems of National Accounts, SNA) define subsidies narrowly as those payments without compensation that governments make to the country residents either to influence production level or product prices, or to remunerate some of the production factors (Valsecchi et al., 2009). This definition significantly narrows what would be considered a subsidy, leaving out all fiscal incentives, public goods and services provision, or financial policies such as subsidized credit or guarantee funds.

According to the OECD (2005), a subsidy is a **deliberate** government **action** that gives an advantage to producers or consumers to supplement their income or reduce their expenses. This is one of the most widely used definitions and much more comprehensive than the definition used by the SNA.

The WTO defines a subsidy based on the benefit granted —to producers or consumers— and whether that benefit meets any of the following criteria:

- It is a direct transfer of funds from the government or public body (payments, potential transfers, credits, guarantees, etc.)
- It is government revenue that has been forgiven or not collected (e.g., tax breaks, tax exemptions or credits, etc.)
- They are goods and services provided by the government or a state agency other than public infrastructure.
- The government pays a private fund or agent to undertake any of the above three actions.

If any of these conditions are met, the WTO considers that action a subsidy.

If we draw from the definition that it is a "deliberate government action," then a subsidy would extend to the benefits that agents receive due to the lack of government regulation that causes agents not to internalize negative externalities. They do not cover the total social cost of production or consumption actions.<sup>1</sup> For example, suppose the government cannot regulate the volume of cubic meters of forest that can be cut down. In that case, it facilitates the possible overexploitation of the resource and an extra income to the producers. Therefore,

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<sup>1</sup> Harmful incentives are also caused by poorly designed environmental policies and a lack of regulation. For example, declaring protected areas without proper monitoring causes incentives for adjacent landowners or land users to exploit the protected resources as they cannot have property titles.

the government unintentionally grants an advantage to timber producers because of its deficient regulation. If we include these involuntary subsidies, we will cover a broad range of possibilities in which biodiversity is affected. This is especially important when institutional arrangements are lax, as with governments in developing countries.

To summarize the discussion, the literature proposes a classification of subsidies into two groups:

- Those established in public budgets.
- Those that are not included in the budget.

Annex 1 shows this classification for different definitions and actions by the State.

The most widely used definition is that of the OECD (2005). It includes on-budget subsidies, which are included in the national accounts as public spending, and includes direct cash transfers, low-interest or reduced-rate loans, government provision of goods and services, and R&D subsidies. It also includes off-budget subsidies such as tax exemptions and refunds, preferential market access, limited liabilities, accelerated depreciation provisions, and selective government regulation exemptions.

However, the OECD (2005) definition does not include implicit subsidies produced by the non-internalization of externalities or the failure to price public goods or services below the production cost. Pieters (1999) proposed a broader definition and defined subsidy as **any deviation from the total cost**. This definition would include subsidies for water or electricity provision and negative externalities on the environment.

### Harmful subsidies

According to the OECD (2005), an environmentally harmful subsidy results from a government action that confers an advantage on producers or consumers to supplement their income or reduce their expenses but, in doing so, discriminates against environmentally sound practices.

For the CBD, harmful incentives/subsidies tend to impact the environment in two ways:

- They **undervalue the actual price of nature and its services**. Usually, the price for using natural resources does not incorporate the actual value of depletion and degradation. However, when this price is still well below



the financial or environmental cost, it encourages overconsumption and more significant impacts on nature. Common examples of this are water and energy services.

- **They increase production.** Many policies seek to incentivize socially important sectors as they lead to production and income generation. However, these industries can affect biodiversity (e.g., agriculture, fisheries or energy production). Incentives in these sectors expand the production frontier and increase waste and harmful effects, via increased use of pesticides, herbicides, discharges to water, or increased GHG emissions. As defined by the OECD (2005): *"All other things being equal, an environmentally harmful subsidy increases the levels of output or use of a natural resource and therefore increases the level of waste, pollution, and natural exploitation to those connected."*

An important principle established by the CBD<sup>2</sup> is that the subsidy amount does not necessarily reflect the dimension of the damage (OECD 2003a). This principle is essential for this document because, from a purely economic perspective, incentives that are important in fiscal terms could be prioritized, leaving out subsidies with high environmental impact but a little fiscal burden.

The inventory of subsidies has been classified into three groups according to their impact: harmful, potentially harmful, and neutral, based on the following criteria:

- **Harmful:** those subsidies that will undoubtedly lead to an increase in production or consumption and that will cause higher levels of pollution, waste, or overexploitation of resources.<sup>3</sup>
- **Potentially harmful:** those subsidies where there is uncertainty as to whether production is causing increased pollution, waste, or overexploitation of resources. Also included in this group are those subsidies that require: 1) higher levels of monitoring and reporting by the State to ensure that they do not cause significant harm because, in the absence of State control, the subsidy could easily be harmful. 2) including stricter clauses to receive the benefit, such

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<sup>2</sup> Secretariat of the Convention on Biological Diversity (2020)

<sup>3</sup> 'All other things being equal, the [environmentally harmful] subsidy increases the levels of output/use of a natural resource and therefore increases the level of waste, pollution, and natural exploitation to those connected'(OECD, 2005)

as good-practice certifications. In this category, we could include all those subsidies that must be closely supervised by the State so that they do not cause damage.

- **Neutral:** Those that are either distantly related to biodiversity or in which the incentive is so generic that it is impossible to make a specific link with biodiversity loss. We have not included neutral subsidies in this report, but in analytical terms, it is important to conceptualize them as they serve as an exclusion criterion.

The classification methodology is presented in Annex 2.

There is a fine line between considering a subsidy as "harmful" and "neutral"; that line is even finer between "harmful" and "potentially harmful." In fact, the international community recognizes that it is a significant challenge to determine when a subsidy is harmful (Pieters, 1999; Valsecchi et al., 2009). From case studies, a harmful subsidy may vary according to the place and time at which it is assessed. The OECD developed models and criteria to determine the links between public funding and biodiversity loss. Given the scope of this consultancy, two criteria or models defined by the OECD have been used:

- Quick-scan. The underlying question under this criterion is whether subsidy funding affects an activity's intensity via price elasticities (in consumption or production). If the funding of resources from the government encourages production and consumption, then the impact is harmful.
- The second OECD model criterion is known as the "checklist." It is essential to ask whether removing the subsidy benefits biodiversity, given the context.

In turn, we have taken two evaluation criteria from the national context:

- Following the criteria set out in the BIOFIN Policy and Institutional Review (PIR) report in Ecuador (BIOFIN, 2017), Peasant Family Farming (PPF) is a social and production method that strengthens or supports biodiversity due to the absence of monocultures and less extensive practices. The report highlights the virtues of PPF as opposed to the concerns raised by agro-export crops such as bananas or palm. Therefore, those incentives directed at PPF will be categorized as positive or neutral.
- According to national and international deforestation estimates, cattle raising is a vector of deforestation. While there are initiatives to make it

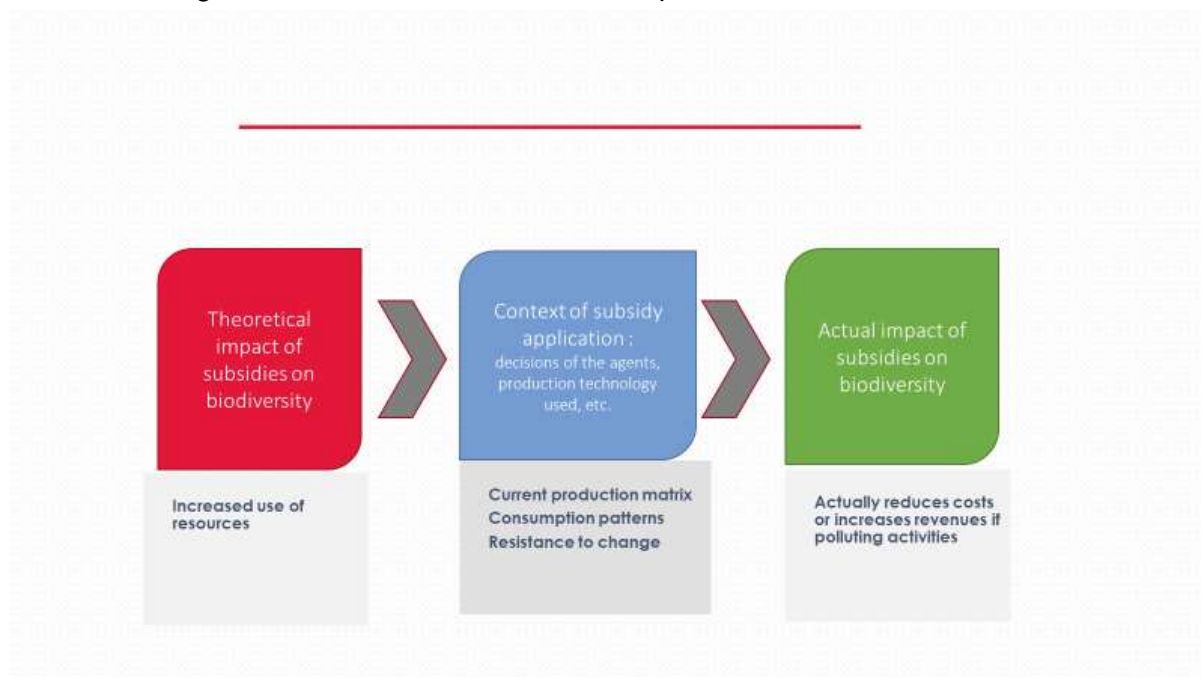
sustainable (sustainable livestock farming), concerns that it is being done extensively have led to it being labeled as potentially harmful.

These two OECD criteria, plus the institutional conditions and the circumstances of the country and public policy, were the criteria chosen to classify incentives.

#### Harmful subsidies: theoretical vs. actual effect

The classification of a theoretically harmful subsidy may change when the beneficiary applies it in a specific context, making it no longer harmful and becoming positive. This is usually the case for subsidies that are sufficiently generic in design to leave the door open for the beneficiary to use a polluting or sustainable production method, regardless of the subsidy. For example, in the case of an exemption for land transport vehicles, this incentive seems harmful because most buses and trucks in Ecuador use fossil fuels. However, in the case of an electric vehicle, the subsidy would not be harmful but positive in that particular case. Diagram 3.1 shows this idea

Diagram 3.1 Theoretical and actual impact of the subsidies



Drafted by: consultant

However, defining the actual impact requires specific knowledge about what is happening in the production process of each beneficiary producer. In the example above, we need to know what type of vehicle they are using or what

technology they are using to produce. This is an unfeasible procedure in practice since a government cannot know the context of each beneficiary. However, following the same reasoning, it would be unwise to label the subsidy as positive, knowing that most vehicles use fossil fuels, even though some of them may use electric vehicles.

Therefore, we have defined the two OECD methods (checklist and quick scan) as criteria for making a decision. In this way, we have classified the subsidies taking into account the context, the theoretical impact, and how the actual impact is presumably occurring. In many cases, the solution has been to label them as "potentially harmful," as there is much uncertainty about the practical impact of the subsidy.

### **Subsidies reviewed in Ecuador.**

For the exercise carried out in Ecuador, it is important to bear in mind the following points:

- **Definition.** We start from the OECD definition (2005) plus elements of the definition by Pieters (2004, 1999) in the sense that services provision below the production cost (public service fees) was also considered as a subsidy. Negative externalities not charged in the service price have intentionally not been considered a subsidy. This is because of the difficulty of inventorying these subsidies and their quantification, given the sources of information available in the country.
- If we compare the subsidies quantified in the MEF's budget with the OECD definition (2005), they are calculated in a hybrid way in Ecuador. On the one hand, it considers a part of the credits with preferential rates as a subsidy, as does the OECD, but it does not include the provision of all goods and services free of charge (or below market price) as a subsidy. For example, the subsidy budget includes fertilizers at subsidized prices but not the vaccines against foot-and-mouth disease provided by MAG. Therefore, for this study, the definition of subsidy is broader than the one taken into account by the MEF. Further coordination with the MEF is needed to determine the methodological documents used as a reference for estimating the credit subsidy and other goods.

#### **4. Reforms to environmentally harmful subsidies: comparative experience**

One success story was pesticide reform in Indonesia. It was implemented by the Indonesian Ministry of Agriculture in collaboration with international organizations (UNDP, 2019). The objectives of the reform were to reduce farmers' dependence on chemical pesticides, promote more sustainable agricultural practices and reduce the environmental and health impacts of pesticide overuse. The main measures implemented were: a) Training and technical assistance to farmers on sustainable agricultural practices, including comprehensive pest and disease management. b) Advocacy of organic agriculture, including composting, crop rotation, and intercropping practices. c) Distribution of materials and tools for biological control, such as beneficial insects and pheromone traps. d) Creation of demonstration and training centers to show farmers sustainable agricultural practices. e) Development of early warning systems to detect and monitor pests and diseases. f) Encouragement of collaboration among farmers to share knowledge and resources.

During the 1980s and 1990s, New Zealand phased out most agricultural subsidies as part of a broader economic reform program known as "Rogernomics." These subsidies included those related to prices, inputs, storage, and exports (IEEP et al., 2007). By 2018, agricultural subsidies accounted for less than 1% of the country's farm income, among the lowest in OECD countries (OECD, 2020).

The elimination of agricultural subsidies in New Zealand had significant impacts on biodiversity and the environment. By reducing agriculture intensification and monoculture, it was possible to improve water and soil quality and biodiversity in rural areas (Perry, 2013). According to a study by the University of Auckland, eliminating agricultural subsidies allowed for greater diversification of production and reduced pressure on the environment, contributing to biodiversity conservation (Dalzier, 2013; Williams, 2018).

In the European Union, a reform was implemented to phase out subsidies for trawl fishing, a destructive method that damaged marine ecosystems. Subsidies were provided for adopting sustainable fishing practices (European Commission, 2019; European Parliament, 2020). The results of the reform included reducing trawling, protecting marine habitats, and encouraging sustainable fishing.

In Brazil, measures were implemented to eliminate subsidies that enabled illegal logging in the Amazon. Rural credit allocation rules were modified to require compliance with environmental regulations and the issuance of new logging

permits on areas larger than five hectares became more restricted (GPA, 2015). These subsidies were eliminated with complementary policies that strengthened control systems and allocated resources to forest protection and restoration. In addition, the people living in the intervention areas received more financial benefits through public procurement of products from traditional communities and family farms, as well as the creation of the "Green Grant," a cash subsidy for families living in protected areas and under the extreme poverty line (per capita income below US\$ 30 for the period 2012-2015). These measures helped reduce deforestation, protect biodiversity, and promote sustainable forest management (Neptad et al., 2014; Assunção et al., 2019).

In Germany, a reform was implemented to reduce nuclear energy subsidies and promote renewable energy sources gradually. Funds were allocated to research and develop clean technologies, which increased the share of renewables in the energy mix, reduced nuclear risks, and reduced carbon emissions (Gawel, Strunz, 2014; Hirth and Steckel, 2016).

In France, policies were implemented to redirect agricultural subsidies towards agroecological practices, promoting the reduction of agrochemicals and the conservation of agricultural biodiversity. Transition to sustainable methods was encouraged, which boosted agroecology, protected agricultural ecosystems, and promoted food security (Levidow and Borda-Rodriguez, 2013; Desquilbet and Dorin, 2017).

China also implemented measures to phase out coal mining subsidies to reduce air pollution and encourage the transition to cleaner energy sources. Investments were made in renewable energy and energy efficiency, decreasing reliance on coal, improving air quality, and promoting green energy (Zhang et al., 2019, 2020).

Japan also implemented reforms to eliminate subsidies that encouraged overfishing and illegal fishing. Policies were established to promote sustainable fisheries, the conservation of endangered species, and the management of fishery resources (Saito and Michida, 2017).

Finally, policies were implemented in the Netherlands to eliminate subsidies encouraging intensive and environmentally damaging agriculture. The transition to more sustainable agricultural systems was promoted, including regenerative agriculture and soil conservation practices. These measures reduced pesticide and fertilizer use, improving water quality and promoting agricultural biodiversity (Termeer et al., 2017; Daey and Wiskerke, 2017). In addition, in 2023, the Netherlands will start a plan to buy farms from producers close to reserves to

reduce livestock production completely. A budget of 1.5 billion euros has been earmarked for this initiative.

These examples show how eliminating harmful subsidies can lead to positive results regarding environmental sustainability, biodiversity conservation, and promoting more responsible practices in different sectors such as agriculture, energy, fisheries, and mining. Some lessons from these experiences:

- ✓ The reforms had other supporting policies that complemented their action.
- ✓ No reform is free of political and financial costs resulting from the transition. Providing other types of green subsidies seems appropriate to compensate for the resources lost during the transition.

## 5. Dimension of harmful subsidies in Ecuador

In Product 2, the main harmful subsidies in Ecuador were quantified (not all<sup>4</sup>). The main findings of this exercise are as follows:

- By 2021, harmful (or potentially harmful) subsidies to biodiversity in Ecuador amounted to more than **US\$994 million** per year (more than 0.94% of GDP).
- **The State spends (or does not receive) between US\$480 and US\$580 million annually (0.5% of GDP) in five tax incentives** to subsidize the agricultural, aquaculture, and fishing sectors. If, on top of that, we add the expenses coming directly from the General State Budget (PGE) through subsidies for inputs, credit at preferential rates, or subsidies for agricultural insurance, then we can estimate that the subsidies for the sector are between USD 600 and USD 700 million (0.7% of GDP). These subsidies are so large that they account for half of the diesel subsidy projected for 2023 (US\$1.429 billion, according to the budget projection).
- We classified the subsidies according to the top 5 drivers of biodiversity loss: land use change, overexploitation of resources, pollution, climate change, and introduction of invasive species. Those subsidies related to land use change and overexploitation<sup>5</sup> of resources account for 512 million (52% of the total); those related to pollution via agrochemicals or plastic waste account for approximately 78 million (0.8% of the total) and those related to climate change amount to 405 million (41% of the total). These

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<sup>4</sup> Not all subsidies were included. For example, the subsidy for water rates was left out because there is no information on each subsidy in each local area since the Autonomous Decentralized Governments (GADs) are responsible for this.

<sup>5</sup> It is impossible to differentiate between land use change and overexploitation because the producers' agricultural practices are unknown. Therefore, these two drivers of biodiversity loss were put together.

have been summarized in Table 5.1 below. There are no subsidies for invasive species identified.



Table 5.1 Drivers of biodiversity loss, most important subsidies and fiscal cost for the State

Driver of biodiversity loss	Subsidy	Subsidy amount (USD million)	Biodiversity Impact
Land use change and resource overexploitation	Single Income Tax for Agriculture Activities (LRTI, Art. 27 and Art. 27.1)	76	Potentially harmful
	0% VAT on agricultural machinery and inputs (Art. 55 (No. 4,5) and Decree 1232) <sup>1</sup>	276	Potentially harmful
	Income tax exemption for priority sectors.	50	Potentially harmful
	Exemption of up to 50% of ICE (Excise Tax) on imported alcohol or alcohol locally produced from the fermentation of agricultural products grown in Ecuador within the annual quota.	54	Harmful
	Incentives from the General State Budget to the livestock sector in the Annual Investment Plan (incomplete estimate)	22	Potentially harmful
	Subsidy in the General State Budget for "Agricultural Development" (incomplete estimates) <sup>2</sup>	34	Potentially harmful
	<b>SUBTOTAL</b>	<b>512</b>	
Contamination: Use of agrochemicals	Subsidy to fertilizers and pesticides from the General State Budget (urea)	16.8	Harmful
	0% VAT on agrochemicals (part of Art. 55 and Decree 1232)	60	Harmful
	0% VAT on Aero fumigation services (LRTI, Art. 56, numeral 18)	N/A	Harmful

and environmental waste	Exemptions from the Excise Tax for certain types of plastic bags	0.1	Harmful
	Exemption from the Redeemable Tax on Plastic Bottles for bottles for dairy products	N/A	Harmful
	0% VAT rate for fishing vessels newly built at shipyards (LRTI, Art. 55, numeral 20)	N/A	Harmful
	0% VAT rate for ships and vessels less than 10 years old for transport of goods, leasing, and provision of services (LEFORTAAC, Art. 6)	N/A	Harmful
	<b>SUBTOTAL</b>	<b>76.8</b>	

Climate Change	Diesel subsidy in the agricultural, aquaculture, and fishing sectors (non-final projection)	100	Harmful
	0% VAT on passenger and cargo transportation services (LRTI, Art. 56, numeral 1)	235.9	Potentially harmful
	0% VAT for vessels for commercial transportation of passengers, cargo, and services (LRTI, Art. 55, numeral 13)	2.6	Potentially harmful
	0% VAT for the purchase of chassis and bodywork for public land passenger transportation (LRTI, Art. numbered after Art. 66; RLRIT, Art. 174)	3.3	Potentially harmful
	VAT refund for the purchase of air fuel for transportation of cargo abroad (LRTI, Art. 57; RALRTI, Art. numbered second after Art. 154 and Art. numbered first after Art. 182)	3.6	Harmful
	ICE (Excise Tax) exemption for vans and trucks with up to 3.5 tons of capacity	2	Potentially harmful

	80% tax reduction on the Property Tax on Vehicles for public service transport for passengers or cargo, for which the owner receives compensation as fares, freight, and other similar mechanisms (Tax Reform Law, Article 7, paragraph a).	18.2	Potentially harmful
	Vehicle Property Tax Exemption for Professional Drivers (LRTI, Art. 6, letter c, Tax Reform Law)	36.7	Potentially harmful
	Exemption for public passenger transportation operators (Tax Reform Law, Art. 6, letter c)	2.8	Potentially harmful
	SUBTOTAL	405.1	
<b>TOTAL</b>		<b>994</b>	
% of GDP		0,94%	

1. This item excludes the part corresponding to the Tax Expense of the 0% VAT on agrochemicals, which is included below in the same table.
2. The amount of urea included in another section of this table was excluded from this item.

- **Another important finding is that subsidies to the agricultural sector from the General State Budget (PGE) are, in principle, lower than those identified in the tax system.** According to the information available on agricultural subsidies in the PGE, they would amount to around \$50 million. However, there is no detailed information on what expenses are being considered by the MEF to calculate this value. The reduced creation of budgetary subsidies may be a characteristic feature of Ecuador compared to other countries. The most likely explanation is that the direct spending policy has been substantially reduced recently.

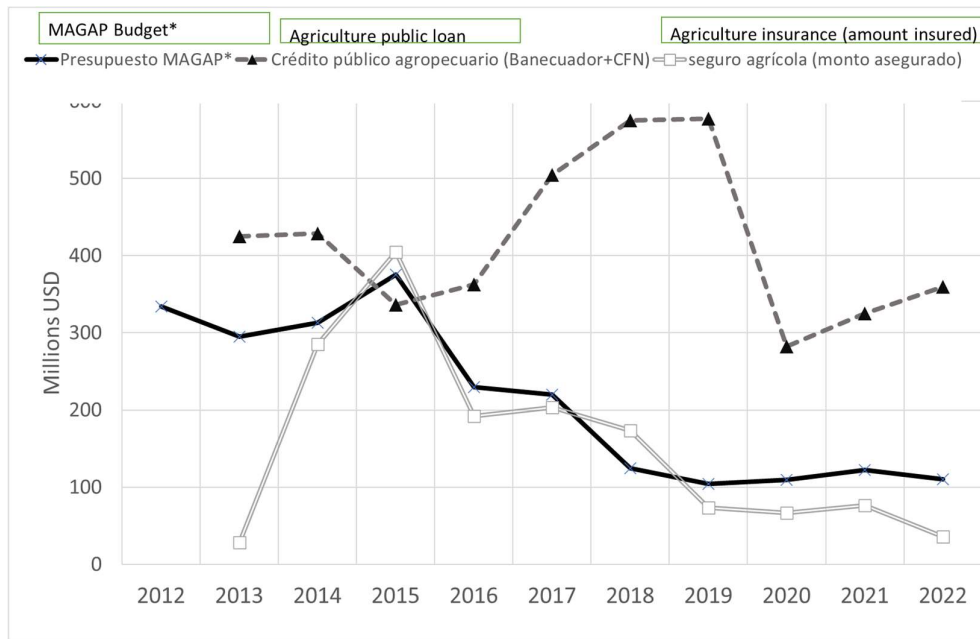
It is important to note that although subsidies from the PGE to the agricultural sector are relatively minor, agricultural policy is important to minimize the impact on biodiversity, and its trend limits the capacity to measure the subsidies' impact.

Figure 5.1 below shows the 2012-2022 evolution of three of the most important agricultural economic policies: a) direct spending by the State, expressed in the accrued budget of the Ministry of Agriculture and Livestock (MAGAP and only MAG since 2017). b) public credit to the agricultural sector delivered through BanEcuador and the National Finance Corporation (CFN). c) agricultural insurance<sup>6</sup>.

Chart 5.1 Evolution of public financial instruments for the agricultural sector  
2012-2022  
In millions of dollars

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<sup>6</sup> According to SIPA figures, the subsidy the State provides for agricultural insurance is approximately 3% of the policy's amount.



Source: MEF, SIPA  
 Drafted by: consultant  
 \*Since 2017, it is MAG only

- In recent years, the budget of that ministry (MAGAP, MAG) was significantly reduced, from almost US\$400 million in 2015 to only US\$100 million in 2022. This translates into less spending on subsidies, assistance, and infrastructure for farmers (see Annex 3 for the evolution of the subsidies and purchase of goods and services item).<sup>7</sup> The same happens with the agricultural insurance policy; the insured amounts are systematically decreasing between 2015 and 2022.

On the contrary, lending volumes have increased, especially between 2016 and 2019. Almost 50% of total placements in that period went to the livestock sector. In 2020, due to the pandemic, credits lost momentum but seem to be recovering in the last two years, still far from what 2019 was. In short, agricultural policy shifted from free or semi-free delivery of goods and services to a policy of credit. This has at least two implications;

- A reduced role of the State (and therefore of harmful subsidies) is not enough to improve biodiversity insofar as there are no comprehensive support policies to compensate for these subsidies. Lower harmful subsidies may lead to a smaller production scale. Therefore, removing harmful subsidies would improve biodiversity.

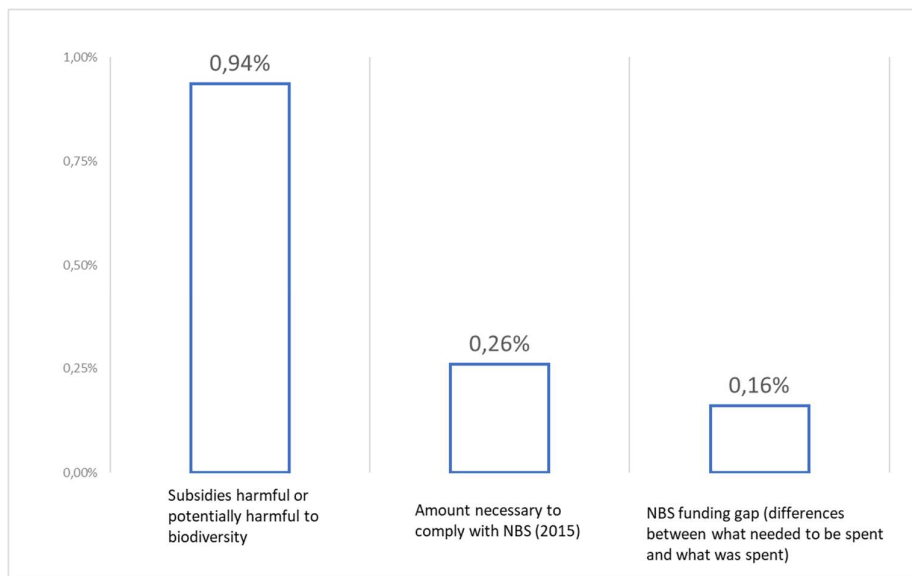
<sup>7</sup> We know this drop is not only due to reduced investment in the agricultural sector but also, in accounting terms, spending in the aquaculture and fisheries sector was transferred to other ministries. We have reviewed the figures and, in any case, the drop in MAG spending is significant.

However, lower subsidies and less state intervention or regulation may cause other undesirable impacts. For example, due to the lack of profitability, farmers may move to extensive agriculture (deforesting), use cheaper but more polluting inputs, or move to crops that are more profitable on the international market but unsuitable for the area (e.g., pitahaya in the Amazon). Therefore, it is recommended that subsidy policies should entail support actions or seek to redesign these harmful subsidies in such a way that they promote sustainable behaviors.

B. Credit expansion requires that green credit policy points in the same direction as subsidies. It would be counterproductive to withdraw subsidies to agriculture, such as making farmers pay for urea, when credit continues to stimulate these contaminating practices. The policy must be comprehensive because all policies must be aligned in the same direction.

- **A fiscal reduction of around 1% of GDP may be too much or too little, depending on what it is compared to.** To get an idea of the magnitude of these subsidies, they should be compared with the funding needed to protect or conserve biodiversity (Figure 5.2). According to the estimates of Utreras et al. (2017), to comply with the National Biodiversity Strategy and its action plan, Ecuador had to spend US\$267 million (0.27% of GDP) by 2015 and only spent US\$113 million (less than half). According to BIOFIN's 2017 work, spending should be 0.31% of GDP, and the gap would reach 0.2% of GDP (Silva, 2017). The financing gap was 154 million dollars in 2015, equivalent to 0.16% of GDP. According to work carried out by BIOFIN for 2016 and 2021, the need for financing would be 0.36% and 0.31% of GDP, respectively. Similarly, the financing gap was 0.23% and 0.2% of GDP in 2016 and 2021, respectively (Silva, 2017). Both studies reach similar results, leading us to conclude that the amount of harmful (and potentially harmful) subsidies is 3 times higher than the annual expenditure needed to comply with the NBS. Moreover, it is 5 times larger than the 2021 funding gap.

Figure 5.2 Gaps between costs required to meet the NBS and subsidies harmful to biodiversity



Own source and drafting based on estimates compiled from SRI, MEF, and calculations by Utreras et al. (2017)

We hope this first exercise will motivate public and private entities to move forward in registering, monitoring, and evaluating the different fiscal costs that can harm biodiversity. The fact that it is a process requires that responsibility for this task be given to a directorate within the competent Ministry and that an annual action plan be defined so that an annual estimation and publication process can be carried out.

International best practices on subsidies suggest that the first step is periodically accounting for and publishing fiscal reductions as an exercise in transparency without implying subsidy reforms. The fundamental issue is that there should be transparency about these costs. A subsidy that is not quantified does not exist for public policy purposes.

## 6. Prioritization of subsidies

This third product aims to outline an action plan for the most important subsidies. Consequently, it is necessary to carry out a prioritization exercise. The process is based on two dimensions, each with three scales, as shown in the following table.

Table 6.1 Dimensions for prioritizing harmful incentives

Dimension	Scale
Biodiversity impacts from the beneficiaries' activities	Low
	Medium
	High
Political, social, and/or production feasibility to reformulate	Low
	Medium
	High

Dimension 1: impact on biodiversity

Determining the impact on biodiversity is complex and depends on each context and production activity in which the subsidy is applied. However, there are several recognized methods for establishing a potential impact. Some methods are as follows:

- **Environmental Impact Assessment (EIA):** EIA is a widely used tool to assess the impact of an activity or project on the environment, including biodiversity. It consists of identifying and evaluating potential impacts on flora, fauna, and local ecosystems and proposing mitigation and compensation measures.
- **Biodiversity Indexes:** Different indices evaluate the biological diversity in an area affected by an activity. These indices can measure species diversity, equity, composition, and other aspects of biodiversity. By comparing the rates before and after the activity, it is possible to determine whether there has been a significant decrease or change in biodiversity. Ecuador has a proposal for 2015<sup>8</sup> that would be worth re-discussing and implementing.
- **Species Impact Assessment (SIA):** SIA focuses specifically on assessing the impact of an activity on particular species, especially those at risk or protected species. There is an evaluation of how the activity affects their habitat, distribution, abundance, and survival. Mitigation and compensation measures to protect and conserve affected species are also considered.

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<http://maetransparente.ambiente.gob.ec/documentacion/Biodiversidad/IT/Propuesta%20de%20indicadores%20de%20biodiversidad.pdf>



- **Ecological Footprint Analysis:** This approach measures the total impact of an activity or process in terms of the land and water required to provide the resources used and to absorb the waste generated. Greater use of resources may show a greater impact on biodiversity since ecosystem disturbance is required to obtain those resources.
- **Ecosystem Services Assessment:** This methodology evaluates how an activity can affect the services that ecosystems provide to humanity, such as pollination, climate regulation, water quality, among others. If an activity reduces or negatively alters these services, it can also significantly impact biodiversity.

Ideally, these methods should define the scale of the impact caused by the economic activity benefiting from the subsidy. However, due to the lack of available information, a subjective scale was established based on the theoretical impact of the subsidy. For this purpose, some criteria were considered:

- Criterion 1: Whether the beneficiaries are concentrated in Peasant Family Farming (PPF) or, on the contrary, on export-oriented monoculture agriculture. It is based on proven fact<sup>9</sup> that the former would have a friendly relationship with biodiversity and the latter would be causing, at least, risks for biodiversity sustainability (UN,2022<sup>10</sup>). The same applies to livestock and aquaculture activities. This distinction is essential when reformulating subsidies because, depending on whether a subsidy is focused on PPF or extensive livestock farming, public policy must adapt it or compensate with other less harmful aids.

It is also important to consider that sooner rather than later, access to European markets for Ecuadorian exports will necessarily require the modification of production processes towards sustainable practices, which means that identifying potential impacts will be necessary to open export markets for Ecuadorian products.

- Criterion 2: Framework for applying the subsidy. The context in which the activity takes place is also considered when determining an impact scale. For example, a tax exemption for land transport vehicles does not always imply increased pollution. If the vehicle is electric, the subsidy does not contribute to increased pollution, so there would be

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<sup>9</sup> As the PIR (2016) mentions: "The practices that hinder the effective implementation of agrobiodiversity policies include 1) the promotion of agriculture favoring a few crops; 2) the massive use of improved varieties from a single origin; 3) the promotion of extensive monocultures; and, 4) the introduction of high-yielding varieties. It was also said that the import of agrochemicals is rising."

<sup>10</sup> [https://www.undp.org/sites/g/files/zskgke326/files/2022-09/UNSDCF%20Ecuador%202022-2026\\_0.pdf](https://www.undp.org/sites/g/files/zskgke326/files/2022-09/UNSDCF%20Ecuador%202022-2026_0.pdf)

little or no impact. However, in the Ecuadorian context, sustainable transport, such as electric transport, is almost nonexistent in the country and most transport is highly polluting, with lax regulations on emissions. In this context, this type of subsidy can be considered high-impact. This subsidy would no longer be harmful if the country moved towards sustainable transportation.

- Criterion 3: Existence of scientific or documentary evidence of harm. This criterion refers to whether information is available in studies or documentary alerts highlighting potential negative impacts on the goods or services receiving the subsidy. For example, as we saw in Product 2, scientific research has found high concentrations of pesticides and fertilizers in the Guayas River due to banana and rice production. Therefore, it seems appropriate to consider those subsidies for agrochemicals or activities that increase their use, such as aerial spraying, as having a high impact on biodiversity.

#### Dimension 2: Political and social feasibility for reformulating subsidies

Establishing a scale of social and political viability is difficult because it is strictly subjective and contextual. There are different methodologies to establish a priority framework. For example, the UNDP document on "Institutional and Context Analysis" (UNDP 2012, 2018)<sup>11</sup> and the scarce literature on a public management framework for dealing with political tensions (Ramos and Reich, 2018). Taking these methodologies into consideration, some of the following criteria are taken into account:

- Analysis of stakeholders and coalitions: The key stakeholders involved in the decision-making process and how they interact are analyzed. Coalitions and alliances that may support or resist the proposed changes are identified. This involves assessing stakeholders' influence, interests, mobilization capacity, and willingness to support or block reforms.
- Analysis of incentives and political costs: The incentives and political costs that stakeholders face in supporting or opposing the proposed changes are evaluated. This involves understanding what benefits or consequences they might have regarding political support, public image, access to resources, or other relevant considerations. The aim

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<sup>11</sup> <https://www.undp.org/publications/institutional-and-context-analysis-guidance-note>.  
<https://www.undp.org/publications/institutional-and-context-analysis-sustainable-development-goals>.

is to identify whether the incentives outweigh the costs and whether there is room for negotiation and compromise.

- Evaluation of the level of popular support or rejection: The level of support of the general population for the proposed changes is considered. Public opinion polls, community consultations, or social movement analyses can be conducted to understand civil society acceptance and support. Popular support can influence political viability by putting pressure on political actors and generating legitimacy for reforms. In short, prioritization considers how many beneficiaries benefit from the subsidy and in which social or productive stratum they are. That is, if a subsidy is highly generalized, and there are many users of the subsidy, then that subsidy is considered sensitive with less feasibility for a redesign. On the other hand, if the subsidy is highly concentrated in sectors with the financial capacity to assume its cost, viability increases. Considering the number of losers the redesign policy would entail, this criterion has an underlying notion of equity and economic capacity.
- Analysis of institutional capabilities: The institutions' capacity to implement the proposed changes is evaluated. It considers whether the institutions have adequate resources, personnel, and mechanisms to carry out the reforms effectively. The lack of institutional capacities may affect the political viability of changes by hindering their implementation and causing resistance.
- Feasibility of enabling dialogue and building consensus: It is assessed how easy and difficult it is to enable dialogue between the relevant stakeholders to find common ground and build consensus on the proposed changes. This implies creating spaces for participation, facilitating communication, and seeking agreements that can balance the interests of different stakeholders. Consensus building can increase political viability by generating support and commitment to implement changes.

These criteria have been considered when defining a rating scale on the political and social feasibility of adapting harmful subsidies.

Integrating the two dimensions (and three scales) of prioritization results in 9 possible combinations. For example, suppose an incentive has a high biodiversity impact. If its redesign has high political, social, or productive feasibility, it would be a candidate for a "**significant redesign.**" On the contrary, if the same subsidy reports a high impact on biodiversity but has low political viability, then social and political conditions will not exist and it will not be

modified. Public policy will only have to monitor its evolution because it is unlikely to be accepted in the public debate. For all other intermediate cases, the **"moderate redesign"** category has been defined as a space in which the State can take actions for implementation but minimize their impact on biodiversity without significantly affecting the beneficiaries, at least not abruptly.

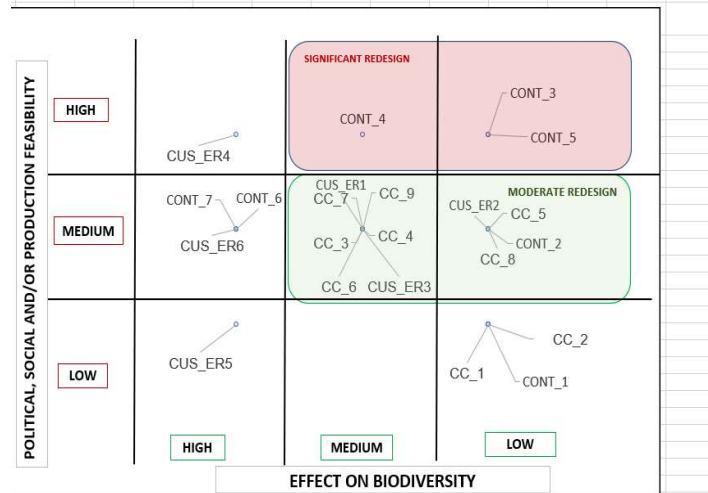
The following diagram classifies the subsidies in Table 3.1 according to the rating we have assigned in the two dimensions described above. The interaction of the two dimensions facilitates the ordering and prioritization of subsidies for subsequent State action.

Possible actions for prioritization are:

Leaving it unchanged	There are no social or political conditions to modify it or the impact is not worth it in the short term. It is suggested to monitor and, if necessary, evaluate whether the subsidies are achieving the objectives established at the beginning.
Significant redesign	Faster progress in its redesign to turn it into positive or to minimize its impact.
Moderate redesign	Progressively redesign its elements to ensure producers can gradually adapt to the new policy. Green subsidies to compensate should not be ruled out.

Diagram 6.1 distributes the subsidies according to the intensity of the two dimensions and assigns a possible action. In other words, for those subsidies with high viability and high incidence, it is feasible to redesign them significantly. On the other hand, for subsidies with a high or medium impact on biodiversity but only medium viability, it is best to redesign them moderately. In other cases, action should be taken only by monitoring the subsidy over time and trying to gather more and more accurate information on the impacts of production activities.

Diagram 6.1 Subsidies: impact on biodiversity and political/social feasibility



Code	Subsidies
CUS_ER1	Single Income Tax for agricultural and livestock activities
CUS_ER2	0% VAT on agricultural machinery and inputs
CUS_ER3	Income Tax exemption for priority sectors
CUS_ER4	50% Excise Tax (ICE) exemption on domestic or imported alcohol
CUS_ER5	Incentives from the PGE in the Annual Investment Plan for the livestock sector
CUS_ER6	Subsidy in the PGE for "Agricultural Development"
CONT_1	Subsidies for fertilizers and pesticides from the PGE
CONT_2	0% VAT on agrochemicals
CONT_3	0% VAT on Aero fumigation services
CONT_4	Excise Tax exemptions for certain types of plastic bags
CONT_5	Redeemable Tax on Plastic Bottles exemption for dairy product bottles
CONT_6	0% VAT rate for fishing vessels newly built at shipyards (LRTI, Art. 55, numeral 20)
CONT_7	0% VAT rate for ships and vessels less than 10 years old, for transport of goods, leasing, and provision of services
CC_1	Diesel subsidies in the agricultural, aquaculture, and fishing sectors
CC_2	0% VAT on passenger and cargo transportation service
CC_3	0% VAT on vessels for commercial transportation of passengers, cargo, and services
CC_4	0% VAT for the purchase of chassis and bodywork for public land passenger transportation
CC_5	VAT refund for the purchase of air fuel for transportation of cargo abroad
CC_6	ICE (Excise Tax) exemption for vans and trucks of up to 3.5 tons capacity
CC_7	80% reduction on the vehicle property tax for public service vehicles that transport passengers or cargo, for which the owner receives compensation as fares, freight, and other similar mechanisms.
CC_8	Vehicle Property Tax Exemption for professional drivers
CC_9	Exemption for public passenger transportation operators

CUS\_ER= Land Use Change and Exploitation of Resources

CONT = Contamination

CC = Climate Change

According to the above prioritization, the possible actions taken by the State could be as follows:

- **Significantly redesign** three subsidies (those in the red region of diagram 6.1 and on the left side of table 6.2)
- **Redesign moderately** 11 subsidies (those in the green region of diagram 6.1)

Table 6.2 Prioritized subsidies for a meaningful and a moderate redesign

<b>SIGNIFICANT REDESIGN</b>  (fast transition to redesign)	<b>MODERATE REDESIGN</b>  (gradual over time with support mechanisms for producers)
<ol style="list-style-type: none"> <li>1. 0% VAT on Aero fumigation services</li> <li>2. Exemptions from Excise Tax for certain types of plastic bags (0.1M)</li> <li>3. Exemption from the Redeemable Tax on Plastic Bottles for dairy product bottles</li> </ol>	<ol style="list-style-type: none"> <li>1. 0% VAT on agricultural machinery and inputs (276M)</li> <li>2. Single income tax for agricultural and livestock activities (76M)</li> <li>3. Income Tax Exemption for prioritized sectors (50M)</li> <li>4. 0% VAT for agrochemicals (60 M)</li> <li>5. ICE exemption for vans and trucks of 3.5 tons capacity and above (2M)</li> <li>6. VAT refund for air fuel purchased for cargo transportation abroad (3.6M)</li> <li>7. 0% VAT for the purchase of chassis and bodywork for public transportation of passengers on land (3.3M)</li> <li>8. VAT 0% vessels for commercial transportation of passengers, cargo, and services (2.6M)</li> <li>9. Vehicle Property Tax Exemption for professional drivers (36.7M)</li> <li>10. Exemption for public passenger transportation operators (2.8M)</li> <li>11. 80% reduction on the tax levied on the Vehicle Property Tax for drivers (18.2M)</li> </ol>

Drafted by: consultant

## 7. Proposed subsidy redesign for Ecuador

### 7.1 Principles to be taken into account when designing a reform of harmful subsidies

It is important to establish a **logical framework approach** to design a reform that transforms or solves the initial problems. For this, it is worth considering that, on the one hand, initial conditions of the country's context are always met. These context laws will be called principles. On the other hand, given these starting conditions or principles, the new design or solution must include specific characteristics that respond to these starting conditions or principles for the solution to be effective. In other words, we seek a set of desirable principles to be embodied in features of the redesign of harmful subsidies.

According to the analysis of these months, 11 principles are proposed. They are supported by experience and reflect, to a greater or lesser degree, good practices in public policy (Carter et al., 2018).

The proposed principles are as follows:

1. **Problems have multiple causes.** Every public policy develops in a reality that depends on multiple factors. This multidimensional feature is intrinsic and is shaped by different forces that influence the results of public policies in different ways.
2. **Multidimensional solutions.** To the extent that public policy is intersected by diverse phenomena, solutions must also be multidimensional.
3. **Comprehensive solutions.** Since the problem and the solution are multidimensional, a reform designed to solve one dimension of the problem may be counterproductive for another dimension of said problem. This makes it necessary to avoid isolated solutions to the same problem and, on the contrary, requires holistic and integral proposals.
4. **An effective solution is hardly "declaratory."** As policies are developed in a reality with multiple factors, practical solutions to that reality must be more than merely declaratory, i.e., objectives will not be achieved by simply regulating, prescribing, or writing a decree or law. There is sufficient evidence showing that writing a law is not enough to change a situation. Effective mechanisms are needed

to coordinate and complement the regulations, such as a supporting institutional framework that ensures that these regulations are complied with and that the incentives developed on paper become effective.

5. **The solutions shall reach minimum levels of coverage.** The loss of biodiversity in recent decades has reduced the time available for action. At the moment, the solutions must be comprehensive and applied to a broad spectrum of stakeholders, in this case, the subsidy beneficiaries. Exercises that, although effective, cover a very small part of the problem should be avoided.
6. **To achieve coverage, stakeholders must be surveyed.** When designing public policy, evaluating and redesigning something that is not quantified and/or recorded is difficult. Public policies without a cadaster are developed under the highest uncertainty. To ensure that the new subsidy design is reaching the right people, an administrative effort is necessary to map the policy beneficiaries and measure their importance (size or use of the incentive).
7. **Solutions that last over time are usually the result of processes, not specific events.** The solutions that generate the best results come from a trial-and-error process but, above all, from an iterative and recurrent follow-up, monitoring, and evaluation process. For the solution to become a process, it must fit into the institutional dynamics of the ministry in charge. If this is not the case, the solution may be applied once and then forgotten without knowing whether the stakeholders are applying it, whether it is achieving the expected results, or which beneficiaries are benefiting from the policy. This process of permanent discussion is fundamental to any public policy.
8. **Effective solutions occur gradually over time, not overnight.** To minimize rejection and enable stakeholders to adapt to the new reality, solutions should be promoted with an implementation timetable: always from less to more and with close monitoring of their evolution. When quick solutions are sought abruptly, there is a risk that the stakeholders will discard the solution, and it will be very difficult to bring a new reform back into the public debate. It is advisable to seek solutions that are gradual and with implementation schedules.
9. **The solution must guarantee a self-financing system for policy evaluation and monitoring.** It is common for actions or changes to a policy to be implemented and eventually be forgotten, either



because the ministry has many other things to do or because there is no budget for effective follow-up. Therefore, the solutions must generate mechanisms for self-financing the monitoring and evaluation process every year or every two years.

**10. A harmful subsidy can become a pro-biodiversity subsidy.**

When a subsidy is in force, a strong link is established between the beneficiary and the action to be avoided, i.e., reaction functions are established: the subsidy induces a behavior in those it benefits. When the subsidy-beneficiary relationship is strong, if the conditions under which the subsidy is provided are modified, these beneficiaries would be expected to modify their behavior to continue to benefit from the State's assistance. If this does not occur, it is because, for the beneficiary, polluting is more profitable than not polluting and receiving the benefit. These cases are equally relevant because they require a different approach: If polluting is so profitable, then what production transformations must be made for the activity to change its polluting pattern?

**11. Reducing harmful subsidies is a necessary but not sufficient condition for strengthening biodiversity.** The absence of budget does not necessarily imply that there will be improvements in biodiversity. It is important to avoid the common misconception that removing funding from public policy intervention implies that biodiversity conditions will improve.

If we accept that these 11 principles are met, whatever the context or country, then we expect the design of the policy or reform to respond to these 11 elements to ensure its success. In other words, the new design shall contain a series of features that will provide a solution or response to these 11 principles.

These principles are embodied in at least six characteristics that the reform must have:

- **Mainstreaming and alignment with other policies:** The new design should leverage advances in other areas of the Ecuadorian green economy. For example, progress in green credits can be used to link biodiversity-friendly agricultural lending with possible subsidy changes. It is not necessary to create new coordination mechanisms but rather to take advantage of the existing ones.
- **Support and delivery of related services:** Additional support and services are needed to ensure that the overhaul or strengthening of

subsidies is not too abrupt a change. For example, following the example of Indonesia, farmers can receive training to reduce agrochemical use and adopt agroecology techniques. As in Brazil, changing the subsidy to a completely green one could be an option. Technical assistance, new-generation inputs, and commercial support are critical to minimize the impact of the subsidy redesign. The success of the reform depends on establishing a solid institutional arrangement and defining responsible parties within the ministries involved.

- **Recording system:** It is essential to have a registration system that allows us to know which beneficiaries need more support and what effort is required to achieve the objectives. Without information on the coverage of the subsidy adaptation, the policy is developed blindly.
- **Progression over time:** To avoid stakeholder resistance, the redesign must be carried out gradually, starting with less drastic measures and progressively moving forward. Establishing the institutional arrangement and support services before embarking on redesigning subsidies is advisable.
- **Additional financial support:** redesigning subsidies without providing other support funds is anachronistic and ineffective. It is crucial that the redesign of subsidies channels new resources to boost green economy plans, circular economy, or other approaches that support the ecological transition. Biodiversity must be funded to close the existing funding gap.
- **International certifications:** The global trend goes towards production certification. It is recommended that subsidy strengthening be based on international certifications. For example, subsidies could be maintained for producers who acquire certifications. For that matter, it is necessary to invest public resources in certifying small producers. The redesign can generate funds to certify small producers through cross-subsidies from large to small producers. In addition, the zoning and environmental characteristics of the territories should be considered indicators of environmental suitability for producers to benefit from the subsidy.

## 7.2 New design structure for subsidies harmful to biodiversity

Based on the discussion in the previous section, two structures are proposed for the new design:

- I. The subsidy redesign mechanisms; and
- II. A comprehensive support structure to ensure the proposal is successful.

Suppose the redesign mechanisms (first structure) do not count on the second support structure. In that case, the actions taken may not successfully transform biodiversity-damaging subsidies into beneficial or neutral ones.

We have proposed two mechanisms for redesigning subsidies. These mechanisms seek to establish eligibility conditions for beneficiaries.

#### First structure: Mechanisms for redesigning the subsidies

**Mechanism 1:** Transfer of resources from a portion of the subsidies to an environmental fund (e.g., FIAS or any other fund) to finance the actions necessary to comply with the National Biodiversity Strategy.

#### **Mechanism 2: Production Certification**

A crucial factor in implementing a subsidy is ensuring that the beneficiary is not causing damage to biodiversity. As we have seen, assessing impact is a complex task, as it involves considering indicators such as biodiversity indices and ecological footprint. It is, therefore, essential to move towards an environmental certification model that guarantees production sustainability under international standards.

#### A support structure of the mechanisms

As we have explained throughout this section, solutions are neither magical nor implemented overnight. They require processes, institutionalization, and a comprehensive approach to coordinating support services and other policies.

**An institutional structure is fundamental** since regulations become ineffective without it. Policies only work correctly with a solid institutional structure. For harmful subsidies to be transformed into beneficial ones, investing in human and technological resources is necessary to establish the minimum institutional arrangements to support these changes. This involves hiring officers, creating registries, and a constant monitoring and evaluation model.

**Producer support services are also important.** When a subsidy is redefined and beneficiaries cannot adapt to the new policy, this can increase their expenses. Therefore, it is necessary to ensure that the policy is cost-neutral. This means that, if a producer loses any benefit due to the subsidy reformulation, the State must compensate them economically through another environmentally friendly policy. For example, if the 0% VAT on agrochemicals is redesigned, the State could compensate for this loss through subsidies for agroecological practices, credits, or support for product marketing. The objective is to minimize

the financial impact on the producer and, simultaneously, change the production pattern towards sustainability.

**Integration with other policies is also crucial.** The subsidy policy should not conflict with other existing policies, nor should it generate new initiatives that require a new approach. For example, if agricultural credit is being expanded, it is appropriate to explore how subsidies can be reformulated in coordination with credit policy and new green credit lines. In principle, direct government intervention in the agricultural sector has been reduced, and with it, subsidies. However, agricultural credit policy has expanded (see Chart 3.2), so it seems sensible to coordinate actions in the same direction. In addition, the institutional framework already established in agricultural credit should be used to support redesigning subsidies that harm biodiversity.

### 7.3 Regulatory modifications necessary to incorporate the subsidy redesign mechanisms

To implement the mechanisms described above, modifying the specific regulations for each subsidy, especially tax subsidies, will be necessary. For subsidies defined in the budget, it will only be necessary to reform the allocation methods to adjust how they are targeted.

In addition, regulations are needed to provide guidelines on determining whether a producer is minimizing biodiversity loss. In other words, a certification method must be established that identifies practices that are positive for biodiversity and those that are not.

The following table suggests legal reforms for some of the most important tax subsidies, incorporating the abovementioned mechanisms. Subsidies associated with the agricultural, aquaculture, and fishing sectors have been prioritized, but this proposal could be expanded to include other subsidies in different sectors.

Regulatory reforms to redesign harmful subsidies (prioritized subsidies)

Agriculture, aquaculture, and fisheries sector

Incentive	Reform proposals
0% VAT on Aero fumigation services	<p>Amend numeral 18 of article 56 of the Organic Law of Internal Tax Regime (LORTI), replacing it with the following text</p> <p>" 18. Aerial fumigation services as long as the service's production activity complies with the standards and certifications that protect the area's biodiversity, under the terms and conditions defined by the National Environmental Authority via ministerial agreement."</p>
Exemptions from the Excise Tax for certain types of plastic bags: a) for industrial, agricultural, and agro-industrial use, for export, frozen products, and b) for primary packaging plastic bags.	<p>In Article 77, paragraphs 12 and 13 of the LORTI, include the following statement at the end of each paragraph:</p> <p><i>"To qualify for the benefit, producers must deposit a percentage of the savings generated by the incentive to the compensation fund for biodiversity protection. The amount to be transferred to the fund will be lower if the producer certifies that their activity minimizes its impact on biodiversity. The contribution percentages and the fund's characteristics will be defined in the technical standard that the ministry of the branch will develop for this purpose via ministerial agreement."</i></p>
Exemption from the Redeemable Tax on Plastic Bottles for dairy product bottles.	<p>Chapter II on Environmental Taxes of the LORTI includes the Redeemable Tax on Plastic Bottles. This chapter establishes the unnumbered article that describes "Exemptions: The bottling of dairy products and medicines in non-returnable plastic bottles is exempted from this tax" At the end of this paragraph, add the following:</p> <p><i>"To qualify for the benefit, producers must deposit a percentage of the savings generated by the incentive to the compensation fund for biodiversity protection. The amount to be transferred to the fund will be lower if the producer certifies that their activity minimizes its impact on biodiversity. The contribution percentages and the fund's characteristics will be</i></p>

	<i>defined in the technical standard that the ministry of the branch will develop for this purpose via ministerial agreement."</i>
0% VAT on agricultural machinery and inputs	Paragraphs 4 and 5 of the LORTI establish the condition of exemption as " <i>established by the President of the Republic via Decree</i> "
0% VAT for agrochemicals	Therefore, it would be appropriate to amend Decree 1232 of 2008, which should include a paragraph along these lines:  " <i>For a company or natural person to avail themselves of the benefits of this decree, they must deposit a percentage of the savings generated by the incentive to the compensation fund for biodiversity protection. The amount to be transferred to the fund will be lower if the producer certifies that their activity minimizes its impact on biodiversity. The contribution percentages and the fund's characteristics will be defined in the technical standard that the ministry of the branch will develop for this purpose via ministerial agreement.</i> "
Single income tax on agricultural and livestock activities	At the end of article 27 (and 27.1), a paragraph should be included in the following terms:  " <i>For taxpayers to avail themselves of the benefits of the single income tax contemplated in Articles 27 and 27.1, they must deposit a percentage of the savings generated by the incentive to the compensation fund for biodiversity protection. The percentage to be transferred to the fund will be lower if the producer certifies that their activity minimizes its impact on biodiversity. The contribution percentages and the fund's characteristics will be</i>

	<p><i>defined in the technical standard that the ministry of the branch will develop for this purpose via ministerial agreement."</i></p>
<p>Income tax exemption for prioritized sectors (agro-industrial, agro-associative, and agro-forestry chains)</p>	<p>A paragraph should be included at the end of Article 26 of the "Law for Production Promotion, Investment Attraction and Employment Generation" in the following terms:</p> <p><i>"For taxpayers to avail themselves of the benefits of the incentive, they must deposit a percentage of the savings generated by the incentive to the compensation fund for biodiversity protection. The percentage to be transferred to the fund will be lower if the producer certifies that their activity minimizes its impact on biodiversity. The contribution percentages and the fund's characteristics will be defined in the technical standard that the ministry of the branch will develop for this purpose via ministerial agreement."</i></p>

## **8. Recommendations**

1. Regularly compile and publish the list of harmful subsidies to broaden the debate and further reflect on them.
2. A registry must be made at two levels: a registry of the subsidies as such and a registry of the beneficiaries of these subsidies.
3. Establish a unified certification framework with a biodiversity approach so that activities can be certified and it is possible to know whether they are positive or negative for biodiversity. Work should build on the contributions already made by MAATE and ProAmazonía in terms of deforestation-free certifications.
4. Coordinate green credit policies with tax and PGE policies. Since credit (especially agricultural) policy has become more important than direct spending from the PGE, then more emphasis should be placed on credit policies.

It seems sensible to assess what activities are influenced by the lines of credit and their impact on biodiversity. Design a single policy that brings all actions towards the same objectives.



## ANNEXES

### Annex 1 Definition of Subsidies by different international agencies

Public actions	Considered a subsidy			
	SN A (1)	WTO	OECD	Pieters (2)
<b>On-budget subsidies</b>				
Direct transfer of funds (e.g., cash grants)	X	X	X	X
Potential direct transfers of funds (e.g., liability hedging)		X	X	X
The government provides goods and services other than infrastructure (e.g., farming kits, delivery of fertilizers, vaccines, etc.)		X	X	X
The government assigns funds to other institutional bodies for them to carry out any of the above actions.		X	X	X
<b>Off-budget subsidies</b>				
Market price intervention (e.g., surplus purchase, minimum support prices, etc.)		X	X	X
Tax credits (uncollected revenues)		X	X	X
Tax exemptions and reductions		X	X	X
Preferential market access		X	X	X
Permits for accelerated machinery depreciation			X	X
Regulatory support mechanisms (e.g., "fixed purchase rates" for renewable energy producers or "demand quotas" to guarantee minimum levels of demand for renewable energy and thus encourage the replacement of fossil fuels)			X	X
Specific exemptions from government requirements (e.g., small businesses that are exempt from certain regulations such as invoicing or bookkeeping)			X	X
Unearned income from the deliberate non-exploitation of natural resources			X	X
Implicit subsidy for infrastructure provision				X
Implicit subsidy for not applying a price according to the cost structure (e.g., prices of water or electricity services)				X
Implicit transfer due to non-internalization of an externality (e.g., pollution or degradation of environmental assets)				X

Source and drafting: (Valsecchi et al., 2009)

(1) System of National Accounts

(2) Pieters (1999, 2004)

## Annex 2. Methodology for categorizing incentives as harmful or potentially harmful

There is no standardized method for defining whether an incentive harms biodiversity. Nor is there a completely objective metric to assess the impact that isolates the subjectivities of the person judging whether a policy is harmful to the environment. Having said that, two criteria have been considered to define whether an incentive is harmful, potentially harmful, or, on the contrary, whether its impact is neutral or positive for biodiversity.

- ✓ **Criterion 1:** The link between the subsidy and the drivers of biodiversity loss.
- ✓ **Criterion 2:** The degree of uncertainty about the harm the incentive is causing.

### Criterion 1 (P1)

For the first criterion, a damage scale has been established that goes from zero to two (0-2), where zero means no damage, 1 means medium damage and 2 means high damage. The following table defines the four drivers that are assessed and the damage scale used.

**Damage scale between subsidy and drivers (P1)**

Driver	Impact of subsidy on the driver (P1)		
	No	Medium	High
<b>Driver 1:</b> Does the subsidy incentivize or strengthen deforestation?	0	1	2
<b>Driver 2:</b> Does the subsidy encourage overexploitation of resources such as timber, marine resources, water sources, etc.?	0	1	2
<b>Driver 3:</b> Does the subsidy encourage fossil fuel consumption or production?	0	1	2
<b>Driver 4:</b> Does the subsidy encourage increased waste and/or pollution of water sources or soil?	0	1	2

The above impact scale is accumulative, i.e., a subsidy may be linked to several drivers; in that case, the scale numbers in the table above will be added. For example, suppose a subsidy has a high impact on deforestation (Driver1= 2) and

a medium impact on marine resource exploitation (Driver2= 1). Consequently, that subsidy is rated P1=3 (the sum of 2 plus 1). The formula for calculating P1 in all cases will be as follows:

$$P1 = \text{Driver1} + \text{Driver2} + \text{Driver3} + \text{Driver4}$$

The maximum value of P1 will be 8 points for those cases where a subsidy affects all drivers with a scale of 2. The minimum value is 0 when the subsidy does not impact biodiversity loss. For 0 values, we can conclude that they are neutral or positive incentives for biodiversity.

### Criterion 2 (P2)

The second criterion for categorization was the degree of uncertainty about the damage produced by the subsidies on the drivers defined in criterion 1 (P1). The proposed uncertainty scale is as follows:

#### Uncertainty about subsidy damage

<b>Level of damage certainty</b>	<b>Score (P2)</b>
Unlikely to have an impact on biodiversity.	0
A great deal of uncertainty about the damage to biodiversity, either because more factors are involved or because there is no information to reach conclusions.	0.5
There is uncertainty but there are context elements that lead to assume damage.	1
There is evidence that the object of the subsidy has severe consequences on biodiversity. The general context of the object to which the subsidy relates is also assessed here.	2

In those cases where the State has high uncertainty of the impact it is producing, then 0.5 should be noted in the P2 weighting. If the uncertainty is high and it is also considered that the impact is minimal compared to other subsidies, a value of 0 will be assigned. On the other hand, if there is uncertainty but the context in which it develops leads to the presumption that there is a loss of biodiversity, then P2=1 should be assigned. If there is a certainty of damage, then P2=2

## **CATEGORIZATION**

Once we have calculated the values for P1 and P2, we apply the following formula to bring the two criteria into a single indicator:

$$P3= P1*P2$$

For example, if a subsidy was categorized with 3 in P1 and the degree of uncertainty of the impact is significant, meaning P2=0.5, then the categorization results in P3 being:

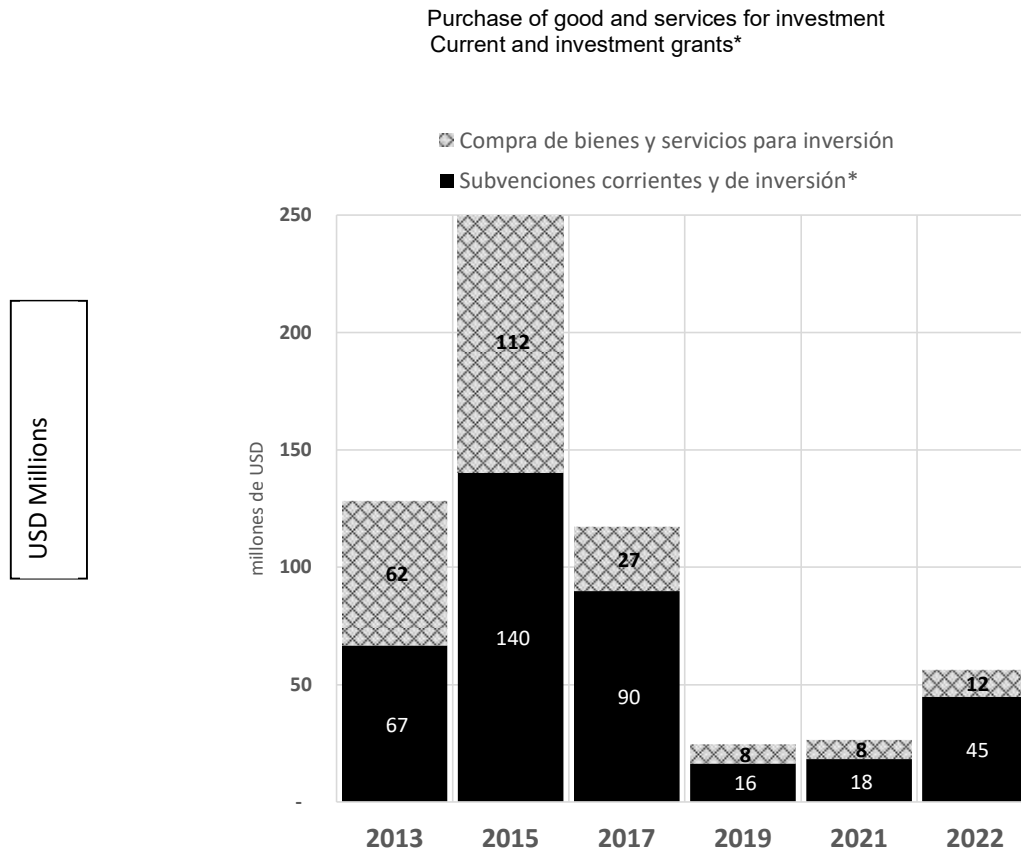
$$P3=2*0.5=1.5$$

Thus, the higher the P3, the greater the negative impact on biodiversity the subsidy has. For the final categorization, a scale has been established according to the P3 criteria

<b>P3 Range</b>	<b>Impact of the subsidy</b>
0-1	Neutral or positive
2-4	Potentially harmful
Over 4	Harmful

It is important to note that this categorization is based on some subjectivity and the amount of information available on the level of impact the subsidy has on biodiversity loss. Therefore, the more the government monitors production activities and subsidies, the higher the quality of the P3 indicator.

### Annex 3. Estimated subsidies to the agricultural and fishing sectors provided by the State (millions of dollars)



Source: Esigef MEF

Drafted by: consultant

\*This is the sum of accounts 78 and 58 of the budget classifier, which, under the accounting rules, must include all subsidies and donations made by public institutions to private agents or other public entities but end up in some beneficiary. Transfers from the fishing sector may be collected in another entity as, since 2019, the fishing sector has become part of the Ministry of Production, Competitiveness, Foreign Trade, and Fishing, which does not belong to the agricultural sector.