ECONOMIC, ENVIRONMENTAL AND SOCIAL IMPACT OF SUSTAINABLE BONDS

Allocation and impact of the Euskadi 2019 sustainable bond

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Metroeconomica

Contents

1. Introduction

1.1. Background

The **bond market** can play a fundamental role in funding projects which contribute to social and environmental sustainability. Development of the **green bond, social bond and sustainable bond** market is key to this.

The first **green bond** came onto the market in 2008 as the result of a joint initiative between the World Bank and the Swedish financial group *Skandinaviska Enskila Banken (SEB)*[1]. Since then, increasingly more investors allocate part of their portfolio to supporting environmental, social and good governance projects. Green bonds guarantee that the money associated to their purchase is used to fund projects with a positive environmental impact.

Over the years, the concept of green bond has extended to bonds in other areas, such as **social bonds** (to support social causes), **blue bonds** (to support sustainable fishing and marine projects) and **sustainable bonds** (to support social and environmental projects). Sustainable bonds are any kind of debt issued by public and private institutions whose income is exclusively used to finance or refinance, partially or totally, new and/or existing green and social projects that contribute to achieving the Sustainable Development Goals.

The **issue** of green bonds, social bonds and sustainable bonds follows the **Green Bond Principles** (GBP) and the **Social Bond Principles** (SBP) established by the International Capital Market Association.

Principle 1: Use of proceeds. The proceeds must be used for projects with clear environmental benefits, which will be assessed and, where feasible, quantified by the issuer. In the event that all or a proportion of the proceeds are used for refinancing, it is recommend that the issuers provide an estimate of the percentage of financing vs. re-financing. The types of projects most commonly funded by social bonds are:

Affordable housing	Socioeconomic advancement and empowerment	Food security
Affordable basic infrastructure and access to essential services	Employment generation	

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[1] https://sebgroup.com/

As far as green bonds are concerned, the most commonly supported projects are:

Renewable energy	Energy efficiency	Pollution prevention
Sustainable management of natural resources, land use and water and smart farm inputs	Terrestrial and aquatic biodiversity conservation	Clean transport
Climate change adaptation	Eco-efficient products adapted to the circular economy	Green buildings
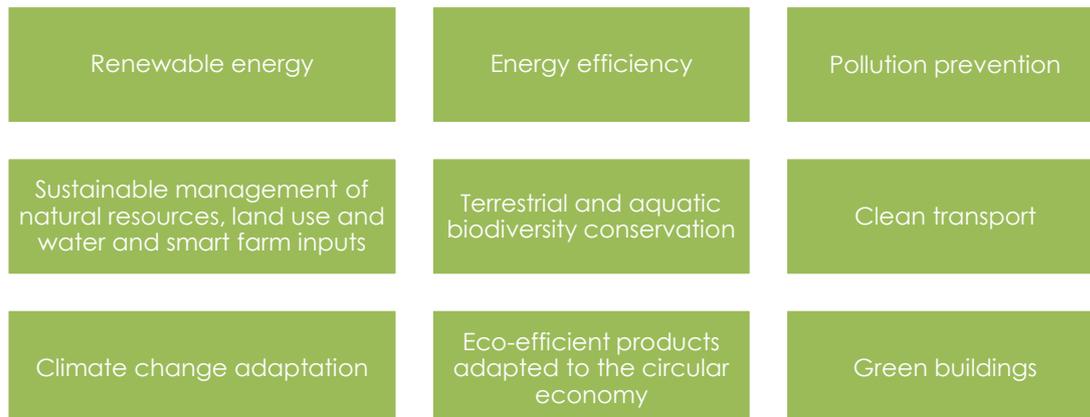
Principle 2: Process for project evaluation and selection. The issuer of green bonds should clearly inform investors of the sustainability goals, the process determining how the projects fit within the above categories and the eligibility criteria, including, if applicable, exclusion criteria or any other process serving to manage risks and costs associated to the projects. They must therefore be transparent and allow external the review to proceed.

Principle 3: Management of proceeds. The proceeds must be tracked by the issuer in an appropriate and transparent manner, and formally attested to by the issuer. The issuer should also allow an auditor, or other third party, to verify the internal tracking method.

Principle 4: Reporting. The issuer must produce and keep annually updated information on the use made of the sustainability proceeds obtained. The report should include a list of projects to which proceeds have been allocated, as well as a brief description of the projects and the amount allocated. It is **recommended that** qualitative (and quantitative where possible) **indicators be used** with regard to the bond performance.

1.2. Objectives of the project

El objective of this document is to present the **report on allocation and** economic, environmental and social **impact of the bond** launched by the Basque Government in **2019** for the sum of €6M. As was the case last year, the impact has been assessed from two angles. In the first place, the individual impact of each project supported has been assessed using economic, social and environmental impact indicators (a common practice in the context of assessing this type of bonds). In second place, an estimate has been made of the bond's overall impact on the production (economic dimension), income and employment (social dimension) of the Basque Country using Input-Output Tables (IOTs).

2. Sustainable bonds in the Basque Country

In 2015, the **United Nations** General Assembly adopted the **2030 Agenda** for Sustainable Development which redeploys the Sustainable Development Goals (SDGs) for 2000-2015[2]. Committed to adapting this Agenda to local scale, in 2018 the **Basque Government** presented the **Euskadi Basque Country Agenda 2030** which reflects the commitment and contribution of the Government Programme for the XI Parliamentary term (2016-2020) to achieving the 17 SDGs indicated in figure 2.1.

Figure 2.1. The 17 Sustainable Development Goals

Commitment to the SDGs is reflected through the country's 15 goals, 15 strategic plans, 54 sectoral plans, 28 legislative initiatives, 175 commitments, 650 initiatives and 100 indicators (see Figure 2.2).

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[2] Agenda 2030 seeks to promote commitment to achieving 17 SDGs (and the 169 goals they develop) focused on 5 areas of special importance for humankind and the planet: People, Planet, Peace, Prosperity and Partnerships.

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Figure 2.2. Alignment of the Government Programme with the UN Agenda 2030

OBJETIVOS DESARROLLO SOSTENIBLE (ODS)	SPHERES OF IMPORTANCE	COUNTRY OBJECTIVES	COMMITMENTS	INITIATIVES	INDICATORS	STRATEGIC PLANS	SECTORAL PLANS	LAWS
17	5	15	175	650	100	15	54	28
• An end to poverty • An end to hunger/food • Healthy lifestyle • Inclusive education • Gender equality	PEOPLE	20% reduction in poverty Increased life expectancy Higher birth rate School dropout rate <9%. 75% of the population <25 years Basque-speaking Among the top 4 countries in terms of gender equality	65	225	33	Social Services Strategic Plan Health Plan 5th Professional Training Plan 4th University Plan 7th Equality Plan Strategic Agenda for the Basque language	18	10
• Water and sanitation • Sustainable consumption and production • Climate change • Sea resources • Ecosystems	PLANET	20% reduction in CO2 emissions	10	35	11	4th Environmental Framework Programme	11	3
• Economic growth and employment • Infrastructures and innovation • Energy • Reducing inequality • Cities and urban settlements	PROSPERITY	Unemployment < 10% 20,000 young people with job experience 125% of the EU's GDP 25% industrial GDP 100 strategic innovation projects Leader in terms of transparency indexes	64	278	51	Strategic Employment Plan Basque Industry 4.0 Industrialisation Plan Basque Science and Technology Plan 2017–2020 Tourism, Trade and Consumption Plan Governance and Public Innovation Plan	16	13
• Peace and justice	PEACE	Disarming and dissolving ETA	24	80	3	Co-habitation and Human Rights Plan Public Security Plan	6	2
• Partnerships / cooperation for development	PARTNERSHIP	New political status	12	32	2	"Euskadi – Basque Country" Internationalisation Strategy	3	

Source: Basque Government, 2018a

In this context, the **Basque Government** has developed a **Framework of Sustainable bonds[3]** for both green and social projects. This framework is aligned with the four Green Bond Principles and the Social Bond Principles mentioned above: (a) use of proceeds; (b) project evaluation and selection; (3) management of proceeds; and (4) the drawing up of **annual reports** on **allocation and** environmental, economic and social **impact**.

For the first time in June 2018, the Basque Government issued sustainable bonds for the total sum of €500M. As was the case for the first issue, the bond will be used to fund projects aligned with the Euskadi Agenda 2030 and its goals, and which also enable the Basque Country to continue advancing towards fulfilment of the SDGs. In 2017, the Basque Country was one of the two Autonomous Communities to display the best behaviour in relation to its commitments with and advances towards the SDGs. It was, for example, among the four with the greatest equality (SDG 10) and also demonstrated its strength in environmental matters. However, there was low development of new and non-polluting renewable energies (SDG 7) and poor performance in the aspect of reducing climate change (SDG 13) (Sustainability Observatory, AID Group & Fundación Ciudadanía, 2019).

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[3]   https://www.euskadi.eus/contenidos/informacion/7071/eu_2333/adjuntos/2020/Marco-de-Bonos-Sostenibles_Gobierno-Vasco-2018.pdf

3. Economic, environmental and social impacts

This section includes the 2020 report on the projects funded with Sustainable Financing instruments in 2019. It includes (1) a description of the projects, their objectives and relationship with the United Nations Sustainable Development Goals (SDGs) and, (2) the impacts of the Sustainable Financing instruments broken down into Eligible categories. The impact of the sustainable bond on production, income and employment in the Basque Country is analysed in section 4.

The Euskadi 2019 sustainable bond yields environmental and social benefits. The social impacts are generally measured in terms of the number of beneficiaries (for example, students who receive grants, people awarded different kinds of allowances for housing or people with difficulties of inclusion in regard to employment). The environmental impacts are generally measured taking account of physical improvements (for example, energy savings, restored land surface, material savings or the reduction of greenhouse gas emissions).

The report includes indicators which make it possible to measure practically all of the projects funded with the sustainable bond, although there are a number of projects whose impact has been impossible to measure given the lack of methodologies and indicators. As is the case in this period where new indicators have been included which were not mentioned in the 2018 sustainable bond report (for example, the number of public rental houses, wastewater treated, reduction in waste sent to rubbish dumps or installed renewable power), the proportion of non-measurable projects will drop in coming years.

3.1. Allocation of the bond

In 2019, the Basque government **executed** a total budget of **€2,814,373,904** (an increase of 2% with respect to the amount executed in 2018) on projects corresponding to the eligible project categories and, therefore, susceptible to being financed with the Sustainable Financing instruments. Of these, €2,615,363,126 (93%) were allocated to social projects, and €199,010,778 (7%) to green projects.

Of the total executed, €1,000,000,000 correspond to social[4] (€833,500,000; 83% of the eligible total) and green **eligible projects**[5] (€166,500,000; 17% of the eligible total) susceptible to being financed with Sustainable Financing instruments. A total of €190,417,905 (31.74%) of the amount corresponding to Sustainable Financing instruments has been allocated to **eligible green projects**, and the remaining €409,582,095 (68.26%) to **eligible social projects**. The rising need and interest of the Basque Government to develop green projects has meant that the amount finally allocated to financing projects in this category was higher than the eligible amount initially anticipated for this kind of projects.

Figure 3.1 shows the budget executed in the eligible project categories, the eligible total and the amount finally financed with the sustainable bond. Within the projects financed with the bond, it shows the proportion of green projects and social projects financed.

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[4] Affordable housing; Education; Health; Socioeconomic advancement; Employment generation and economic inclusion
[5] Renewable energies; Clean transport; Environmental protection; Water management

Figure 3.1. Budget executed, eligible projects, total amount of the bond and proportion of green and social projects financed with the Basque Country sustainable bond
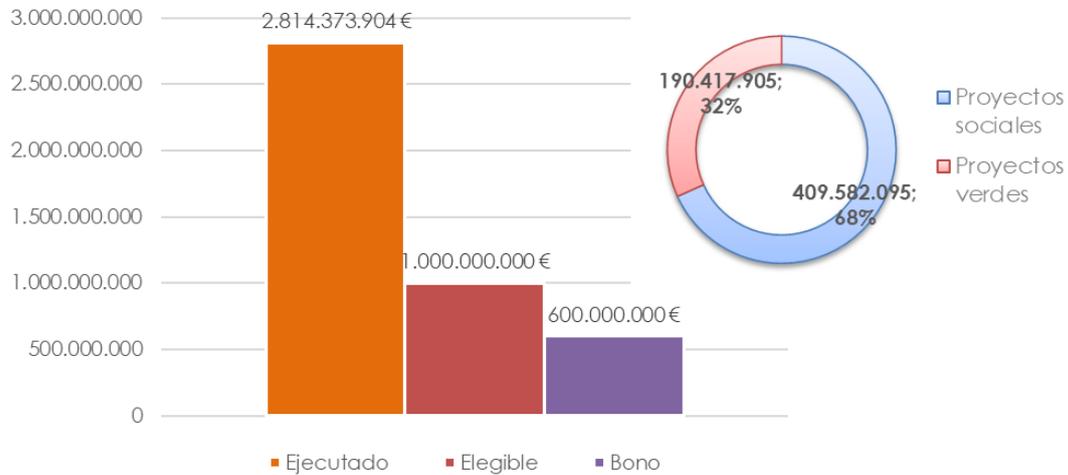
Proyectos sociales	Social projects
Proyectos verdes	Green projects
Ejecutado	Executed
Elegible	Eligible
Bono	Bond

NOTA: Las cifras, en todos los casos: hay que cambiar los puntos por comas y poner € al principio de la cifra y sin espacio, p.ej.: €1,000,000,000

The selection of programmes to be financed was made by the **Basque Government Sustainable Bonds Committee**, made up of four representatives of the Ministry of Treasury and Economy, and one representative each of the Ministries of Economic Development and Infrastructures (Environment, Land Use Planning and Housing; Employment and Social Policies; Health; and Education). To select the projects and the proportions of each one to be funded with the bond, account has been taken of the extent of their alignment with the SDGs and, therefore, with the objectives of the Government Programme (see Figure 3.2).

Figure 3.2. Relationship between some of the main objectives of the Government Programme and the SDGs

Reduce the poverty rate by 20%;
Increase the birth rate;
Reduce the school dropout rate to below 8%;
Reduce unemployment to below 10%;
Position itself among the 4 leading countries in gender equality;
Reduce greenhouse gas emissions by 20%.

SDG 1: no poverty;
SDG 2: zero hunger;
SDG 3: good health and well-being;
SDG 4: quality education;
SDG 5: gender equality;
SDG 8: decent work and economic growth;
SDG 10: reduced inequalities;
SDG 13: climate action

Source: Metroeconomica

<u>Social projects</u>: priority has been placed on fostering investment rather than expenditure and, within the investments made, priority has been given to projects corresponding to the following objectives of the Government Programme; Reduce the poverty rate by 20%; Increase the birth rate; Reduce the school dropout rate to below 8%; Reduce unemployment to below 10%; Position itself among the 4 leading countries in gender equality. These objectives are in turn aligned with the following SDGs: SDG 1 (no poverty); SDG 2 (zero hunger); SDG 3 (good health and well-being); SDG 4 (quality education); and SDG 5 (gender equality).

Socioeconomic advancement

- Guaranteed Minimum Income (RGI) associated to wage supplements. This part of the RGI is closely related to improving quality of life in general and improving the quality of life of women in particular (a high percentage of women receive no wage top-up), an objective aligned both with SDG 5 and with the Basque Government objective to achieve gender equality.
- Programmes of social emergency support packages and benefits to help families aligned with SDG 1 and SDG 10, and with the Government objective to increase the birth rate.

Employment generation

- Labour insertion. These projects are aligned with SDG 8 and with the Government Programme to reduce unemployment to below 10%.

Education

- Non-university and university grants. These projects are aligned with SDG 4 and with the Government objective to reduce the school dropout rate to 8%.

With respect to green projects, the greatest support has been given to the environmental aspect. This means that almost all of the budget executed in eligible green projects has been financed with the sustainable bond: €191,548,779 of the €199,010,779 executed. The priority assigned to this type of projects is aligned with the Government objective of reducing greenhouse gas emissions by 20%.

3.2. Project description and impact analysis

3.2.1. Social programmes and projects

AFFORDABLE HOUSING: €97,473,298

Context

In 2018 the Basque Government approved the **Housing Master Plan 2018-2020** with the objective of promoting a housing policy to facilitate **access to affordable housing** by **disadvantaged people**, thereby responding to the subjective right to housing and favouring access to rented housing. To promote and increase availability and access to housing, the Basque Government provides **allowances** through different **eligible projects**:

- **Top-up Housing Allowance (PCV)** for people with a monthly income lower than the amount of the Guaranteed Minimum Income (RGI) to which they may have the right depending on the number of members in their cohabitation unit.

- **Housing Allowance (PEV)** for those who do not have sufficient economic resources or means to access a house and whose annual income is lower than €9,000, €12,000 or €15,000 depending on whether they live in units of 1, 2, 3 or more members, respectively. The Law stipulates a maximum allowance of €250/month.

- **Construction of new subsidised rental housing** and of new Rental Housing for Temporary Occupancy (ADA). This programme responds to the stipulations of the Housing Law 3/2015, of 18th June, establishing that available resources must be assigned as a priority to the rental system, meaning that fostering rental is a core initiative of the housing policy. Said preference for rental means that, with the exception of those intended for restoration, 80% of housing resources will be allocated to rental policies by 2020.

- **BIZIGUNE Programme** to encourage privately-owned uninhabited houses to be made available on the rental market, offering advantages both to the owners of said houses, as well as to current and future tenants. The owners benefit from the guarantee of receiving income from rental and the tenants benefit from a rent allowance to guarantee that the cost of rental comes to no more than 30% of their income. The commitments and resources are also intensified.

- **GAZTELAGUN Programme**, which provides rent benefits to young people between the ages of 23 and 34 years. This benefit, intended for maximum rents of €600 and €750 in towns and cities respectively, covers up to 50% of the monthly cost of rental during a period of three years. The beneficiaries must have

a regular source of income earning them a gross annual income higher than the limits in place at all times in order to receive the RGI (€7,734 in 2018), and equal to or lower than €12,000, €15,000 or €18,000 depending on whether there are 1, 2 or 3 residents.

- **Renovation and/or restoration of houses and buildings**, to improve the access and mobility of persons, including materials and labour costs.

These projects are aligned with the goal defined in the Euskadi-Basque Country Agenda 2030 to **develop the subjective right to housing** and will contribute to achieving the objective of **reducing the poverty rate by 20%** in the Basque Country. Furthermore, it will help the Basque Country to advance in the fulfilment of SDG 1 (no poverty) and SDG 11 (sustainable cities and communities).

Allocation and impact

In 2019, a total of €97,473,298 (16.25% of the total bond and 76.75% of the eligible amount) of the Sustainable Financing instrument funds were allocated to financing subsidies related to the **affordable housing** programme. The sum of €88,000,000 (14.66% of the bond) was allocated to financing the **PCV**, **PEV** and **BIZIGUNE** programme allowances, benefitting a total of 28,805 homes: 28,227 received the PCV and 578 the PEV. In 2019, all applicant homes meeting the requirements accrediting them as potential beneficiaries received the allowance. Of the 100% of beneficiaries accredited, 86% received the allowances, which were charged to the sustainable bond.

Another part of the Sustainable Financing amount allocated to the affordable housing programme was used to finance the **building of rental housing**, a project on which the Basque Government has spent a total of €9,473,298 (1.58%) of the Sustainable Financing instruments. Assuming that the total of the bond was allocated in 2019 to the construction of new housing based on the Basque Government estimates that for every million euros invested in the construction of new homes around 35 jobs are generated (Source: Basque Government Ministry of Housing, Transport and Public Works, 2010)[6], it is estimated that the amount of the sustainable bond allocated to financing the building of rental housing generated a total of 332 jobs. The number of families with public rent in the Basque Country financed with the sustainable bond amounts to 23,515.

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[6] https://www.irekia.euskadi.eus/es/news/1383-gobierno-vasco-invierte-millon-euros-para-reformar-plaza-abastos

Allocation and impact of the 2019 sustainable bond

Projects	Related SDG	Eligible	Bond allocation	% with respect to total bond	Impact indicators			
					No. beneficiaries		Others	
					Indicator	Number	Indicator	Number
AFFORDABLE HOUSING		**127,000,000**	**97,473,298**	**16.25%**				
PCV and PEV financing		68,000,000	68,000,000	11.33%	No. beneficiary households	28,805	% of beneficiary households with respect to applicants who meet the conditions	100
Financing of the BIZIGUNE programme	SDG 1: No poverty SDG 11: Sustainable cities and communities	20,000,000	20,000,000	3.33%				
GAZTELAGUN programme		5,000,000	0	0.0%	-		-	
Building of rental housing		12,000,000	9,473,298	1.58%	No. families with public rent	23,515	Public rental housing	14,254
							% public rental housing rented	89.1
					-	-	Jobs created	332
Grants for restoration and/or renovation of housing and buildings		22,000,000	0	0.0%	-	-	-	-

EDUCATION: €72,224,575

Context

Education is essential in order to promote equal opportunities and build democratic, socially-oriented and responsible cohabitation, as well as to generate economic advancement and well-being. Strategic planning with respect to education in the Basque Country is defined in the HEZIBERRI 2020 Plan, the Basque University System Plan 2019-2022 and the V Basque Vocational Education Plan 2018-2021.

The **HEZIBERRI 2020 Plan** defines the framework of the pedagogical model. The **Basque University System Plan 2019-2022** seeks to strengthen the Basque University System based on specialised strategies and plans developed in five areas: research in excellence, university-business relations, education based on innovative methodologies and methods, internationalisation and the university community. For its part, the **V Basque Vocational Education Plan 2018-2021** develops the framework for strategic planning in professional education with the ultimate aim of empowering the Basque human capital and its employability by means of improving its capacities and knowledge and a determined commitment to specialisation and the development of new sectors.

Eligible projects include the following:

- Development of nurseries.

- The Bidelaguna, Hamaika Esku, Specific Education Support and Supplementary Education (Ostatuz / Bideratuz) programmes, as well as territorial programmes to eradicate absenteeism and the lack of schooling.

- Programmes guaranteeing adequate educational attention for immigrant pupils in the framework of the inclusive and intercultural school, incorporating the needs of language support to centres with immigrant pupils who don't know the languages used at the school, specific intervention programmes, etc.

- Access of young people in situations of greatest vulnerability to professional training and the fostering of their transition into employment.

- Construction, restoration and maintenance of public education schools and centres for professional training.

- Financing of the development and maintenance of public universities.

- Acquisition of teams to guarantee quality education in schools providing public education.

These projects support the needs identified in the strategic plan and are aligned with the objectives indicated in the Euskadi-Basque Country Agenda 2030 of reducing the school dropout rate to below 8%. They also help to progress towards fulfilment of SDG 4 (quality education), attracting research talent to join the Basque University System by means of hiring research professors.

Allocation and impact

In 2019, a total of €72,224,757 of the Sustainable Financing instruments were allocated to **education**. These funds were dedicated to supporting educational programmes for young people between the ages of 14 and 25 years and to supporting the successful integration of disadvantaged groups[7] to the education system. The grants were issued in the shape of **non-university grants** (€46,224,575; 7.70% of the bond total, representing 81.1% of that eligible for this project) and **university grants** (€26,000,000; 4.33% of the total bond, representing 100% of that eligible for this project).

The **non-university grants** financed with the Sustainable Financing instruments contributed to reducing the economic barriers representing an obstacle for their access to education in the case of 127,975 students from disadvantaged families. The Sustainable Financing awarded grants and enabled the access to education of 35.1% of students in the area of non-university education.

The **university grants** financed with Sustainable Financing instruments covered the transport costs of 10,974 students at university and other higher education options with special and/or specialised needs (number estimated on the basis of the total number of university grants in the 2018-2019 academic year).

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[7] Disadvantaged groups are understood to be young people in situations of greater vulnerability due to not having completed their Compulsory Higher Education (ESO).

Allocation and impact of the 2019 sustainable bond

Projects	Related SDG	Eligible	Bond allocation	% with respect to total bond	Impact indicators			
					No. beneficiaries		Others	
					Indicator	Number	Indicator	Number
EDUCATION		**146,000,000**	**72.224.575**	**12.04%**				
Building and fitting out of nursery and primary schools		30,000,000	0	0.0%				
Building and fitting out of secondary and VE schools		24,000,000	0	0.0%				
Public procurement contract and investment funding, Univ. of the Basque Country	SDG 4: Quality education	9,000,000	0	0.0%				
Non-university grants		57,000,000	46,224,575	7.70%	No. disadvantaged university students with grant	127,975	% of non-university students with grant	35.1
University grants		26,000,000	26,000,000	4.33%	No. special needs university students with grant	10,974		

:, environmental and social impact of sustainable bonds. Allocation and impact of the Euskadi 2019 sustainable bond

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HEALTHCARE: €55,000,000

Context

In the Basque Country, healthcare is conceived as a cross-discipline, interdepartmental, interinstitutional and inter-sectoral priority. The integral priority and nature of healthcare is reflected in the multiplicity of government plans (seven in total) and departments (twenty-three in total) which address the complexity inherent to many healthcare problems whose unclear borders make them difficult to solve with isolated initiatives. The **Healthcare Plan 2013-2020**, which defines the lines to be followed and priorities to be attended to in the coming year, safeguards and reinforces the principles which inspire the Basque Public Health System: universality, equity, solidarity, quality services, sustainability and citizen participation.

The funds corresponding to the Sustainable Financing instruments can be used for the following **eligible projects** which will guarantee universal access to a quality public healthcare service for the citizens of the Basque Country (including, but not limited to, vulnerable groups). They will contribute to the Country objective as defined in the Euskadi-Basque Country Agenda of raising the life expectancy of those born in the Basque Country and will enable advancement towards SDG 3 (good health and well-being):

- Development, maintenance and modernisation of the facilities (infrastructure) belonging to the Public Health Service System (hospitals, health centres, mental health centres, etc.).

- Financing of the RENOVE plan for health centres (renovation of public buildings and centres).

- Providing of medical care in areas not sufficiently attended to or vulnerable populations, guaranteeing universal access to health services by removing the barriers represented by physical aspects and transport for people with functional diversity, gender barriers, barriers due to the social stigma caused by certain diseases and disorders, and social, cultural and economic barriers.

- Financing of medical equipment or the provision of diagnostic services for public health and mental health centres and hospitals.

- Financing programmes and plans to promote health and to prevent and treat specific diseases.

- Financing activities to prevent and treat addictions.

Allocation and impact

In 2019, a total of €55,000,000 (9.17%) of the Sustainable Financing instrument funds were allocated to financing **healthcare**. Within this programme, the total amount of the funds were allocated to **investments to modernise a Health System** to which the Basque Government allocated 3.75% of the country's GDP in 2019. Worthy of note among the landmarks achieved with the new investments are the following: opening of the third floor of the new Eibar Hospital; remodelling of the second plant of Santa Marina Hospital; installation of two new linear accelerators (one at Araba University Hospital and another at Cruces Hospital), two new magnetic resonance

systems (one at Basurto University Hospital and another at Cruces Hospital) and three "Da Vinci Xi" robotic surgical systems.

These investments generated a total of **591 new jobs**, contributed to reducing waiting times for surgical operations to 48 days (including primary care, specialised care, additional tests and surgical operations) and to the perception of personal healthcare in the Basque Country as being good or very good by 93% of its population.

Allocation and impact of the 2019 sustainable bond

| Projects | Related SDG | Eligible | Bond allocation | % with respect to total bond | Impact indicators | | | |
| | | | | | No. beneficiaries | | Others | |
					Indicator	Number	Indicator	Number
HEALTH		**240,000,000**	**55,000,000**	**9.17%**				
Financing of OSAKIDETZA operating costs	SDG 3: Good health and well-being	110,000,000	0	0.0%				
Financing of hospital and non-hospital pharmacy expenses		75,000,000	0	0.0%				
Healthcare investments		55,000,000	55,000,000	9.17%			No. jobs created	591

SOCIOECONOMIC ADVANCEMENT: €179,425,671

Context

The **IV Basque Inclusion Plan 2017-2021** is the principal instrument for articulating and structuring Basque policies to promote social inclusion and prevent occurrence of the risk factors of exclusion and/or vulnerability which may lead to situations of social exclusion.

Regarding guaranteed income and social inclusion, the plan establishes the need to *"Preserve and improve the Basque model of guaranteed income, guaranteeing its social legitimacy and financial sustainability in coming years"* in order that it may continue to help keep the poverty and exclusion rates of the Basque Country below the EU average and consolidate the Autonomous Basque Country as one of the societies with the lowest levels of inequality in Europe. To do this, it establishes the following objectives: (1) Consolidate the Guaranteed Minimum Income (RGI), keeping it at the forefront of social policies within Europe; (2) Guarantee Social emergency benefits (AES) to enable improved adjustment of the allowances system to the new needs; (3) Foster redesign of passive employment policies corresponding to the state; and (4) Improve and rationalise the system of providing financial allowances to families with children.

The Sustainable Financing instrument funds will be allocated to financing projects which maintain and foster the Basque model of Guaranteed Income and promote social inclusion, thereby contributing to the objectives of **reducing the poverty rate by 20%** and **positioning the Basque Country among the leading 4 countries in gender equality**, and, at the same time, advancing with SDG 1 and SDG 10. Eligible projects include:

- Financing the **Guaranteed Minimum Income**, a financial allowance intended to cover the basic needs of its beneficiaries. The allowance comes in two types: (1) Basic Income for Inclusion and Social Protection, for people who have no working income, when their monthly level of accountable income is lower than that of the Basic Income for Inclusion and Social Protection to which they may have the right; (2) Top-up Allowance intended to top up the level of resources of cohabitation units which, although they do receive income from work, have a monthly income lower than the amount of the Basic Income for Inclusion and Social Protection to which they may have the right.

- Financing of the **Social emergency allowance** programmes. Non-periodical financial allowances for people whose resources are insufficient to meet the specific ordinary and extraordinary expenses required to prevent, avoid or relieve situations of social margination. These allowances cover emergency financial situations arising due to an unexpected occurrence or to the scarce financial resources obtained from periodical economic allowances. These situations may occur as a result of a specific circumstance, or at different times during extensive periods of peoples' lives. The AES is used as a palliative resource to avoid situations which may imply hardships and the inability to meet primary needs.

- Financing of **family support allowances** (PAF). The Basque Government Ministry of Employment and Social Policies has different kinds of allowances to enable families to achieve a work-life balance, and to support the co-responsibility of men and women in the family setting: (1) allowances for workers on leave of absence or with reduced working hours in order to care for their children; (2) allowances for workers on leave of absence or with reduced working hours in order to care for family members in a situation of dependency or extremely poor health; (3) Allowances for replacing workers on leave of absence or with reduced working hours in order to care for children or for family members in a situation of dependency or extremely poor health; (4) allowances to hire workers to care for underage children.

- Financing of Programmes to guarantee equal opportunities from birth and guarantee their well-being.

- Financing of expenses related to the providing of goods and services to support the victims of gender-based violence.

Allocation and impact

In 2019, 29.90% (€179,425,671) of the Sustainable Financing instrument funds were allocated to financing part of the allowances of the Basque Guaranteed Income and Social Inclusion System, made up of the RGI, the AES and the PAF. A total of €111,933,267 (18.66% of the bond, which represents 74.62% of the eligible amount for this project) were allocated to financing the **RGI** of **16,770 people** (9,738 women and 7,032 men), equivalent to 6.4% of the population at risk of exclusion. Priority was given to the part of the RGI related to the Income Top-up Allowance, closely linked to improved quality of life and especially requested by **women**.

The Sustainable Financing instrument funds allocated to financing **AES** amounted to €27,492,404 (4.58% of the bond total), benefitting a total of **59,150 people** with insufficient resources to cover specific expenses (22.8% of the people in this situation). Of the total number of beneficiaries, 9,560 were residents of Araba, 34,028 of Bizkaia and 15,562 of Gipuzkoa. Regarding distribution by sex, 32,871 of the beneficiaries were women and the remaining 26,279 were men.

Finally, €40,000,000 (6.66% of the bond and 100% of the amount established as eligible) were allocated to **family support allowances**. A total of €20,000,000 was allocated to **financial allowances to support families** with children, benefitting **22,812 people**, 14,714 of whom were women and 8,098 men. The remaining €20,000.000 were allocated to financing **financial allowances to achieve work-life balance** received by **14,910 people** (13,359 women and 1,551 men).

Allocation and impact 2019 sustainable bond

Projects	Related SDG	Eligible	Bond allocation	% with respect to total bond	Impact indicators			
					No. beneficiaries		Other impacts	
					Indicator	Number	Indicator	Number
SOCIOECONOMIC ADVANCEMENT		**217,500,000**	**179,425,671**	**29.90%**				
RGI financing	SDG 1: No poverty SDG 10: Reduced inequalities	150,000,000	111,933,267	18.66%	People who received RGI	16,770	% RGI recipients at risk of exclusion	6.4
Financing of AES programmes		27,500,000	27,492,404	4.58%	No. AES beneficiaries	59,150	% people with insufficient resources who benefit from AES	22.8
Financing of family support allowances		40,000,000	20,000,000	3.33%	No. families with children who received the allowance	22,812		
			20,000,000	3.33%	No. work-life allowance recipients	14,910		

EMPLOYMENT GENERATION: €5,458,551

Context

The Basque Government provides incentives for public policies of an economic and social nature which have the direct objective to create more and better quality jobs in the framework of sustainable growth.

The response to this commitment to employment and economic reactivation is the "Framework Programme for Employment and Economic Reactivation: Basque Country 2020". This Framework Programme is cohesive in nature and is constituted as a Country strategy, developed and specified in five strategic plans: **Strategic Employment Plan 2020, Industrialisation Plan 2017-2020, Science, Technology and Innovation Plan 2020 (STIP 2020), "Basque Country" Internationalisation Strategy 2020** and **Tourism, Trade and Consumption Plan 2017-2020**.

In this context, **eligible projects** are defined as those which support the generation of employment in the different economic sectors and finance programmes which support unemployed people in their training and education, in order to **reduce the unemployment rate to below 10%** at the end of the parliamentary term and guarantee that 20,000 young people acquire working experience. These projects also help to achieve advancement in fulfilling SDG 8 (decent work and economic growth). They include the following:

- Support of programmes for employment in local commerce, in the local primary sector and in the tourist sector, including training courses.
- Support of programmes fostering the social economy, innovative entrepreneurship and self-employment.
- Support to the development of Regional Employment Plans in areas of the Basque Country with an unemployment rate higher than 12.4% (the average in the Basque Country is currently 11.1%).
- Financing of the LEHEN AUKERA Programme (a programme to foster the employability of young or unemployed people by means of a work contract enabling them to have their first work experience.
- Financing of the dual training programme to support the transition from education to work, including programmes to develop employment plans for young people.
- Takeover/renovation programmes.
- Financing of programmes for employment including, but not limited to programmes for the return of young people to education/job market and training for employment.

Allocation and impact

In 2019, 0.91% (€5,458,551) of the total Sustainable Financing instrument funds were allocated to financing **local employment plans** (including subsidies for regions and municipalities especially affected by unemployment) in order to hire unemployed people registered with Lanbide as job seekers. The **number of people hired** by local bodies and charged to Sustainable Financing in 2019 was 1,173.

Allocation and impact of the 2019 sustainable bond

Projects	Related SDG	Eligible	Bond allocation	% with respect to total bond	Impact indicators			
					No. beneficiaries		Other impacts	
					Indicator	Number	Indicator	Number
EMPLOYMENT GENERATION		**103,000,000**	**5,458,551**	**0.91%**				
Projects to develop and support local employment	SDG 8: Decent work and economic growth	21,000,000	5,458,551	0.91%	No. people hired	1,173		
Financing of labour insertion programmes		8,000,000	0	0.0%				
Financing of the LEHEN AUKERA programme		3,000,000	0	0.0%				
Financing of programmes to foster employment		35,500,000	0	0.0%				
Financing of training programmes		35,500,000	0	0.0%				

3.2.1. Green Programmes and Projects

RENEWABLE ENERGY: €12,780,000

Eligible projects include, but are not limited to:

- Supporting the use of biomass (using the energy generated by waste from agroforestry resources) for public services.
- Fostering the use of renewable energy in homes, public and private buildings and industry (solar, wind and geothermal).
- Financing measures and implementation programmes which increase the availability of renewable energy, including investments in facilities using biomass energy (waste to energy), investments in facilities using geothermal energy and investment to demonstrate and endorse emerging marine renewable energy technologies.
- Financing of new low-power facilities, including the installation and renovation of onshore and offshore wind parks and use of biomass (waste energy).
- Programmes to promote the use of renewables in the primary sector.

In 2019, the Sustainable Financing instrument funds for this category of projects were allocated to **grants to promote the energy efficiency (EE) of renewable energies (RE)** in the Basque Country. The grants issued amounted to a total of €12,780,000 (2.13% of the bond), with which **3,392 projects** were funded (3,046 EE and 346 RE projects), expected to prevent the emission of **8,576 tCO2e a year** (7,811 tCO2e linked to EE projects and 765 tCO2e to RE projects), equivalent to 0.05% of the GHG emissions issued by the Basque Country in 2018[8]. The installed capacity associated to the 346 subsidised RE projects is 14 MW, with which it is hoped to produce 15,400 MWh of energy a year.

The grants are aligned with the Basque Country Energy Strategy 2030 (3E2030) and with the Country's objective as defined in the Euskadi-Basque Country Agenda 2030 to reduce CO_2 emissions by 20%. They also contribute to advancing towards SDG 7 (Affordable and clean energy) and SDG 9 (Industry, innovation and infrastructure).

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[8] The total GHG emissions in the Basque Country amounted to 18,937,998 tCo2e in 2018

Allocation and impact of the 2019 sustainable bond

Projects	Related SDG	Eligible	Bond allocation	% with respect to total bond	Impact indicators			
					No. beneficiaries		Other impacts	
					Indicator	Number	Indicator	Number
RENEWABLE ENERGY		**15,000,000**	**12,780,000**	**2.13%**				
Programme of EE and RE grants	SDG 7: Affordable and clean energy SDG 9: Industry, innovation and infrastructure	15,000,000	12,780,000	2.13%	No. EE and RE projects to have received grants	3,392		
							Emissions prevented (tCO2e/year)	8,576
							Installed renewable capacity (MW)	14
							Expected renewable production (MWh)	15,400

CLEAN TRANSPORT: €148,547,794

Context

Eligible projects include, but are not limited to:

- Programmes promoting **progressive transport decarbonisation**.

- Financing development and implementation of the **Integral Electric Mobility Plan**.

- Programmes fostering **sustainable mobility** and the use of **more efficient modes of transport** (electric buses, trams, trains, etc.).

- Programmes to foster **renewal of the vehicle fleet**, both light and heavy, with hybrids until 2025 with direct emissions of less than 50 gCO2e / km and electric.

- Grant programmes providing incentive to projects on **energy savings and transport efficiency**, promoting the increased use of electric vehicles.

This programme is aligned with the lines of action envisaged in the Basque Country's Sustainable Transport Master Plan 2030 and with the Euskadi-Basque Country Agenda 2030 goal to reduce CO_2 emissions by 20%. It also contributes to fulfilling SDG 9 (Industry, innovation and infrastructure) and SDG 11 (Sustainable cities and communities).

Allocation and impact

In 2019, €148,547,794 (24.76% of the fund) of the Sustainable Financing instrument financed eligible products which reduce dependence on transport running on fossil fuels.

Of the eligible projects, €14,417,386 (2.40% of the bond) were allocated to the **acquisition of 4 new trains** manufactured to minimise their environmental impact during the construction process and also to minimise their future environmental impact while running. Although the acquisition of these new trains does not come with an associated additional reduction in emissions given that they do not replace old trains, it does represent an important improvement in the safety and reliability of the public railway service. It also increases the quality perceived by users given that they are fitted with important improvements, such as automatic ramps on access doors for people with reduced mobility and air conditioning equipment.

In addition, €134,130,408 (22.36% of the bond) were allocated to the building of **new railway infrastructures** (€62,840,000; 10.47% of the sustainable financing) and to the financing of **railway operators** (€71,290,408; 11.88% of the sustainable financing) in order to continue advancing towards universal accessibility and sustainable mobility in the Basque Autonomous Community (BAC). Construction of the new infrastructure is expected to prevent the emission of **5.41 equivalent tons of CO_2 every year**. Supposing, furthermore, that the improvement of railway infrastructures achieves a modal shift from the private vehicle to rail transport by 10,000 passengers/km between 2018 and 2019, an additional reduction of emissions amounting to 1.06 tons of CO_2 will be achieved (to be added to the 5.41 tons referred to above).

Allocation and impact sustainable bond 2019

Projects	Related SDG	Eligible	Bond allocation	% with respect to total bond	Indicators			
					No. beneficiaries		Other impacts	
					Indicator	Number	Indicator	Number
CLEAN TRANSPORT		**124,500,000**	**148,547,794**	**24.76%**				
Supply of new train units	SDG 9: Industry, innovation and infrastructure SDG 11: Sustainable cities and communities	14,500,000	14,417,386	2.40%			No. trams received	4 *
Construction of new infrastructures		60,000,000	62,840,000	10.47%			Emissions prevented (tCO2e/year)	6.47
Vitoria-Gasteiz smart electric bus			0	0.0%				
Financing of railway operators		50,000,000	71,290,408	11.88%				

* The acquisition of these new trains does not come with an associated additional reduction in emissions due to the fact that they do not replace old trains

POLLUTION PREVENTION AND CONTROL: €8,506,657

Context

The Sustainable Financing instrument funds will be allocated to improving the quality of water, air and land, managing environmental risks and reducing illness in people related with environmental determinants in accordance with the lines of action anticipated in the Environment Framework Programme 2020 and the Basque Country Biodiversity Strategy 2030.

Eligible projects include, but are not limited to:

- Programmes to promote the protection and restoration of ecosystems.

- Development, construction and maintenance of the infrastructure for managing water, including the treatment of wastewater, etc.

- Introduction of a smart territorial plan which places priority on higher population densities, promotes combined uses (work, leisure, housing) and the optimisation of land consumption, placing priority on its reuse and regeneration.

- Guaranteeing air quality and improving the management of contaminated land.

- Programmes to promote ecosystemic services in the restoring of degraded areas.

- Fostering the prevention and reuse and recycling of urban waste by establishing alternatives to dumping at the tip. The reuse and recycling of urban waste must demonstrate that secondary raw materials are suitable for replacing virgin materials in production processes.

- Programmes to promote the circular economy by means of projects contributing to the creation of business opportunities based on said economy by establishing new upcycling solutions for secondary materials, manufacturing products from secondary materials, repairing and remanufacturing parts or components, products and equipment, as indicated in the Basque Country Waste Prevention and Management Plan 2020.

- Activities and equipment to monitor, prevent and manage environmental risks, such as the carrying out of environmental impact studies.

These projects respond to SDG 11 (Sustainable cities and communities) and SDG 12 (Responsible consumption and production).

Allocation and impact

In 2019, a total of €8,506,657 (1.42%) of the Sustainable Financing instrument funds were allocated to preventing and controlling pollution. **Air quality control** received Sustainable Financing of €3,888,694 (0.65% of the total), used to produce 15 measuring campaigns and authorise a new measuring station in order to continue making progress with respect to the improvement of data traceability and precision. Furthermore, work continued to provide daily online information on the Air Quality Network to all 2,188,017 inhabitants of the BAC.

In 2019, part of the Sustainable Financing was once again allocated to **improving land quality**, developing the planning and instruments of the land protection policy and supporting the application of Law 4/2015. The Sustainable Financing of €466,068 (0.08% of the bond) was used to deal with a total of 442 queries and respond to 817 proceedings involving contaminated land (117% more than the annual objective of 700).

Sustainable Financing of the pollution prevention and control programme was finally used for projects fostering **environmental protection**, to which a total of €4,151,895 (0.69% of the bond) were allocated. Of these, €2,748,533 were allocated to subsidising 72 projects enabling 66 companies to make investments in environmental and eco-innovative initiatives[9]. Assuming that for every million euros spent on eco-innovation a total of 15.59 jobs are generated (Ansuategi et al. 2014), mobilisation of the €2,748,533 in subsidies to companies is estimated to have generated 43 jobs.

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[9] The percentage of the subsidy with respect to the final investment is 16% of the ordinary procedure and 33% of the simplified version. The total subsidy, distributed into three annual payments, amounts to €1,500,000. 7

Allocation and impact of the 2019 sustainable bond

Projects	Related SDG	Eligible	Bond allocation	% with respect to total bond	Indicators			
					No. beneficiaries		Other impacts	
					Indicator	Number	Indicator	Number
POLLUTION PREVENTION AND CONTROL		**8,725,123**	**8,506,657**	**1.42%**				
Air quality	SDG 11: Sustainable cities and communities		3,888,694	0.65%	No. people informed	2,188,017	No. measuring campaigns	15
							No. new stations accredited	1
Land quality			466,068	0.08%	No. companies attended to	442	No. pollution studies	817
Protection of the environment, including grants to companies			4,151,895	0.69%			No. jobs created	43
					No. companies subsidised	66	No. projects subsidised	72

SUSTAINABLE MANAGEMENT OF WATER AND WASTEWATER: €14,621,604

Context

The Sustainable Financing instrument funds must be allocated to projects and programmes working to support protection and improvement of the ecological status of water masses; projects and programmes to support both the quality of the water and its supply as well as the cleaning and treatment of urban wastewater; solve water scarcity, minimise the waste from water consumption or recycling to relieve wastewater generation. The eligible projects are therefore:

- Maintenance and restoration work on water courses to improve water quality.
- Achieving the good condition of surface and underground water masses by means of controlling spillages and dumps, for example.
- Monitoring the state of water masses in order to guarantee their quality.
- Collaboration with the bodies responsible for managing services related to water supply, sanitation and treatment.
- Programmes to guarantee long-term water supply and quality and implement instruments enabling the management of demand.

Allocation and impact

In 2019, €14,621,604 (2.44% of the bond) of the Sustainable Financing instruments were allocated to projects related to the **sustainable management of water and wastewater** which contributed to advancing towards *SDG 6 (Clean water and sanitation)*. In particular, €9,153,826 (1.53% of the bond) of the Sustainable Financing instruments were allocated to the **supply, sanitation and treatment** of a supply system by means of which 2,140,569 people (97.8% of the population of the Basque Country in 2019) had access to 215,791,449 m3 of drinking water while guaranteeing the required environmental flows thanks to a gross annual volume of 136,025,339 m3 wastewater treated, reused or prevented. Considering that for every million euros spent in the energy and water sector a total of 11.54 jobs are generated (Ansuategi et al. 2014) and assuming that 100% of the Sustainable Financing allocated to the supply, sanitation and treatment of water were allocated to financing civil works in the sector, it is estimated that **106 jobs were created** with Sustainable Financing.

A further €3,700,097 (0.62% of the bond) were allocated to the **maintenance, conservation, recovery, restoration and environmental improvement of the beds and banks of rivers and streams in the BAC,** thereby helping to achieve the environmental objectives for water masses. Sustainable Financing made it possible to proceed with **1,030 actions** to actively conserve and environmentally improve rivers in the Basque Country, including the planting of native species on river banks and surrounding areas, taking action against invasive species, restoring and environmentally improving the morphological conditions of river beds in altered areas, cleaning waste and other actions. The surface preserved or conserved by means of these actions came to **39 hectares**.

The project of a **national network to control and monitor water masses in the BAC** received Sustainable Financing of €1,767,681 (0.29% of the bond). This budget was

used to evaluate 185 water masses[10] (rivers, lakes and wetlands, underground waters, estuaries and coastal waters) according to the monitoring requirements established by the Water Framework Directive (WFD).

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[10] The evaluation of water masses made it possible to obtain the necessary information for correct hydrological planning.

Allocation and impact of the 2019 sustainable bond

| Projects | Related SDG | Eligible | Bond allocation | % with respect to total bond | Indicators | | | |
| | | | | | No. beneficiaries | | Other impacts | |
					Indicator	Number	Indicator	Number
SUSTAINABLE MANAGEMENT OF WATER AND WASTEWATER		**11,000,000**	**14,621,604**	**2.44%**				
Water supply, sanitation and treatment	SDG 6: Clean water and sanitation		9,153,826	1.53%	No. people with access to drinking water	2,140,569	Drinking water supplied (m3)	215,791,449
							Jobs created	106
							Wastewater treated, reused or prevented (m3)	136,025,339
Restoration and conservation of beds and banks			3,700,097	0.62%			No. conservation actions	1,030
							Surface conserved (ha)	39
Network monitoring the status of water masses			1,767,681	0.29%			No. water masses evaluated	185

, environmental and social impact of sustainable bonds. Allocation and impact of the Euskadi 2019 sustainable bond

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CONSERVATION OF LAND AND WATER BIODIVERSITY: €4,312,490

Context

Eligible projects include, but are not limited to:

- Studies to improve knowledge of the wild flora and fauna, update the Basque Catalogue of Endangered Species and improve their conservation.

- Monitoring and Evaluation of the Natural Heritage of the Basque Country (including the "Natura 2000 Network").

- Financing of educational activities and actions to improve and promote community participation, awareness and knowledge of the culture of nature.

Allocation and impact

In 2019, €4,312,490 (0.72%) of the Sustainable Financing instrument funds were allocated to promoting the **protection and restoration of** land and water **ecosystems** in the Basque Country, as indicated in the Basque Country Biodiversity Strategy 2030, while also contributing to advancing towards SDG 14 (*Life below water*) and *SDG 15 (Life on land)*. Of the total allocated to this programme, €1,328,279 (0.22% of the bond) were allocated to **protecting the natural capital**, an area in which Sustainable Financing was used to finance **39 technical studies** on habitats and biodiversity.

In addition, €798,305 (0.13% of the bond) of the Sustainable Financing instruments were allocated to a project to **restore and improve the ecosystems** focussed on preserving the marshland beds, improving scientific bird ringing and proceeding with actions to eradicate invasive exotic species. Thanks to this project, invasive species were eradicated from **30 hectares** in different parts of the BAC.

The **Urdaibai Biosphere Reserve** received Sustainable Financing instrument funds of €1,054,004 (0.18% of the bond), which were used to carry out maintenance work on 170 of the more than 22,000 hectares covered by the Reserve as well as improvement work on 70 kilometres of its path network.

A total of €1,131,902 (0.19% of the bond) of the Sustainable Financing instrument funds were allocated to **managing the EKOETXEA Environment Centre Network**, a key instrument in raising awareness in Basque society on the value of sustainability through experiences which help them to discover and enjoy a natural setting, to understand its value and to undertake to look after it. The impact of the bond can be measured based on the **number of people who visited and participated in the activities** programmed by the 4 Ekoetxeak, which in 2019 came to a total of **100,070** (9,809 more than in 2018).

Allocation and impact of the 2019 sustainable bond

Projects	Related SDG	Eligible	Bond allocation	% with respect to total bond	No. beneficiaries		Other impacts	
					Indicator	Number	Indicator	Number
CONSERVATION OF LAND AND WATER BIODIVERSITY		**4,423,242**	**4,312,490**	**0,72%**				
Protection of the natural capital	SDG 14: Life below water; SDG 15: Life on land		1,328,279	0,22%			No, of technical studies financed	39
Restoration and improvement of ecosystems			798,305	0,13%			Surface restored (ha)	30
Urdaibai Biosphere Reserve			1,054,004	0,18%			Surface to receive maintenance work (ha)	170
							Improved routes (km)	70
Ekoetxeak Network			1,131,902	0,19%			No. visitors	100,070

ENERGY EFFICIENCY: €1,649,360

Allocation and impact

In 2019, 0.27% (€1,649,360) of the Sustainable Financing instrument funds were allocated to this programme in order to continue advancing towards SDG 9: *Industry, innovation and infrastructure*. These funds are also aligned with the objective of the Country defined in the Euskadi-Basque Country Agenda to reduce CO_2 emissions by 20%.

The sum of €190,857 (0.03% of the funds) was allocated to **waste management**, an area where, in the year 2018[11] 6,089,377 tons of waste (equivalent to 100% of the waste generated) were managed and a total of 3,834,167 tons were recovered. The waste destined for rubbish dumps in the 2016-2018 period was reduced from 182,639 tons, to an average of 91,319.5 tons/year.

Ecodesign and green manufacturing, which seek to improve the environmental performance of products throughout their life cycle, received Sustainable Financing of €1,458,503 (0.24% of the fund), which were allocated to training 29 young people in ecodesign and supporting the development of 36 projects. If the technical, economic, environmental and commercial viability of all projects is confirmed, in 3 years' time savings of 153,300 tons/year in materials, a reduction of 55,000 tons/year in greenhouse gases (GHG), an additional turnover of €116M a year and the generation of 156 new jobs (mainly qualified) will have been achieved.

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[11] The last year for which data exists.

Allocation and impact of the 2019 sustainable bond

Projects	Related SDG	Eligible	Bond allocation	% with respect to total bond	Impact indicators			
					No. beneficiaries		Other impacts	
					Indicator	Number	Indicator	Number
ENERGY EFFICIENCY		**1,691,718**	**1,649,360**	**0,27%**				
Waste management			190,857	0.03%	-		Reduction of waste to rubbish dump (t)	91,319.5 *
Ecodesign and green manufacturing	SDG 9: Industry, innovation and infrastructure		1,458,503	0.24%	No. projects with grant	36	GHG emissions prevented (t/year)	55,000
							Savings in materials (t/year)	460,000
					No. university students trained	29		

* This figure refers to the average for the period 2016-2018. The same reduction is expected for 2019.

3.3. Summary of results

In 2019, the Basque Government executed a budget of €2,814,373,904 in projects corresponding to the Eligible Project categories and, therefore, susceptible to being financed with the Sustainable Financing instruments. A total of €2,615,363,126 were allocated to social projects, and the remaining €199,010,779 to green projects. Of the total budget executed, projects meeting the eligibility criteria and amounting to €600M have been charged to Sustainable Financing. Of these, €409,582,095 (68.26%) were allocated to social projects and the remaining €190,417,905 (31.74%) to green projects.

Tables 3.1 and 3.2 summarise the **social and green projects** financed with the **2019 sustainable bond**, the eligible amount of each one in both years and the amount finally financed by and charged to the sustainable bond, as well as the impact indicators. In 2019, the socioeconomic advancement programme was the one to receive most financing from the Sustainable Financing instruments (29.90% of the total), followed very closely by clean transport (24.76% of the total). Within the socioeconomic advancement programme, the Guaranteed Minimum Income was the project to which the largest part of the funds were allocated: 62.38% of the programme funds (equivalent to 18.66% of the total 2019 bond). In clean transport, Sustainable Financing was largely distributed between the building of new infrastructures and the financing of railway operations. Employment generation, renewable energy and the conservation of biodiversity on land and below water, energy efficiency and adaptation to climate change were the entries to receive least funds from the Sustainable Financing instruments. All of them lower than 2.5% of the total amount of the 2019 sustainable bond.

The Sustainable Financing instruments make it possible to advance towards greater fulfilment of the Sustainable Development Goals, an area in which the Basque Country performs with relative satisfaction if compared with the neighbouring Autonomous Communities (OS et al., 2019). With respect to future issues, the criterion will be maintained of continuing to allocate green funds to the fight against climate change and the promotion of sustainable energies, the two SDGs in which the Basque Country displays the worst relative performance.

Table 3.1: Summary of social programmes and projects financed

Categories and projects	Related SDG	Eligible	Bond allocation	% with respect to total bond	Impact indicators			
					No. beneficiaries		Others	
					Indicator	Number	Indicator	Number
AFFORDABLE HOUSING	SDG 1 SDG 11	127,000,000	97,473,298	16.25%	No. homes receiving allowances	28,805	No. public rental housing	14,245
					No. families with public rent	23,515	No. jobs created	332
EDUCATION	SDG 4	146,000,000	72,224,57	12.04%	No. disadvantaged university students with grants	127,975	-	
					No. special needs university students with grant	14,254		
HEALTHCARE	SDG 3	240,000,000	55,000,000	9.17%	-	-	No. jobs created	591
SOCIOECONOMIC ADVANCEMENT	SDG 1 SDG 10	217,500,000	179,425,671	29.90%	No. RGI recipients	16,770	-	
					No. AES beneficiaries	59,150		
					No. beneficiaries of family allowances[12]	37,722		
EMPLOYMENT GENERATION	SDG 8	103,000,000	5,458,551	0.91%	No. people hired	1,173	-	
SOCIAL PROJECTS, SUB-TOTAL		833,500,000	409,582,095	68.26%				

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[12] Includes families with children to have received the allowance (22,812) and those to have received the allowance for work-life and family balance (14,910)

Table 3.2: Summary of green programmes and projects financed

Projects	Related SDG	Eligible	Bond allocation	% with respect to total bond	Impact indicators			
					No. beneficiaries		Others	
					Indicator	Number	Indicator	Number
RENEWABLE ENERGY	SDG 7 SDG 9	15,000,000	12,780,000	2.13%	No. EE and RE projects subsidised	3,392	Emissions prevented (tCO2e/year)	8,576
							Installed renewable capacity (MW)	14
							Expected renewable production (MWh)	15,400
CLEAN TRANSPORT	SDG 9 SDG 11	124,500,000	148,547,794	24.76%			No. trams received	4
							Emissions prevented (tCO2e/year)	6.47
POLLUTION PREVENTION AND CONTROL	SDG 11	8,725,123	8,506,657	1.42%	No. people informed	2,188,017	No. measuring campaigns	15
					No. companies attended to	442	No. pollution reports	817
					No. companies subsidised	66	No. jobs created	43
							No. projects subsidised	72
SUSTAINABLE MANAGEMENT OF WATER AND WASTEWATER	SDG 6	11,000,000	14,621,604	2.44%	No. people with access to drinking water	2,140,569	Jobs created	106
							Wastewater treated (m3)	136,025,339
							Conserved surfaces (ha)	39
							No. water masses evaluated	185
CONSERVATION OF BIODIVERSITY ON LAND AND UNDER WATER	SDG 14 SDG 15	4,423,242	4,312,490	0.72%			No. technical studies funded	39
							Restored surface (ha)	30
							Improved routes (km)	70
ENERGY EFFICIENCY	SDG 9	1,691,718	1,649,360	0.27%	No. projects with subsidy	36	Annual reduction of waste to rubbish dumps (t)	91,319.5
					No. trained university students	29	GHG emissions prevented (t/year)	55,000
							Materials savings (t/year)	153,300
ADAPTATION TO CLIMATE CHANGE	SDG 13	1,159,917	0	0.00%				
GREEN PROJECTS, SUB-TOTAL		166,500,000	190,417,905	31.74%				

TOTAL PROJECTS		1,000,000,000	600,000,000	100.00%				

4. Impact of the bond on production, income and employment

In this section, an estimate has been made of the total economic impact of the funds destined to the projects using models which exploit the information contained in the input-output tables (IOTs).

4.1. Results

With respect to the impact on production, income and employment as a result of the issue of sustainable bonds, note should be taken of the fact that their influence on the production, income and employment of the Basque Country will be highly significant. **For every euro invested, a production increase of €1.67 is generated and an increase in income of €0.49. In the case of employment, for every million euros invested, 17.16 jobs are generated.**

By sector, those benefitting the most will be "Rental, real estate agencies and services to companies", "Construction", "Transport, storage and communications", "Manufacturing industry", "Hotel & Catering" and Education". However, these sectors will boost other branches of activity and will produce a pulling effect arising from the interaction between income and consumption. The role of Indirect and induced impacts is, therefore, key, showing that they are important and must be considered when setting a specific policy in motion.

The sector "Healthcare and veterinary activities and social services" is one of the core aspects of the Basque Government policy. The pulling effects on other sectors and the impacts received by the latter are important, although lower than that of key sectors such as transport, the manufacturing industry and education. This is due to the fact that the healthcare investments financed by means of the sustainable bond mainly affect the actual sector itself; however, this doesn't mean that healthcare is not a key sector for our economy. With respect to production and income, the sector sits in tenth position, while the area related to employment rises to seventh position, especially boosted by direct jobs.

Table 4.1 summarises the **results obtained for the Basque economy as a whole**. The direct, indirect, induced and total (sum of the previous three) impacts are indicated in the different columns. The "Multiplier" column indicates the multiplying (pulling) effect on production and income generated by every euro invested in sustainable projects, as well as the jobs created for every million euros invested.

Table 4.1. Impacts of the investments resulting from the issue of sustainable bonds

	IMPACTS				
	Direct	Indirect	Induced	**TOTAL**	*Multiplier*
Production (in €)	600,000,000	287,115,638	117,107,729	1,004,223,367	*1.67*
Income (in €)	196,521,615		49,238,334	245,759,949	*0.49*
Employment (Number of jobs)	7,888		2,408	10,296	*17.16*

Source: Own production based on the results of the analysis

The results show that the investments arising from the issue of sustainable bonds generate an increase in total production[13] of €1,004,223,367. In other words, we must add to the direct effect (€600,000,000) another €287,115,638 generated due to the pulling effect on the productive sectors, and another €117,107,729 due to the increase in consumption arising from increased income (induced impact). Thus, as can be seen, **taking account of the direct and induced impacts** when analysing the financial impacts **is no trivial matter**.

Note, however, that **the increase in production does not transform in its entirety into available income**, given that **part is allocated to imports or to tax payments**. Thus, the direct impact on income is lower, €196,521,615, where €49,238,334 is the increase due to the induced effect. In total, the impact on income amounts to €245,759,949. The multiplier effect is 0.49, meaning that every euro invested generates an increase in available income of €0.49.

The **jobs created** come to a total of 10,296, of which 7,888 would be direct and indirect and 2,408 induced. The multiplier effect is 17.16, i.e. every million euros invested generates 17.16 jobs.

Breaking down the impacts by branches of activity, the results show a similar tendency: **the indirect and induced impacts are important** and must, therefore, be considered when setting a specific policy in motion.

Table 4.2 summarises the **sectoral impacts on production**. The branches experiencing the greatest increases are:

- Rental, real estate agencies and services to companies
- Construction
- Transport, storage and communications
- Manufacturing industry, and
- Production and distribution of electric, gas and water energy

Together the above represent almost 74.98% of the total impact. In the case of the two latter examples, this is mainly due to the fact that they will receive a large part of the investments estimated in Table 9, meaning that their production will receive greater benefits than the other sectors. Specifically worthy of note are the investments made in sectors, such as services of architecture and engineering, research and development, other professional activities and telecommunications.

Analysed by type of impact, we can seen that, outstanding in the case of **direct impacts** are "**Manufacturing industries**", "**Rental, real estate agencies and services to companies**", "**Construction**" and "**Transport, storage and communications**". This responds to the logic that these are sectors dedicated to the **production of intermediate goods** which will be the object of demand by the industries directly financed by the bonds (especially those operating in the field of housing renovations, the construction of new modes of transport and the installation of renewable energies) and sectors focussed on the **providing of services** necessary in order, for example to foster job training or to draw up recovery and environmental plans, campaigns and projects, among others.

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[13] The data must be interpreted with caution, given that the IOTs correspond to different periods. Specifically, the last IOTs offered correspond to 2015.

With respect to **induced impacts**, the cases of "**Rental, real estate agencies and services to companies**", "**Trade and repair**" and "**Hotel & Catering**" are particularly noteworthy, which makes sense, given that we must remember that the induced impact is the one generated by the ripple effect of the interaction between income and consumption. The greater the domestic income, the greater the consumption of goods and services.

Table 4.2. Impacts on production by economic sector (in €)

	Direct	Indirect	Induced
Rental, real estate agencies and services to companies	137,246,151	48,228,016	29,805,347
Construction	135,919,591	47,870,851	3,357,557
Transport, storage and communications	111,773,496	42,211,117	9,739,835
Manufacturing industry	42,690,459	53,522,799	11,000,506
Production and distribution of electric, gas and water energy	30,280,209	41,197,254	8,171,012
Education	47,680,495	2,186,781	3,069,958
Trade and repair	11,071,582	22,300,905	16,879,633
Hotel & catering	24,034,390	3,320,090	15,847,450
Financial brokerage	6,352,036	14,960,989	4,853,559
Healthcare and veterinary activities; social services	17,944,436	2,326,397	4,735837
Other social activities and personal services	10,825,151	3,315,619	7,091,216
Extractive industries	13,521,226	3,358,811	55,684
Agriculture, stockbreeding, hunting, forestry	6,564,128	802,463	463,463
Public administration	2,550,665	1,387,490	216,149
Fishing, aquaculture	1,545,985	126,056	120,591
Homes employing domestic staff	0	0	1,699,932

Source: Own production based on the results of the analysis

As already explained, the **increase in the final demand** of the different sectors will imply an **increase** in total Basque production and, therefore, in its **income**. This will, in turn, have additional effects on family consumption, once again increasing final demand. However, given that **not all productive sectors have the same ability to generate income** the impacts on income must be specifically estimated. The economic sectors which generate higher incomes[14] (Table 4.3) are:

- Rental, real estate agencies and services to companies (above all, services of architecture and engineering and research and development)
- Transport, storage and communications
- Hotel & catering
- Construction, and
- Manufacturing industry (above all, metal construction, mechanical engineering, transport material and electrical material and equipment).

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[14] Appendix 3 contains the tables showing the income and employment coefficients and multipliers, by branches of production.

Table 4. 3. Impacts on income by sector (in €)

	Direct + Indirect	Induced
Rental, real estate agencies and services to companies	78,057,049	27,728,317
Transport, storage and communications	34,202,775	7,379,375
Hotel & catering	17,807,873	2,581,794
Construction	14,834,715	3,093,390
Manufacturing industry	12,317,528	3,183,264
Production and distribution of electric, gas and water energy	10,187,703	1,677,119
Education	9,979,949	992,207
Other social activities and personal services	6,671,309	520,336
Trade and repair	5,256,954	1,266,782
Healthcare and veterinary activities; social services	3,982,194	576,044
Financial brokerage	1,811,837	208,979
Agriculture, stockbreeding, hunting, forestry	1,070,018	20,622
Fishing, aquaculture	281,830	1,264
Extractive industries	31,573	5,104
Public administration	28,308	3,737
Homes employing domestic staff	0	0

Source: Own production based on the results of the analysis

Regarding employment (Table 4.4), the sectors that will be favoured most are:

- Rental, real estate agencies and services to companies
- Transport, storage and communications
- Construction
- Education, and
- Manufacturing industry

Logically these are sectors to which the Basque administration has assigned special importance and which, therefore, will directly benefit from the issue of sustainable bonds.

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Table 4.4. Impacts on employment by sector (No. jobs)

	Direct + Indirect	Induced
Rental, real estate agencies and services to companies	2,172	1,357
Transport, storage and communications	1,505	361
Construction	1,267	151
Education	960	49
Manufacturing industry	621	156
Hotel & catering	262	126
Healthcare and veterinary activities; social services	285	28
Production and distribution of electric, gas and water energy	222	82
Trade and repair	185	62
Other social activities and personal services	156	25
Agriculture, stockbreeding, hunting, forestry	112	1
Financial brokerage	57	10
Extractive industries	33	0
Public administration	30	0
Fishing, aquaculture	21	0
Homes employing domestic staff	0	0

Source: Own production based on the results of the analysis

At the end of the day, the issue of sustainable bonds by the Basque Government will benefit both the environmental quality of the Basque Country and its economic and social structure, generating income and employment, and **paving the way for advancement towards** fulfilment of the three dimensions necessary for **sustainable development**.

5. References

Adif, 2018. Green Bonds Annual Report 2018

Ansuategi, A., Escapa, M., Galarraga, I., González-Eguino, M., 2014. Economic impact of eco-innovation in the Basque Country. A quantitative approach. *Ekonomiaz*, 86: 247-273

International Capital Market Association (2017*). Los Principles de los Bonos Sociales 2017 – Social Bond Principles (SBP)*.

International Capital Market Association (2018*). Los Principles de los Bonos Verdes 2018 – Green Bond Principles (GBP)*.

Complutense Centre of Environmental Studies and Information, 2010. Global Change Spain 2020/50. Building Sector. http://www.conama.vsf.es/download/bancorecursos/documentos/programa_edificacion _2020_2050.pdf

Fernández, F.J., Galarraga, X., González, P., Bhogal, P., 1999. *Socio-economic Evolution and Impact of Vitoria-Gasteiz Airport*. Institute of Public Economy, University of the Basque Country.

Basque Government (2018a*). Euskadi Basque Country Agenda 2030*.

Basque Government (2018b). *Framework for the issue of Sustainable Bonds*.

Basque Government (2018c). Basque Country Sustainable Bond.

MAGRAMA, 2014. Roadmap of diffuse sectors by 2020 in accordance with the GBCe work "Greenhouse gas (GHG) reduction scenarios for the residential sector in Spain".

Spanish Government Ministry of Housing, 2010. Report on the housing sector situation in Spain. https://www.fomento.gob.es/recursos_mfom/np040510_issve.pdf

Sustainability Observatory (SO), AIS Group and Fundación Ciudadanía, 2019. SOS 17X17 Analysis on sustainability in Spain 2019 in the 17 Autonomous Communities.

Appendix 1: Input-Output Tables, Methodology

Thanks to models based on the information contained in the Input-Output Tables (IOTs), it is possible to estimate the total economic impact arising from the expenditure associated to green and sustainable projects.

The **issue of sustainable bonds** and use of the funds obtained to promote the corresponding projects translate into an **increase in total Basque production**, given that many sectors are becoming involved in new activities, such as housing renovation or waste management. This will undoubtedly have positive impacts on the production of the sectors that are directly involved, reflected in the need to acquire greater amounts of inputs, also prompting increased production in the other sectors (multiplier or pulling effect). This new level of production will be accompanied by the **creation of employment and income**, meaning that both variables will also benefit from the investments connected to the Basque Country sustainable bond.

As a general rule, the tendency is to think in terms of the total impact of a law or policy; however, the IOTs enable their **disaggregation into direct, indirect and induced impacts.**
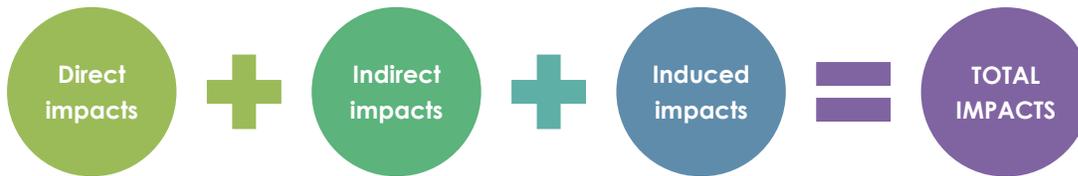
- **Direct impacts**: these are the increase in production (final demand) achieved as a result of the funds allocated to sustainable projects. In other words, they are determined by the initial impact (increased production), which will only occur in the sectors receiving the financing (Table 9).

- **Indirect impacts**: the increase in production achieved by the sectors directly receiving the financing will, in turn, prompt an increase in their demand for inputs from the other sectors. Indirect Impacts therefore include the adjustments made to the level of production by the other sectors as a result of the demand for inputs.

- **Induced Impacts**: are those generated by the ripple effect (also known as the multiplier or pulling effect) of the interaction between income and consumption. In other words, they will determine the effect of allocating funds to the financing of projects on families rather than on productive sectors as occurred in the two previous cases. The logic is simple: by increasing demand in a sector we will generate not only an increase in the production of that sector (direct effect), but also an increase in internal consumption (demand for inputs) by that sector, thereby positively favouring the other sectors, which will also experience an additional increase in their demand. This total increased demand will translate into higher income for consumers, in turn fostering higher levels of consumption and, as a result, of consumer demand. This latter effect is the one measured by Induced Impacts.

The IOTs **make it possible** to empirically **represent the complete economic structure of the economy and the multiple relationships between the sectors that make it up**. The majority of regional statistics agencies offer these IOTs and they enjoy strong tradition in regional

studies. So much so that they constitute, together with the national accountancy, the central pillar of the financial accounts of a country or region.

The **IOTs** show the **total production** (output) of each sector and the **destination** of said production[15] (part of it will be acquired by the other sectors – inputs – for use in their own production processes).

The efforts made to achieve the **statistical homogenisation** of the different countries culminated with implementation of the National System of Accounts in the 60s. As far as Europe is concerned, the central reference framework is the **European System of Accounts** (SEC), which remains valid following several revisions and modifications. The current base is **SEC 2010**, which offers wider possibilities for making the most of the information supplied by the IOTs.

However, the IOTs belong to a wider focus, known as the **Input-Output Framework**, which is made up of three Tables:

- Origin table (Table A1.1): this is a matrix with the values of the **total production of goods and services, by type of product and branch of activity.**

- Destination table (Table A1.2): indicates **the destination of each of these products** (intermediate consumption, final consumption, gross capital formation and exports)[16].

- Symmetric input-output Table (Table A1.3): **condensing the information in a single Table of origin and destination** makes it possible to relate the branches of production with one another, rather than the products with the branches that generate them.

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[15] In other words, the items produced plus those imported must equal to those consumed, processed and exported.

[16] It also takes account of the gross added value.

Table A1.1. Origin Table

Branches / Products	Branch 1	Branch 2	Branch n	Total production	Imports	TOTAL OFFER
Product 1						
Product 2						
Product n						
Total products				$\sum_1$	$\sum_2$	$\sum_1 + \sum_2$
CIF/FOB adjustment						
Purchases by residents outside the territory						
TOTAL				$\sum_3$	$\sum_4$	$\sum_3 + \sum_4$

Source: Own production

Table A1.2. Destination Table

Branches ⟍ Products	Branch 1	Branch 2	Branch n	Intermediate demand	Final consumption expenditure	Gross capital formation	Exports	TOTAL FINAL DEMAND	TOTAL JOBS
Product 1									
Product 2									
Product n									
Total products				$\sum_5$	$\sum_6$	$\sum_7$	$\sum_8$	$\sum_T - \sum_5$	$\sum_T = \sum_5 + \sum_6 + \sum_7 + \sum_8$
Payment of wage-earners									
Other net taxes on production									
Gross operating surplus									
Gross value added				$\sum_9$					
Production at basic prices				$\sum_5 + \sum_9$					

Source: Own production

Table A1.3 Symmetric Table

Branches / Products	Branch 1	Branch 2	Branch n	Intermediate demand	GCF[17]	FBK	X	TOTAL FINAL DEMAND	TOTAL JOBS
Branch 1									
Branch 2									
Branch n									
Total products				$\sum_5$	$\sum_6$	$\sum_7$	$\sum_8$	$\sum_T - \sum_5$	$\sum_T = \sum_5 + \sum_6 + \sum_7 + \sum_8$
CIF/FOB adjustment									
Purchases by residents outside the territory									
Purchases by non-residents in the territory									
Total				$\sum_{10}$	$\sum_{11}$	$\sum_{12}$	$\sum_{13}$	$\sum_T - \sum_{10}$	$\sum_T = \sum_{10} + \sum_{11} + \sum_{12} + \sum_{13}$
Payment of wage-earners									
Other net taxes on production									
Gross operating surplus									
Gross value added				$\sum_9$					
Production at basic prices				$\sum_9 + \sum_{10}$					
Imports				$\sum_2$					
Total offer				$\sum_9 + \sum_{10} + \sum_2$					

Source: Own production

The objective of including imports (see the lower part of the Table) is to enable identification of the branches of activity corresponding to resources and employment.

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[17] Final consumption expenditure (FCE); Gross Capital Formation (GCF); Exports (X).

This said, the next question we must ask ourselves is **how to calculate the impacts** by means of the IOTs **for the three variables** considered in this report:
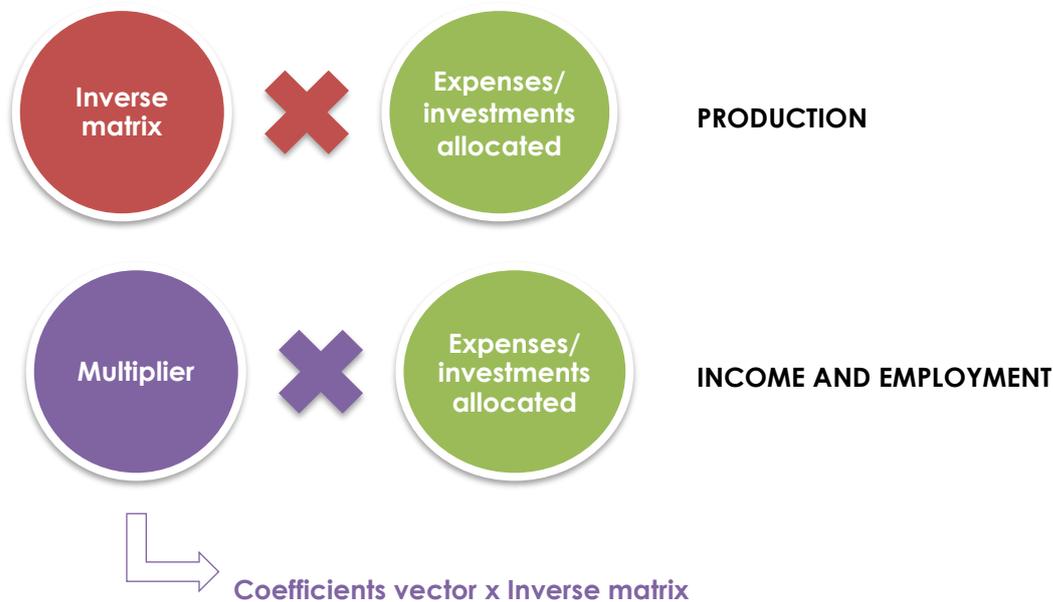
1. In a **first phase**, the **funds obtained are allocated** to the corresponding branches of activity into which the IOTs divide the Basque economy (Table 8 of Appendix 2). Although the IOTs provided by the Basque Statistics Institute (Eustat) are divided into 85 branches, in the financial report they have been grouped into 16 (see Appendix 2) to facilitate analysis of the results.

2. In a **second phase**:

   a. Starting from the symmetric matrix, the **technical coefficient matrix** (or matrix of direct requirements) is calculated, where each coefficient indicates the percentage represented by each input on the end production[18], and

   b. Based on the technical coefficient matrix, we obtain the **Leontief inverse matrix** (or matrix of total requirements – direct and indirect).

3. Finally, and once the inverse matrix has been obtained, the **multipliers of impact on income and employment**[19] are calculated (for each branch of activity). To do this, the steps to be followed are:

---

[18] Final production is understood to be production at basic prices, which is the figure offered by the IOTs for Navarre. This value is obtained by adding to the production total net taxes on the products, purchases by residents outside the national territory and the gross value added to basic prices. The latter is in turn broken down into payment to wage-earners (gross wages and salaries plus social security payments), other net taxes on production and the gross operating/mixed income surplus. Note should therefore be made that this value will be higher than that traditionally offered when referring to the Gross Domestic Product.

[19] It is not necessary to calculate a multiplier for production: we only have to multiply the inverse matrix by the expenses/allocated investments. This is because, as already explained, each coefficient of this matrix

- INCOME: the inverse matrix is multiplied by the **income coefficients vector**. To calculate this vector, (the domestic income of each sector divided by total production), it has been necessary to estimate the distribution of available income by branches of production. Bearing in mind that no sectoral data is available, the procedure has been slightly more complex. The proposal set out in Ansuategi et al. (2014) has therefore been used, according to which the value of the total available income is the same as that of the total private consumption provided by the IOTs, although with a different distribution, given that the available rent will be distributed proportionally to the value added by sector.

- EMPLOYMENT: the inverse matrix is multiplied by the **income coefficients vector**. Data related to the number of jobs by sector has been compiled. Following this, the employment coefficients vector by sector has been calculated by dividing employment in the i-th sector by total production for the same sector.

Finally, the multipliers are multiplied by the funds allocated to each sector in order to obtain the impact.

However, as previously explained, the total **impact** is distributed between direct, indirect and **induced** impact. Given that the calculations shown until now only provide the direct and indirect impacts, we must now estimate the induced impacts (based on the interaction between income and consumption) in order to obtain the total impact. To do this, we must **extend the inverse matrix to add the families**, considered simply as another economic sector. To do this, a new row and a new column have been added. The row represents distribution of the available income by branches of production and measures the flow of the families sector to the i-th sector, whilst the column indicates the flow from the i-th sector towards the families sector. The data for the column is obtained directly from the IOTs, selecting internal private consumption within the final demand.

This requires the calculation of **"new multipliers[20]**, to do which we will follow the same procedure as above (extended technical coefficient matrix – extended inverse matrix – coefficients vector); the resulting figure is once again multiplied by expenses/investments.

We will therefore have **2 models**: one **extended model**, the result of which gives the **total impact** and **one reduced model** which gives us the **direct and indirect impact**. The difference between the two gives us the induced impact.

---

represents the additional quantity produced by the i-th sector as a result of increased end demand of the j-th sector in a unit. On the other hand, the IOTs do not provide data on available income or employment by branches of production, meaning that a vector must be created for this purpose.

[20] Appendix 3 shows the coefficients vector and multipliers, by sector.

Matriz inversa		Matriz inversa	

REDUCED MODEL

EXTENDED MODEL

Direct Impact + Indirect Impact

Total impact
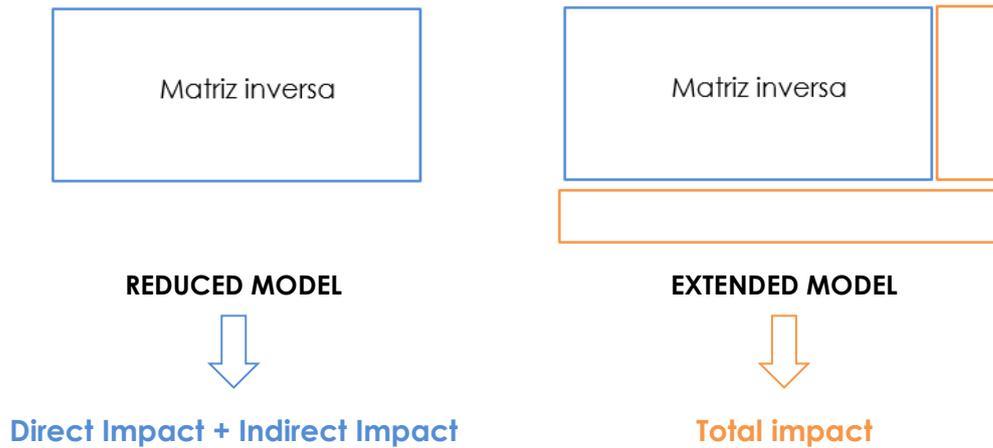
Mathematically, we present the demand Input-Output Model (or Leontief model) applied for the purposes of this report. The notation is as follows:

q_i = production of the i-th sector.

y_i = final demand of the i-th sector (sum of private and public consumption, the gross capital formation and exports).

x_{ij} = flows from the i-th sector to the j-th sector.

n = Number of sectors or branches of production.

The identity for all j sectors is as follows:

Production of the sector = Intermediate consumption + Final demand
$$q_j = x_{ij} + x_{2j} + \cdots + x_{nj} + y_j \quad \forall j \in (1, \dots, n)$$

In matrix terms:

$$\begin{bmatrix} q_1 \\ \vdots \\ q_n \end{bmatrix} = \begin{bmatrix} x_{11} & \cdots & x_{1n} \\ \vdots & \ddots & \vdots \\ x_{n1} & \cdots & x_{nn} \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix} + \begin{bmatrix} y_1 \\ \vdots \\ y_n \end{bmatrix}$$

$$q = X_i + y$$

where $q_1 = x_{11} + \cdots + x_{1n} + y_1$; $q_n = x_{n1} + \cdots + x_{nn} + y_n$ y X is the matrix of inter-industrial transactions (Ansuategi et al. 2014).

Based on this equation, we can calculate the technical coefficient matrix including the percentage represented by each input over the final production. Given that a relationship exists between the selling sector, i, and the buying sector, j:

$$a_{ij} = \frac{x_{ij}}{q_j}$$

the model would be as follows:

$$\begin{bmatrix} q_1 \\ \vdots \\ q_n \end{bmatrix} = \begin{bmatrix} a_{11} & \cdots & a_{1n} \\ \vdots & \ddots & \vdots \\ a_{n1} & \cdots & a_{nn} \end{bmatrix} \begin{bmatrix} q_1 \\ \vdots \\ q_n \end{bmatrix} + \begin{bmatrix} y_1 \\ \vdots \\ y_n \end{bmatrix}$$

$$q = Aq + y$$

where matrix A is the technical coefficient matrix, q is the total production vector, and y is the final demand vector. Each matrix coefficient, $[a_{ij}]$, measures the production of sector j coming from sector i[21].

From the technical coefficient matrix, we can obtain the basic equation of the model – the Leontief inverse matrix. To do this, we must first of all move the q matrix to the other side:

$$q - Aq = y$$

in order to subsequently obtain the common factor:

$$[I - A]q = y$$

Where *I* is an identity, not a 1. If we divide a matrix by itself, we obtain a matrix which displays ones in its diagonal, as shown below:

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

We find q

$$q = [I - A]^{-1}y = By$$

where B is the Leontief inverse matrix. The coefficients of this matrix, $[b_{ij}]$, indicate the multiplier effect produced in the economy as a whole when the final demand increases (Fernández et al., 1999): each coefficient indicates the additional amount that the *i* sector must produce to satisfy the increase of an additional unit in the final demand of the *j* sector. Each element in the main diagonal is greater than 1 ($b_{ij} > 1$), given that it indicates both the direct effect of increased demand over the production of its own sector and the indirect effects generated on other sectors (Ansuategi et al., 2014).

$$B = [I - A]^{-1} = I + A + A^2 + A^3 + \cdots$$

The coefficients of this B matrix therefore directly indicate the multipliers on production. On the other hand, in order to obtain the coefficients for income and employment, said matrix must be multiplied by the coefficients associated to the aforementioned indicators:

---

[21] However, as already explained, depending on whether we take the rows or the columns, we will be measuring two different aspects: purchases in the rows and sales in the columns.

- **Multiplier of the impact on income**:

$$MR = rB$$

where *r* is a vector of income coefficients which take the following shape:

$$r_i = \frac{R_i}{q_i}$$

and where R_i is the income of the families generated in the production of the *i*-th sector.

- **Multiplier of impact on employment:**

$$ML = \gamma B$$

where γ is the vector of employment coefficients which take the following shape:

$$\gamma_i = \frac{L_i}{q_i}$$

and where L_i is the employment of the *i*-th sector.

However, this model does not take account of the families sector as another sector, meaning that we are unable to visualise the interaction between income and consumption. To include this factor, we must extend the X matrix with a new row (total available income) and a new column (private consumption), so that the model would appear as follows:

$$q^* = X_i^* + y^*$$

$$X^* = \begin{bmatrix} X & CF \\ RD & 0 \end{bmatrix} \quad \text{and} \quad A^* = \begin{bmatrix} A & cf \\ rd & 0 \end{bmatrix}$$

where X^* and A^* are the inter-sectoral matrix and the extended technical coefficient matrix respectively, and where

$$cf = \left[cf_i = \frac{CF_i}{q_F} \right] \quad \text{and} \quad rd = \left[r_i = \frac{CFR_i}{q_i} \right]'$$

Following the same steps as before, we would obtain:

$$q^* = [I_{n+1} - A]^{-1} y^* = B^* y^*$$

meaning that

$$B^* = [I_{n+1} - A]^{-1} = [b_{ij}]$$

where b_{ij} represents the additional income generated in the *i* sector if demand in the *j* sector increases by one unit:

$$B^* = \begin{bmatrix} B^p & s \\ b^f & v \end{bmatrix}$$

where b_{ij}^p measures the additional amount produced by the *i*-th sector if the final demand of the *j*-th sector increases by one unit and b_{ij}^{pf} is the additional income

generated in the *i*-th sector if the final demand of the *j*-th sector increases by one unit. From here, we can obtain the impact multipliers:

- **Multiplier of the global economic impact on production**. For the *j* sector, the multiplier would be calculated as the sum of the elements in a column of the production multipliers matrix:

$$MP_j = \sum_{i=1}^{n} b_{ij}^p = B^p$$

- **Multiplier of the global economic impact on income**: we multiply each element of the B^* matrix by the income coefficients r_j. The multiplier would therefore be as follows:

$$MR_j = \sum_{i=1}^{n} r_i b_{ij}^p = b^f$$

We therefore obtain the total income generated, within the territory, in the event of an increase in demand of one unit by the *j* sector.

- **Multiplier of the global economic impact on employment**. The procedure is the same as the previous cases, hence:

$$ML_j = \sum_{i=1}^{n} \gamma_i b_{ij}^p = \gamma B^p$$

We therefore obtain the total employment generated, within the territory, in the event of an increase in demand of one unit by the *j* sector.

Appendix 2: Aggregation by sectors and fund allocations

Aggregation by sectors

Table A2.1 Aggregation by sectors

Agriculture, stockbreeding, hunting and forestry	Agriculture, stockbreeding and hunting
	Forestry cultivation and exploitation
Fishing and aquaculture	Fishing and aquaculture
Extractive industries	Extractive industries
Manufacturing industry	Meat industries
	Fish processing
	Dairy products
	Bakery and milled products
	Other food products
	Beverages
	Tobacco
	Textile, clothing, leather and shoes
	Wood and cork industry
	Paper industry
	Graphic arts and reproduction
	Coke plants and oil refineries
	Basic chemical products
	Paints and other finishing chemicals
	Pharmaceutical products
	Rubber products
	Plastic products
	Glass industry
	Cement, lime and plaster
	Other non-metallic industry
	Iron and Steelmaking
	Production of non-ferrous metals
	Metal casting
	Metal construction
	Metal forging and stamping
	Mechanical engineering
	Metal articles
	Computer and electronic products
	Electrical material and equipment

	Household appliances
	Generally used machinery
	Machine tools
	Manufacture of motor vehicles
	Shipbuilding
	Other transport material
	Furniture manufacture
	Other manufacturing industries
	Repair and installation
	Waste treatment and management
Production and distribution of electric, gas and water energy	Electric energy
	Gas, steam and air conditioning
	Water supply
Construction	Construction
Trade and repair	Sale and repair of vehicles
	Wholesale trade
	Retail trade
Hotel & catering	Hotel & catering
Transport, storage and communications	Rail transport
	Other land transport of passengers
	Other overland goods transport
	Sea and river transport
	Air transport
	Transport-related activities
	Postal and post office activities
	Publishing
	Audiovisuals, cinema, radio and TV
	Telecommunications
	Computer science
Financial brokerage	Financial services, except insurance
	Insurance
	Ancillary financial services
Rental, real estate agencies and services to companies	Real estate activities
	Legal and accounting activities
	Architecture and engineering services
	Research & development
	Advertising and market studies
	Other professional activities

	Rental activities
	Activities related to employment
	Travel agencies
	Other ancillary activities
Public administration	Public administration
Education	Education
Healthcare and veterinary activities and social services	Healthcare activities
	Social services
Other social activities and personal services	Cultural activities; gaming
	Sports and leisure activities
	Associative activities
	Repair of computers and other articles
	Other personal services
Homes employing domestic staff	Household activities

Allocation of funds by sectors

Table A2.2 Allocation of funds by sectors (€)

	Allocation
Rental, real estate agencies and services to companies	137,246,151
Construction	135,919,591
Transport, storage and communications	111,773,496
Education	47,680,495
Manufacturing industry	42,690,459
Production and distribution of electric, gas and water energy	30,280,209
Hotel & catering	24,034,390
Healthcare and veterinary activities and social services	17,944,436
Extractive industries	13,521,226
Trade and repair	11,071,582
Other social activities and personal services	10,825,151
Agriculture, stockbreeding, hunting and forestry	6,564,128
Financial brokerage	6,352,036
Public administration	2,550,665
Fishing and aquaculture	1,545,985
Homes employing domestic staff	0

Source: Own production based on the results of the analysis

Appendix 3: Income and employment coefficients and multipliers

Table A3.1. Income coefficients, income multipliers and income multipliers for the model extended to families

	Income coefficients	Income multiplier	Extended income multiplier
Agriculture, stockbreeding, hunting, forestry	0.152921757	0.163009898	0.166151452
Fishing, aquaculture	0.180056783	0.182297859	0.183115274
Extractive industries	0.000530833	0.002335072	0.002712523
Manufacturing industry	0.034317986	0.288531167	0.363097334
Production and distribution of electric, gas and water energy	0.120175368	0.336447576	0.391834216
Construction	0.036994485	0.109143317	0.131902285
Trade and repair	0.357652532	0.474815084	0.589232503
Hotel & catering	0.716288231	0.740933014	0.848353849
Transport, storage and communications	0.141502693	0.306000762	0.372021556
Financial brokerage	0.194354933	0.285237174	0.318136685
Rental, real estate agencies and services to companies	0.282980018	0.568737616	0.77077109
Public administration	0.005453749	0.011098351	0.0125635
Education	0.197725871	0.209308836	0.230118335
Healthcare and veterinary activities; social services	0.199995721	0.221918045	0.254019588
Other social activities and personal services	0.573805919	0.616278652	0.664345967
Homes employing domestic staff	0.671993864	0.671993864	0.683516733

Table A3.2. Employment coefficients, employment multipliers and employment multipliers for the model extended to families

	Employment coefficients	Employment multiplier	Extended employment multiplier
Agriculture, stockbreeding, hunting, forestry	0.01667231	0.01713401	0.01728778
Fishing, aquaculture	0.01356559	0.013604831	0.013644841
Extractive industries	0.002208483	0.002441809	0.002460284
Manufacturing industry	0.003667001	0.014544085	0.018193874
Production and distribution of electric, gas and water energy	0.001029657	0.007330096	0.010041105
Construction	0.005394811	0.009323786	0.010437769
Trade and repair	0.011858628	0.016683222	0.02228361
Hotel & catering	0.009775738	0.010883408	0.016141334
Transport, storage and communications	0.005698381	0.013466657	0.016698176

Financial brokerage	0.005295327	0.008939618	0.01054995
Rental, real estate agencies and services to companies	0.005881484	0.015824647	0.025713577
Public administration	0.011675912	0.011870428	0.011942143
Education	0.019707595	0.020127019	0.021145581
Healthcare and veterinary activities; social services	0.014695006	0.015874252	0.017445526
Other social activities and personal services	0.013147511	0.014404942	0.016757692
Homes employing domestic staff	0.04585502	0.04585502	0.04641903

Source: Own production based on the results of the analysis